

Improving access to robust evidence for HIA

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Final Report to the Department of Health

Principal Investigator

Dr Jennifer MINDELL, Deputy Director, London Health Observatory and Honorary Senior Clinical Lecturer, Dept of Epidemiology & Public Health, Imperial College (now Clinical senior lecturer, Dept of Epidemiology & Public Health, University College London)

Co-investigators

Dr Michael JOFFE, Reader, Dept of Epidemiology & Public Health, Imperial College London

Dr Karen LOCK, MRC Research Fellow, London School of Hygiene and Tropical Medicine (now Clinical Lecturer in Public Health, LSHTM)

Professor Sarah CURTIS, Professor of Geography, Dept of Geography, Queen Mary's, University of London

Ms Annette BOAZ, Senior Research Fellow, ESRC Centre for Evidence-based Policy and Practice Queen Mary's, University of London (now Senior Research Fellow, ESRC Centre for Evidence-based Policy and Practice, King's College London)

Dr Jane BIDDULPH, Lecturer in Research Methods and Statistics, Department of Primary Care and Population Sciences, Royal Free and University College London Medical School

Additional co-author

Ms Lorraine Taylor, a member of the Steering Group, made substantial contributions to this report, as well as to the project as a whole.

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Executive Summary

Introduction

Health Impact Assessment (HIA) assesses the positive and negative effects of a project, programme or policy on health, and on health inequalities through the distribution of those effects. Many tools, guidelines and frameworks exist to assist in the conduct of HIA. This project does not set out to replicate any of this work, and is not a guide to conducting HIA.

HIA has been described as “*the use of the best available evidence to assess the likely effect of a specific policy in a specific situation*”. However, the current HIA methodology has been criticised for lack of rigour in collecting and analysing evidence. Three types of knowledge are combined in HIA: that provided by stakeholders, local data, and evidence from previous studies. This project considers the last of these.

A number of difficulties are acknowledged in reviewing evidence for health impact assessment (HIA). These include:

- the focus on complex interventions or policy proposals and their diverse effects on determinants of health;
- the consequent diversity of the questions to be addressed;
- the diversity of the evidence in terms of relevant disciplines, study designs, quality criteria and sources of information because of the wide range of interventions/approaches that may contribute to improving health, ie the need to search, obtain, and appraise a broad literature;
- the need for, but paucity of, evidence on the *reversibility* of adverse factors damaging to health (most evidence being of associations between factors and adverse effects, not studies of reversing these);
- the broad range of stakeholders involved;
- the need to seek evidence about potential impacts on inequalities as well as on overall effects;
- the need to apply health impact assessment within the realities of policymaking, planning and decision-making processes, which can often mean short timescales and limited resources generally available;
- the pragmatic need to inform decision-makers regardless of the quality of the evidence.

These factors have implications for the commissioning and conducting of reviews. There is a need to set standards and provide guidance to assure a quality product. Although there are many sets of guidelines and frameworks for conducting HIA, none address the issue of reviewing published evidence for use in HIA. Nor does existing guidance on conducting systematic reviews address these particular circumstances of HIA that cause difficulties with reviewing evidence, particularly the lack of time that would be required for conducting a systematic review.

The London Health Observatory, in association with London University academics involved in HIA and the former Health Development Agency, therefore undertook a Department of Health funded project within the Department of Health’s Policy Research Programme to improve access to robust evidence for HIA.

Aims and Objectives

The key aims of the project were:

1. to improve the evidence base for HIA by:
 - a. collating quality criteria for different types of evidence,
 - b. developing guidelines for robust reviews of evidence, and
 - c. piloting and evaluating the guidelines; and
2. to improve access to robust evidence for HIA by peer-review of existing reviews of evidence already undertaken and publishing quality-assured evidence reviews.

The guidelines were intended to be authoritative and of practical help in commissioning, conducting or assessing reviews of published evidence for HIA. They would be developed for both brief and more comprehensive reviews of evidence in HIA.

Methods

A small steering group was set up to manage the project. An Advisory Group comprising HIA academics, HIA practitioners, and experts in producing systematic reviews, was formed to help develop the underlying principles; comment on draft guidelines and advise the steering group. A set of principles for reviewing evidence for HIA and for development of the guidelines were agreed. Qualitative research examined the format and presentation of the guidelines. An extensive background document drew on published literature to initiate the development of the guidelines. Iterations of subsequent revised drafts were discussed by email by the steering and advisory groups and by other HIA practitioners and academics and by discussion at workshops at conferences. The steering group amended the guidelines in response to each round of consultation. Version 3.2 incorporated both the comments on content in response to circulation of earlier drafts and also the results of the qualitative research regarding format and presentation. Version 4 was piloted and version 5 peer-reviewed by HIA practitioners and academics who had not been involved with the guidelines' development.

The final version was applied to a selection of existing reviews of evidence which had been developed for use in HIA. The objectives were to increase access to existing reviews considered of sufficient quality to be useful in other HIAs and to assess whether the guidelines would assist in appraising whether such evidence reviews would be of wider use in other HIAs. These appraisals were conducted by volunteers in the public health field not involved with the project.

Results

In response to qualitative research, the terminology used was changed from 'rapid review' to 'brief review'; those containing more of the elements required for a systematic review were termed 'more comprehensive'. The 'guidelines' were renamed *Guide for reviewing published evidence for use in HIA*.

The 'final' version (6.2, Appendix H) is a 12 page, two-colour, A4 document. After two pages of introduction to the document, it uses three columns to state the minimum elements required in a 'brief' review; additional elements to make the review more comprehensive; and gives tips and links to useful resources. The target audience for the Guide is those commissioning, conducting or assessing reviews of published evidence for use in HIA.

Whereas most such documents deal either with qualitative or quantitative types of evidence, we have developed a Guide that combines the two in a single document. We also included references to a range of other existing sources and created some additional documents - including a glossary, a review of approaches to assessing causality, and a document on quality criteria for appraising published studies - as an introduction to some of the concepts and tools required in appraising published literature.

Use of the Guide requires an understanding of critical appraisal. During the project, it became obvious that, rather than additional quality criteria (most types of work are covered by existing guidance), HIA practitioners need help to find quality criteria relevant to the type of study they are evaluating and advice on how to interpret what were sometimes rather contradictory advice from sources dealing with different types of evidence. We therefore tried to distil some simplified advice and to provide a comprehensive list of gateways to alternative sets of criteria with some advice about the circumstances under which each is likely to be useful.

Five existing reviews used in HIA were identified and appraised using version 6.1 of the Guide. Although each review had some flaws, four of them were considered of sufficient quality to be made more widely available through the LHO website.

Discussion

The qualitative research sub-project was a very useful contribution. Our concerns about the variable quality of the evidence base currently available for HIA were echoed by participants in the qualitative research. Their comments shaped the format of the final Guide and much of the content of the introductory pages, particularly the creation of a figure to identify which type of 'evidence' the Guide addresses.

The methods used to develop the Guide – consultation with those in the HIA and systematic review field - made a difference to the content and form of the Guide, as can be seen when the first draft is compared with subsequent and the final versions. Contributors included academics in the systematic review field, who made many useful suggestions for steps that had been omitted or dealt with inadequately (such as inclusion and exclusion criteria) and links to existing resources, and HIA practitioners, who ensured that the Guide was rooted in reality of conducting HIAs in England, was written in simple English, and was clear. The iterative process of refining drafts in the light of written peer review as well as successive conference presentations proved to be extremely valuable, and many alterations were made as a result. This was, however, a difficult process to manage.

We believe that the Guide itself is a valuable document. It has been deliberately written in user-friendly non-technical language, and presented in a succinct and attractive format. It is designed especially for the HIA context, primarily with practitioners in mind. This is important, because HIAs are often carried out by people who are neither specialists in HIA as a process nor the particular topic area of the HIA, and to a tight timescale. Our aim has been to reduce the burden on such people for the part of the task that is related to evidence so that they can focus on other aspects, as well as to improve the evidence-related aspects of the ensuing HIA. In addition, we consider that these qualities mean that the Guide will be equally useful for others involved in HIAs, including those who commission them.

Unanticipated delays and timeliness were difficult issues for this project. These related to the project design, being dependent on volunteers for certain aspects of the study, and underestimating the time required for each iteration when developing the Guide. Although the agreed processes were undertaken, there were changes from the original timetable, which were agreed with the Department of Health.

Several interviewees in the qualitative research mentioned that a key problem was the absence of evidence. Identifying and appraising four reviews considered of sufficient quality to be of use to others conducting HIA and making them available through the internet is therefore a valuable contribution of this project. Most respondents in the qualitative research were keen that practical examples of how the guidelines have been used in practice should be available. Placing existing reviews on a website along with appraisals of them using the Guide will therefore help interested practitioners examine practical examples.

The assessors' reports show that it is possible to use our guidelines to make a critical and structured appraisal of an existing review and judge its quality. One issue that arose was how to ensure the quality of appraisals of literature reviews. Good appraisals should be balanced in both tone and content, and provide both positive and negative comments on aspects of the review. This can help to feedback and change the practice of conducting literature reviews for HIA in the future by identifying consistencies in both the pattern of problems and consistent good practice.

This project illustrates some wider issues with respect to barriers to knowledge transfer and encouragement of evidence based practice in public health and related fields of work. The research outlined above showed that practitioners in the field often report that existing toolkits and guidelines (which are theoretically sound and well regarded by experts) are in some ways inappropriate for their needs. This project is unusual in that it focused specifically on what practitioners find difficult when trying to take an evidence based approach in everyday work situations. Specifically, we found that capacity to review and synthesise research findings is quite limited. The problems are at least in part due to very practical issues of presentation and communication of principles and procedures. A real commitment to knowledge transfer which would enable practitioners to adopt an evidence based approach to their work on routine basis will require a considerable advance in capacity building to give the workers concerned the skills to do this effectively and efficiently and/or development of guidelines which are very well adapted to their needs. The development process we have followed to produce these guidelines for HIA literature reviews illustrates the issues which need to be addressed to achieve this and may also demonstrate a more widely applicable approach which involves a wide range of stakeholders from the outset.

The report concludes by outlining potential future research building on this project.

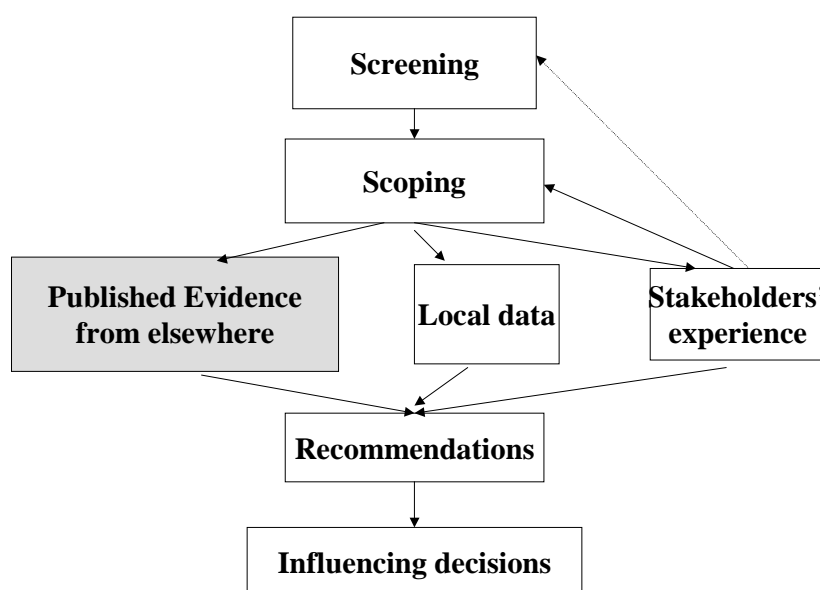
1 Introduction

Health Impact Assessment (HIA) assesses the positive and negative effects of a project, programme or policy on health^{1 2 3 4}, and on health inequalities through the distribution of those effects.^{5 6} The health status of an individual is determined primarily by a range of policies outside the jurisdiction of health services or health ministries.^{7 8} 'Health in other policy areas' is therefore a major focus for HIA. Many UK government departments have issued policy documents that indicate the importance of HIA.^{9 10 11 12 13 14 15} Consideration of the health impacts of policies has also been encouraged across Europe.^{16 17 18} While evaluation examines the extent to which objectives were achieved,¹⁹ HIA aims to identify all potential health impacts, both intended and unintended. Currently, most HIA takes the form of rapid prospective appraisal of likely outcomes of proposed changes rather than examining policies and interventions while in progress or after completion.

Many tools, guidelines and frameworks exist to assist in the conduct of HIA.^{5 13 20 21} Some provide support from start to finish^{22 23 24}, while others focus on certain elements alone.^{25 26} This project does not set out to replicate any of this work, and is not a guide to conducting HIA.

HIA has been described as *"the use of the best available evidence to assess the likely effect of a specific policy in a specific situation"*,^{27 28} leading to comparisons with evidence-based medicine. Systematic reviews, the main tool of evidence-based medicine, can be very useful inputs into decision-making, objectively summarising relevant information to identify likely effects of interventions and gaps in the evidence. Both policy-makers and consumers can use them to aid their own decisions.²⁹ The 2004 Global Ministerial Summit on Health Research identified the need to increase access to *"reliable, relevant, up-to-date evidence on the effectiveness of interventions"*³⁰

Figure 1. An outline scheme for health impact assessment, showing the place of 'evidence'



However, the current HIA methodology has been criticised for lack of rigour in collecting and analysing evidence^{31 32}: the quality of the evidence base currently available³³ may limit the soundness and completeness of the conclusions, and consequently the capacity to achieve health gain. Thus, the policy drive to encourage HIA may have unintended consequences that are counterproductive: if it comes to be perceived as ineffective, and therefore wasteful of resources, it will gain a poor reputation and will no longer command support.³⁴ Three types of knowledge are combined in HIA: that provided by stakeholders, local data, and evidence from past studies (see figure). This project considers the last of these.

Reviewing evidence for use in health impact assessment (HIA) presents a number of challenges that may differ from, or be less common with, other purposes for which evidence is collated. These complexities have been rehearsed in detail in a peer-reviewed paper³⁵ by members of the steering and advisory group, based on a workshop held before this project began. In summary, these difficulties include:

- the focus on complex interventions or policy proposals and their diverse effects on determinants of health;
- the consequent diversity of the questions to be addressed;
- the diversity of the evidence in terms of relevant disciplines, study designs, quality criteria and sources of information because of the wide range of interventions/approaches that may contribute to improving health, i.e. the need to search, obtain, and appraise a broad literature;
- the need for, but paucity of, evidence on the *reversibility* of adverse factors damaging to health (most evidence being of associations between factors and adverse effects, not studies of reversing these);
- the broad range of stakeholders involved;
- the need to seek evidence about potential impacts on inequalities as well as on overall effects;
- the need to apply health impact assessment within the realities of policymaking, planning and decision-making processes, which can often mean short timescales and limited resources generally available;
- the pragmatic need to inform decision-makers regardless of the quality of the evidence.

These factors have implications for the commissioning and conducting of reviews.

An important aspect of HIA is that it involves interpretation of research evidence by users who are not themselves professional scientific researchers and cannot be expected to quickly assimilate all the knowledge and competencies upon which researchers draw when using evidence. In the longer term, rather than waiting until a systematic review is required for a specific HIA, there are calls for systematic reviews to be conducted proactively³⁶ and to be made available via the internet to expedite robust local HIA. Such reviews of evidence are useful not only for HIA but also for other studies of policies, determinants of health and health outcomes. Most topics considered within an HIA are not specific to that particular assessment, but are similar to the topics of many other HIAs carried out elsewhere, providing the opportunity to develop an “off-the-shelf” evidence base, starting with areas that are

frequent topics for HIA, such as regeneration and transport. Such reviews are likely to be carried out by a variety of reviewers for a range of purposes.

However, 'rapid' reviews will continue to be performed pragmatically until a full range of up-to-date systematic reviews is readily available. It is important that these are of sufficient quality to ensure that valid recommendations can be based on them: minimum quality standards are needed to reduce the risk of poor quality, inappropriate and weak recommendations being given in HIA.

There is a need to set standards and provide guidance to assure a quality product, analogous with the Cochrane collaboration. Regional and national discussions³⁷ demonstrated widespread enthusiasm for such work: improving the evidence base used within HIA should lead to greater effectiveness of HIA as a process.³⁸

Although there are many sets of guidelines and frameworks for conducting HIA,^{20 21} none address the issue of reviewing published evidence for use in HIA. Existing guidance on conducting systematic reviews did not address the particular circumstances of HIA (listed above) that cause difficulties with reviewing evidence, particularly the lack of time that enables a systematic review.

The London Health Observatory in association with London University academics involved in HIA and the Health Development Agency, therefore undertook a Department of Health funded project within the Department of Health Policy Research Programme to improve access to robust evidence for HIA.

2 Aims and objectives

The key aims of the project were:

1. to improve the evidence base for HIA by:
 - a) collating quality criteria for different types of evidence,
 - b) developing guidelines for robust reviews of evidence, and
 - c) piloting and evaluating the guidelines; and
2. to improve access to robust evidence for HIA by peer-review of selected existing reviews of evidence already undertaken and publishing quality-assured evidence reviews.

It was intended that the guidelines for reviewing the evidence for HIA would be authoritative and of practical help in commissioning, conducting or assessing reviews of evidence for HIA. It was intended to develop guidelines for both systematic and rapid reviews of evidence.

3 Method

3.1 Governance and management

Membership of the Steering Group is listed at Appendix A. The Steering Group has met approximately quarterly, with email discussions between times.

The first task of the steering group was to organise an Advisory Group, whose membership is listed at Appendix B. Experts were identified and some were invited to pilot the guidelines or to peer review them at later stages of the project; those accepting were not invited to be on the Advisory Group to ensure independence of the different processes. The Advisory Group was consulted electronically about the underlying principles (sections 3.2 below) and subsequently on drafts of the guidelines. They were also informed or consulted about significant changes, with reasons given.

The project was managed by Dr Jennifer Mindell. Administrative support was organised by the London Health Observatory.

3.2 Underlying principles

A questionnaire was sent to the members of the Advisory and Steering Groups. A set of principles was prepared, circulated for comment, then agreed.

3.3 Qualitative research on format and presentation of guidelines

3.3.1 Research Objectives

To help ensure that the guidelines would be as accessible and user-friendly as possible for the target audiences, research was undertaken to determine the most practical, relevant and motivating format and presentation in which to communicate the guidelines. Additionally, research was needed to explore attitudes and motivations in relation to whether the guidelines for systematic and rapid reviews of evidence should be presented separately or alongside each other.

In more detail the objectives of the qualitative research were to:

- elicit and evaluate general attitudes about the format and presentation of guidelines;
- explore attitudes and motivations to proposed alternative types of format and presentation of the guidelines for reviewing evidence for HIA;
- assess similarities and variations between the different target audiences in their attitude to the format and presentation of the guidelines for reviewing evidence for HIA;
- determine the relative benefits and disadvantages of separate or combined communication of the guidelines for systematic and rapid reviews of evidence ; and
- elicit and explore particular terminology that should be used or avoided in communicating the guidelines.

3.3.2 Research Method

In order to meet the research objectives it was recommended that a qualitative research approach be used as this would help achieve a full understanding of attitudes and motivations in relation to format and presentation. Individual, in-depth and face-to-face interviews were considered the most appropriate qualitative research method given the practical realities of undertaking research discussions amongst a geographically dispersed sample with very busy work schedules.

Research sample

It was proposed that to be representative of the target audiences for the guidelines (those commissioning, conducting or assessing reviews of evidence for HIA), the research sample include respondents from each of these three professional categories. Additionally, it was suggested that the research sample include a geographical spread of respondents in terms of location of Primary Care Trusts (PCT)/local authority. In order to include a cross-section of respondents by employment sector, it was also proposed that across the sample there be at least one representative each from a local authority, a PCT and the independent sector. Purposive sampling was therefore used.

The London Health Observatory recommended three locations on the basis of suitability and access – London, Birmingham and Cambridge – and helped the researcher identify people within those areas with interest in HIA. The Health Development Agency's HIA Gateway website was the main source of information on individuals in those areas, supplemented by the steering group's personal knowledge to help identify individuals with different degrees of expertise and different professional backgrounds or employment environment.

Prior to the interviews being conducted, respondents were contacted and recruited by the researcher. The purpose and form of the research was explained and an interview date and time arranged with those who were willing to be interviewed. Respondents were then sent a letter from the London Health Observatory thanking respondents for their agreement to participate in the research and explaining broad details of the project to improve access to robust evidence for HIA.

Ten HIA practitioners were interviewed by Francesca Taylor, an independent Research Consultant, in February 2004. Interviewees were selected to elicit views from a wide range of practitioners who varied by geography, job types, and professional background to obtain a range of degree and type of experience of HIA, and working in a range of organisation types (health services, local government, and an independent HIA practitioner).

Table 1 below shows the structure and number of interviews that were achieved, amounting to 10 in total. Further details of the participants are available in the full report of the qualitative research.³⁹ The interviews each lasted about one-and-a-quarter hours. This time-span was judged both acceptable to respondents and sufficient to enable all the research issues to be adequately covered in discussion. All interviews were tape-recorded with the respondents' agreement.

The type of questioning adopted was semi-structured, designed to achieve the research objectives, but within the context of a fairly flexible discussion format. Although a detailed topic guide was followed to focus the discussion, open-ended questions were also used to allow respondents to express their thoughts and feelings, and to describe their attitudes and

motivations in their own terms and vocabulary. The research stimulus used comprised the principles agreed as the basis for the guidelines (section 4.1 below) and the final two boxes of the background paper (Appendix C) on which the first draft of the guidelines were based.

Table 1. Format and Presentation Research Sample Structure

	Cambridge	Birmingham	London	Total
HIA Reviewer of literature	1	1	1	3
HIA Commissioner	1	1	1	3
HIA Practitioner	1	1	2	4
Total No. Interviews	3	3	4	10

To understand feelings and attitudes about format and presentation it was recommended that respondents first consider and talk about the issues conceptually. This meant listening to respondents and what they said spontaneously about format and presentation, what they considered from their experience likely to work and not work, what they felt is necessary and what should be avoided. In addition, it was proposed that the researcher should input or reveal specific ideas and suggestions about format and presentation as points for discussion – to see which resonate and have most potential and appeal. It was also recommended that a small section of the draft guidelines be used as stimulus within the discussions to provide a contextual framework for further exploring views and attitudes about format and presentation.

Towards the end of the research interviews, the key principles being taken into consideration in compiling the guidelines were revealed to respondents. Although not specifically related to the research objectives, it was judged a useful forum to ask respondents their thoughts and views, particularly as to whether there should be any changes or additions.

3.4 Developing the guidelines

3.4.1 Version 1

The initial stage of the work required that the research team agree upon a reasonably succinct set of draft guidance, which, in subsequent stages of the project, would be the subject of appraisal and modification by the various expert advisors engaged in the project. Ultimately we aimed to produce a version which would reflect this breadth of expert opinion. A meeting of the steering group prior to commencement of this project had agreed a statement of the main reasons why the guidelines were needed (section 1 above, expanded on in Mindell et al, 2004) and the principles upon which the draft guidelines should be based (section 4.1 below).

We had considered developing guidelines using an approach purely grounded in views of potential users, but we felt that this would be likely to ‘reinvent the wheel’, given that various methods and guidelines for reviewing evidence already exist. Also non-experts were more likely to be able to respond to an example of possible guidelines than to describe what they needed with no model to comment on. Although this project repeatedly demonstrated the

necessity for the guidelines to be concise, the steering group agreed on the need to base them on a more extended statement of principles and precursors.

The steering committee requested one member of the team (SC) to produce a background paper and proposals for the first draft of the guidelines, based on a rapid review of relevant research publications on evidence based public health policy, paying particular attention to three existing sets of guidelines for research reviews which had been recommended by our expert panel. This background paper was based on an overview of several existing sources^{40 41 42 43} which were chosen for their relevance to reviewing and appraising evidence of the types most frequently found when searching published literature for use in HIA: they discuss approaches to systematic review of literature in the public health field^{40 41 42} or provide a framework for assessing the quality of qualitative evaluations.

This background paper gave the rationale for developing the guidelines; summarised existing knowledge about reviewing evidence in a scientifically robust manner to provide the background to methods for reviewing published literature; and ended with a section that formed the basis of subsequent discussion and development of the guidelines. The full document can be found as Appendix C of this report.

A meeting of the research team considered this background paper and made recommendations for a short version of initial draft guidelines which would incorporate the principles and key points for good practice in reviews, adapted to the requirements of rapid reviews for HIA. From this document, the last two boxes, summarising the requirements for systematic and rapid reviews, were adapted to form version 1.1 (Appendix D). This first version of the guidelines subsequently underwent various stages of review and revision, based on input from a range of expert advisors. The project proceeded to refine and develop the guidelines in the light of responses to an extensive consultation with experts and practitioners.

We used a modified Delphi technique to develop the guidelines through a process of iteration and feeding back.

The first draft of the guidelines was also shown to each participant in the qualitative research, towards the end of the semi-structured interviews (see sections 3.3 above and 4.2 below). They were also circulated to the Advisory Group. Four members sent comments, which were collated by KL. One other member of the group replied that she had no further comments to make beyond those made on the Principles document. An additional three responded that they did not have time to review the first draft of the document immediately, but would comment on later drafts. We discuss in the results section below the outcome of these consultations and the key issues that emerged as important requirements for guidelines of this sort.

3.4.2 Quality criteria for reviews of evidence

An open workshop was held at the International Association for Impact Assessment (IAIA) conference Vancouver, April 2004, to discuss quality criteria for reviews of evidence for HIA. Some of the questions raised in the discussion of version 1 were also addressed. The participants' responses are summarised in Appendix E.

3.4.3 Drafting Version 2

A second draft of the resource was developed in Excel by KL and JB. The developments were based on work on the content of the guide by members of the steering group and discussions with HIA stakeholders at the IAIA workshop (Appendix E), and the results of the qualitative research on presentation (section 4.2 below).

The second draft was circulated to the steering group for comments, then amended after discussion at a meeting of the steering group. Version 2.2 was then circulated widely by email in early August 2004, with a deadline for comments of 15th September. A further reminder was sent to the Advisory Group on 7th September 2004. In addition, version 2.2a (which started with the disclaimer required by the Department of Health) was sent to a wider group of interested individuals. This included people who had heard about the project via a conference or through other media and had requested inclusion in the consultation process; and through invitations made to all participants at HIA training courses organised by any of the three main English centres over the previous two years and to those on two national e-mail lists.

3.4.4 Drafting Version 3

Comments received were collated and discussed by the steering group and the third draft prepared.

A second workshop was held at the 6th UK HIA conference in Birmingham, October 2004. Participants were given copies of an updated version of the third draft of the resource (version 3.0). The workshop asked different small groups for comments on the content and working of the various sections. They were also asked what changes, if any, would be needed for the resource to be used when commissioning or appraising reviews compared with the draft version intended for those conducting a review.

Following these discussions, the resource was amended by the steering group in November 2004. This amended draft (version 3.1, still in Excel) was then circulated to the same participants and to the Advisory Group in November 2004.

Comments from both groups were incorporated into version 3.2, which was then designed and converted into a pdf file to improve the presentation. This was circulated to the Steering and Advisory Groups in December 2004 for further comments.

3.4.5 Drafting Version 4

Version 4.0 was prepared by JM, incorporating comments for which no discussion was required, such as corrections of typographical errors and adding further resources and their URLs. The resulting pdf was circulated to the steering group. The member of the Advisory Group who had recommended inserting an extra section on *Inclusion and exclusion criteria*, was invited to draft this, which he did.

The steering group met in February 2005 to consider the more complex comments received on version 3.2. Changes were incorporated into a revised pdf, version 4.1 (inherently the same as version 4.0 but with some typographical errors corrected).

3.5 Piloting version 4.1

Although this project was primarily intended to produce a resource for use in England, the process was intended to be so participatory that to ensure that the people piloting or peer-reviewing the resource had not been directly involved in its development (to avoid lack of impartiality), it was necessary to involve experts from other countries. Furthermore, colleagues from other countries had shown great interest in the resource, so it was felt that the resource could have a wider audience. This would be of advantage to English HIA practitioners and academics if the resource improves the quality of literature reviews undertaken for HIA and enables a larger set of 'off-the-shelf' reviews to be available for use in HIAs in this country, that, for example, explicitly address transferability or generalisability of findings to other settings. This approach also ensured that different views concerning the use of the resource for application in HIA were elicited.

Version 4.1 was sent at the end of March 2005 to five individuals who had been asked at the start of the project if they would pilot the resource once it was produced, and had agreed to do so. The five individuals were:

- a consultant in public health medicine in the north of England, who had been involved in a number of HIAs,
- a public health specialist who was an experienced HIA practitioner,
- an HIA practitioner who had both extensive experience of conducting HIA within a local government setting and of national government
- an experienced HIA practitioner from the National Institute of Public Health in The Netherlands, and
- a public health specialist with the World Health Organisation (European Regional Office), who worked on HIA of transport policies.

They were selected because public health professionals and HIA practitioners are, in general, the two main groups who conduct HIAs and particularly, those who review evidence for use in HIA.

In addition, four additional offers were received:

- An Australian participant in the Birmingham workshop offered to pass the draft resource to her colleagues who commission HIAs and literature reviews for these, to gain their perspective, as it was intended that the resource should be of use to those commissioning or appraising reviews, as well as to those undertaking reviews themselves.
- A colleague who ran an HIA course during which students were required to produce a literature review provided them with the draft resource for them to use and asked for feedback.
- A draft version of the resource was used by two volunteers who contacted us because they knew of the guidelines' development. They offered to pilot the draft guidelines as they were each about to conduct a literature review for use in HIA. They were not the 'official' pilots as they had not been identified at the start of the project and one had been involved in commenting on an early version.

Those agreeing to pilot the resource were sent version 4.1 and a set of questions to answer. No instructions were provided to those piloting the resource about how to use it or for what purpose, in order to mimic real-life situations where HIA practitioners would be using it as a stand-alone document for a range of purposes, including commissioning evidence reviews, conducting a literature review, or appraising an existing review for use in a specific HIA.

To fulfil the second objective, the resource was used for appraising reviews. Comments from the appraisers are being included in this report, section 4.8.2.

3.6 Peer review of version 5

Version 5.0 was produced in August 2005 in response to the comments from those piloting version 4.1 (section 4.4 below). This was circulated to the steering group and a few minor amendments made.

Version 5.1 was sent to four experts to peer review the resource in September 2005. As with those invited to pilot the resource, they had been asked at the start of the project whether they would peer review the resource, and were not invited to join the Advisory Group. All were well-known in the field of HIA but only one was from England, because of the wish to exclude these individuals from being a member of the Advisory Group. The four individuals, who have all published work on HIA, were:

- a senior public health physician with both an academic and practical interest in HIA;
- two experienced HIA practitioners who lead national programmes in other countries in the UK; and
- an Australian academic with extensive HIA experience.

3.7 Appraisal of existing literature reviews

The second objective of this project was to improve access to robust evidence for HIA by peer-review of existing reviews of evidence already undertaken and publishing quality-assured evidence reviews. A secondary result of this part of the project was to test the developed resource in practice as a tool for appraising existing reviews.

3.7.1 Identifying reviews and people to appraise them

This part of the project was not possible until the final version of the resource was produced. The Advisory Group and members of the HIA e-network (JICSmial) were asked for volunteers to appraise existing reviews and for suggestions of existing non-peer-reviewed reviews (brief or more comprehensive) for appraisal. Initial requests in advance of the resource being ready, in 2004 and 2005, met a disappointing response. However, a further request through HIANet JICSmial at the start of 2006 resulted in a number of reviews being offered for appraisal and in individuals with academic or practical experience of HIA volunteering to undertake the appraisals.

3.7.2 Appraisal method

The appraisers were sent a pre-selected literature review to appraise and the 'final' version of the resource (called the Guide), which was the tool they were asked to use for their appraisal. They were asked to judge the review against the elements recommended for a 'brief' review

plus any additional elements from the 'more comprehensive' column that were relevant. In addition, they were asked whether the review was 'of sufficient quality' (ie good enough for others to use) to be made widely available (see Box 1).

Box 1. Instructions for appraising existing reviews

Please use the attached Guide (sent in confidence - not for further dissemination) to review the attached review.

Please consider each step, describing what they did, what they did well / less well / omitted and how it affects the reliability of the conclusions plus an overall comment.

Please assess it against the recommendations for a 'brief' review plus any additional elements that are relevant.

Please also consider whether the review is 'of sufficient quality' (ie good enough for others to use, even if imperfect) to make it widely available via HIA websites in England.

Authors of reviews were then sent the comments received in the appraisal and were given an opportunity to respond prior to decisions or actions by the steering group.

Box 2. Questions to review authors when sending appraisal of their review

Attached please find an appraisal of your review.

1. Do you give permission for us to put the review on the LHO website (&/or the new HIA gateway website when available) together with the appraisal?
2. Would you like to respond to the appraisal - eg to explain what was done or why it was / wasn't done?

Please reply (and send any response) by <<date>>.

Authors of reviews considered of sufficient quality were asked for permission to post the review together with the appraisal of the review on the London Health Observatory's website.

4 Results

In the following sections we report:

- the underlying principles that we identified for the resource, based on the review of other work in this field (section 4.1);
- the findings of the qualitative consultation with potential users of the resource which illustrated their main concerns and perceptions of what was required, which helped us to revise and refine these principles (section 4.2);
- findings from further consultation of the revised resource with users and experts (section 4.3)
 - organization and specific content
 - changes in terminology to facilitate clear communication
- lessons learned in the process of piloting and revising the resource (sections 4.4 & 4.5)
- the final resource (the Guide) and other outputs (sections 4.6 & 4.7)
- application of the Guide to appraisal of existing evidence summaries (section 4.8); and
- the extent of wider involvement in the project and plans for future dissemination (sections 4.9 & 4.10)

4.1 Underlying principles for the resource

From the background working paper and responses to a questionnaire to the Advisory Council, the following underlying principles for the resource were agreed:

1. We attempt to be systematic in synthesising evidence because of a desire to avoid drawing the wrong conclusion about the balance of benefit and harm. Properly conducted systematic reviews are therefore the gold standard (which, when completed, can be used by others as a source of information).
2. In addition to difficulties in searching a broad literature, the specific tools for appraising quality of primary studies and methods for synthesising the evidence will differ depending on the types of research (eg epidemiological studies, evaluation of uncontrolled interventions, qualitative studies). The types of research available or of relevance, and therefore the appraisal tools and methods for synthesis, will depend on the specific question being addressed.
3. In the real world of conducting HIAs, a pragmatic approach to reviewing the evidence is required because of limited resources (staff, skills, and/or time). This often necessitates a 'rapid review', conducted over days or sometimes weeks. While not fulfilling criteria for systematic reviews, some standards will be helpful to encourage good practice.
4. This project will not 'reinvent wheels'. It will draw on existing evidence guidelines and quality criteria wherever possible, collating them to be easily retrievable. It will also draw on methods of rapid review that already exist - e.g. those used by people doing NICE reviews and others.

5. The process of developing the guidelines for systematic and rapid reviews of evidence for use in HIA will be transparent and inclusive of practitioners, academics and those experienced in synthesising evidence.
6. The process used in conducting a review must be explicitly described. As the final decision depends on the quality of evidence behind it, the report of the evidence must also be explicit about the quality of the evidence and any limitations of the review.
7. A review must also be explicit about how generalisable the evidence is, ie how the review can be used to extrapolate from the evidence to the specific HIA, and whether, and with what constraints, it is possible to quantify potential impacts.

4.2 Qualitative research

4.2.1 Summary of results and key recommendations

- In general respondents perceived there to be significant value in devising guidelines for reviewing the evidence for HIA. However, there were divergent views as to the practical benefits. Less experienced HIA practitioners were enthusiastic about having guidelines that will provide a helpful guide on the process of how to review evidence for an HIA. By contrast respondents more experienced in commissioning, reviewing or conducting HIAs perceived the value of the guidelines more in terms of establishing quality standards for reviewing evidence.
- Although respondents recognised the difficulties of devising a format and presentation approach that appeals to all target audiences, their preference was for a single approach rather than the adoption of different styles dependent on the end user. It was argued that adopting a single format and presentation would avoid any sense of a hierarchy of approach amongst practitioners, whether they are professional public health specialists or community workers. Use of a common format also reduces the likelihood that some reviews of evidence for HIA be dismissed as having less quality or value because they did not employ the guidelines targeted to 'professionals'.
- The most practical and motivating format for the guidelines was judged to be a good practice approach rather than a checklist of procedures, a step by step toolkit or set of rules and instructions. Significantly, a good practice type of format for the guidelines has relevance and appeal to both respondents that emphasise the value of the guidelines as being to help them review evidence, as well as those that want standards established for reviewing evidence for HIA. The former warmed to the idea of good practice guidance because it is thought to an accessible format that has practical value emanating from real life experience. The latter were amenable because they believe that the standards for evaluating evidence for HIA will not be viable and authoritative if not based on best practice evidence, or at least good practice from what has been learnt to date.
- Overall, respondents were insistent that the guidelines be presented in a discrete format solely focused on providing a guide to reviewing evidence. They should not be made more lengthy and cumbersome by being combined with practical examples or background evidence. Respondents argued that the guidelines themselves should be as simple, short and pithy as possible, enabling readers to gain quick and easy access to practical information. However, to meet the various interests of different respondents across the

sample in terms of background and expertise, there would need to be clear links to both practical examples of the guidelines in use, and evidence to support the underlying theory of the guidelines.

- Respondents identified a number of ingredients that could help enhance the potential of the guidelines to be accessible and user-friendly. These included firstly, use of short sentences and paragraphs. Secondly, compact and well-spaced bodies of text clearly separated by use of white space. Thirdly, employing colour to signify different sections or types of information. Fourthly, using headlines, bullet points and summaries to help ease of navigation.
- The consensus view was that the guidelines for systematic and rapid reviews of evidence should be presented separately rather than combined. This would enable practitioners to clearly distinguish between the two. Respondents were also keen that the guidelines for systematic and rapid reviews be presented side-by-side rather than consecutively in order that it be visibly apparent what are essential and therefore common steps in the review process, and where if necessary it is possible to undertake a more rapid approach.
- Several respondents had concerns about use of the terms 'systematic' and 'rapid'. The main misgiving articulated was that 'rapid' in relation to 'systematic' could suggest a review that was not properly conducted and therefore of poor quality. It was felt this might suggest to some practitioners that a 'rapid' review be not worth undertaking since it could be discredited by decision-makers. It was clear that if the terms were to be used, the reasons for having 'systematic' and 'rapid' reviews needed to be fully explained, as well as clear support and justification for the value of 'rapid' reviews so that they would also command respect.
- Respondents across the research sample argued that the guidelines should be made available on the Internet to be immediately accessible to as broad a range of practitioners as possible. They were not worried about whether the guidelines were available on one or more web-sites. More emphasis was put on the need for good web links to be able to quickly and access the guidelines from a wide range of web-sites. Most research participants expressed a preference for having the guidelines immediately available on screen and in both Word and PDF downloadable formats. There was also enthusiasm voiced for an interactive web-site.
- Although some respondents considered a hard print presentation of the guidelines unnecessary, others were very keen to have this type of format, especially practitioners working with local communities. A soft-backed, slim, A4 booklet with matt pages was the most popular choice of hard print presentation.
- There was considerable support for regular updating of the guidelines. It was felt that updating is essential given that HIA is a relatively new methodology, constantly developing in response to new learning from the field. Updating would also ensure that the guidelines remained 'cutting edge', relevant and dynamic.
- Since respondents perceived language as a key determinant of whether or not the guidelines would be judged accessible and user-friendly, they felt it essential that the guidelines be written in plain, simple English. It was stressed that academic and subject specific terms should be avoided. A glossary or index of terms was also thought helpful,

especially for those practitioners less experienced in reviewing evidence. Authoritative and didactic, without being overly prescriptive, was the preference with respect to tone of voice.

- 'Guidelines' was accepted by most respondents as a relevant and accurate term for the resource for reviewing evidence for HIA. However, some respondents felt that referring to them as 'guidelines' might create some confusion with guidelines for conducting HIA, and other forms of guidelines already developed for other purposes, especially if the terms 'systematic' and 'rapid' were also used.

The full report of the qualitative research was sent to the Department of Health in both electronic and paper format in March 2004. It is available on the LHO website at www.lho.org.uk/viewResource.aspx?id=8859.

4.3 Development of the draft resource

4.3.1 Development of the background paper and first resource

The background paper can be seen in Appendix C. It outlines the material considered and explains the basis on which the initial version of the resource was drawn up. The document summarised the main messages from existing literature and review guides about how to interpret and present review material. It also discussed the limitations presented by rapid reviews of diverse evidence bases, and the limitations of the evidence they provide when they are less stringent than the 'gold standard'. Key dilemmas raised by our project were as follows:

- HIA often requires rapid reviews, and if the research results available are limited, it may be necessary to draw on information that may not fit all the 'gold standard' criteria required by formal systematic reviews. This means that existing review guidelines designed for systematic reviews of randomised control trials are not completely appropriate for HIA.
- It is often necessary to make a balanced and justified summary of evidence which is limited, or of variable quality. The first version of the resource was intended to be relevant for rapid reviews for HIA, which aim to provide reasonably reliable reviews from the available evidence in less time than is required for a systematic review.
- HIA needs to draw on both quantitative and qualitative research findings whereas most existing guidelines for reviewers relate to one or the other, but not both. We aimed to draw out the most important principles relevant for qualitative as well as quantitative research findings.
- Reviews for HIA also need to be comprehensible for a range of different stakeholders who need to use the evidence and reviews may be prepared by participants in HIA who are not professional researchers. Many of the existing guidelines are designed for experienced researchers and to complement these, we aimed to present our guidelines in very plain English which would be straight forward for non-specialists to understand.

We considered conducting a more extended review of other guidelines, not covered in detail in the background paper. However, we had already reviewed these in compiling the bid for funds and we had selected for discussion in the background paper the most relevant review

guidelines from the HIA perspective. We decided to build into our resource for HIA reviewers references to these other guidelines, since these would be of value for HIA practitioners who had resources and capacity for detailed reviews of fields of the literature which were not already covered by existing reviews. We agreed that often a more crucial requirement for HIA practitioners was to be able to make an assessment of the quality of existing reviews and to interpret evidence based on a variety of evidence. A key indicator of the need for a specific resource for HIA practitioners would be the reactions of specialists in this field to our draft document. We decided to proceed to produce a concise, practical document for this purpose, drawing partly on key elements of the background paper.

4.3.2 Synthesis and discussion of comments received on first draft of resource

Based on the qualitative survey of potential users and the discussion in the steering group meetings, we agreed on some revisions to the resource.

Approach and Content

It was suggested that we may want to consider taking a 'Good practice' approach rather than a checklist or 'set of rules' which the survey had shown could 'paralyse' good practice when they were difficult to implement. However, before we did this we would need to look at the methodological background to 'good practice' and creating guidance.

The resource needed to establish quality standards for reviewing evidence; both to appraise existing reviews and to assist when conducting/ commissioning new reviews. Respondents were uncertain whether both of these uses would be possible within the same set of guidelines.

Ideally two sets of guidelines for systematic and rapid reviews could be presented 'side by side'. This would allow clear explanation of the differences between approaches and avoid repetition. It was felt that for both guidelines the quality standards should be the same, it is the threshold that would be different (i.e. the level of research required). A solution we moved towards in later revisions was to 'prioritize' advice according to whether it was something essential for all reviews, as opposed to a criterion which would ideally be applied, especially in reviews seeking a highly rigorous approach, but which might be dispensed with in rapid reviews provided that there was acknowledgement that this might represent a weakness in the review.

There was a need to ensure that the resource included suggestions on how to include the grey literature but uncertainty whether this was a matter of simply applying the same quality appraisal criteria after applying a good systematic approach to searching for all relevant sources of evidence. It should not be assumed that publication is a valid measure of quality.

It was also suggested that perhaps there is a need to better understand why guidelines are needed as the rationale for how they are developed. For example, in addition to the background document, it was suggested that the next draft should incorporate why guidelines for reviewing epidemiological or clinical literature are conceptually different to existing guidelines for reviewing published evidence. This requires an understanding of application to real life circumstances (e.g. confounding and interaction have to be dealt with - as changing one risk factor normally brings about changes in many risk factors although this is rarely dealt with in epidemiology).

Finally, respondents recommended including a clear discussion of how 'broad health outcomes' (e.g. wellbeing) or determinants of health (e.g. economic policy) would be included. These endpoints are difficult to measure and are not amenable to classic epidemiological methods.

Format

Respondents' comments in general agreed with the conclusions of the qualitative research:

- The resource should be a discrete format solely focused on providing a guide to reviewing evidence quality (i.e. any background theory and practical examples should be provided separately in a linked source)
- There should be a single approach to both 'full' and 'rapid' reviews for all end-users.
- The layout and the language should be simple, using short, pithy with simple sentences and paragraphs ('use plain , non-technical English').
- There should be a glossary to explain all terms.
- The resource should be available on internet in downloadable forms; a short printed booklet would also be useful.
- Consideration should be given to avoiding the term 'rapid'. ('Is a rapid review worth doing?' 'Confusion with rapid HIA')

Some conceptual definitions proposed / revisited

In response to these comments, concepts and definitions were revised, as follows:

- **Purpose of the resource**

To assist HIA practitioners in improving the evidence base used in HIAs by:

- i. Commissioning evidence reviews
 - ii. Conducting/ compiling evidence reviews
 - iii. Appraising existing evidence reviews
- **Suggested general criteria that may be used for the resource**
 - i. Systematic- does the study/ report/ review apply a consistent and comprehensive approach?
 - ii. Transparent- is the review clear about the processes involved?
 - iii. Analytically and methodologically sound- are the appropriate methods used ?
 - iv. Relevant- is the review relevant to the priority populations?

4.3.3 Development of Version 2

Changes in terminology for reviews: from 'rapid' to 'brief' and 'systematic' to 'more comprehensive'

Several participants in the qualitative research had concerns about use of the terms 'systematic' and 'rapid'. The main misgiving articulated was that 'rapid' in relation to 'systematic' could suggest a review that was not properly conducted and therefore of poor

quality. It was felt this might suggest to some practitioners that a 'rapid' review be not worth undertaking since it could be discredited by decision-makers. Also, 'rapid review' was confused with 'rapid appraisal HIA'.

Being aware that HIA in practice has to be pragmatic, and therefore wishing to ensure that 'rapid reviews' in future meet at least minimum standards, the steering group therefore decided to avoid the terms 'rapid review' and 'systematic review' and to use instead 'brief review' and 'comprehensive review'. These latter terms were found to be well-understood and appreciated by participants in the second workshop and by members of the Advisory Group, some of whom had found the term 'rapid review' misleading. The terms 'brief' and 'more comprehensive' were used from the second version onwards.

The second version devised a new structure which was based on two columns. The first column gave minimum criteria that are essential even for a brief review and the second suggested additional elements that could be added when resources allow, producing a more comprehensive review.

4.3.4 Development of Version 3

Ten sets of comments about version 2 were received. The main points made were:

- consensus over what is essential however brief the review;
- more advice on essential information to include in the report of the literature review;
- more explanation on how to use the resource and what various terms mean; and
- more advice on seeking existing good quality reviews to use or update as an early step before embarking on a new review.

Appendix F shows version 2.2 (columns A & B); collated comments (columns C & D); responses to comments that were not incorporated (column E); and version 3 (columns F-J). Version 3 included a third column with useful resources and references.

Most of the comments received from the Advisory Group were suggestions of additional websites with useful supporting resources for users of the guidelines.

Change in terminology for the document: from 'guidelines' to 'resource' to 'Guide'

The term 'guidelines' was accepted by most participants in the qualitative study as a relevant and accurate term for the proposed guidelines for reviewing evidence for HIA. However, some respondents felt that referring to them as 'guidelines' might create some confusion with guidelines for conducting HIA. Most felt the term 'guidance', which they used to be mean 'advice', would be appropriate.

Some members of the steering group had concerns about the implications of the terms 'guidelines' or 'guidance', as these are sometimes used to mean a legal requirement or enforceable minimum standards. We sought advice from two librarians, who provided the definitions used by NICE and the Department of Health, with an opinion that neither term had legal implications. However, the steering group decided to use the term 'resource' instead during the project development.

4.3.5 Development of Version 4

The resource was welcomed by participants at the workshop at the UK HIA conference, who made many useful criticisms of draft 3.2. In particular, a number of groups complained that it was difficult to navigate the resource and that the language needed to be simplified. There was also a lack of consistency between the information placed in the three columns. There was considerable discussion about the order of the initial steps. An explicit statement was also added that the process is iterative. For example, findings from the literature search may refine the question(s) to be asked, with new information clarifying not only what is already known but also prompting additional questions.

The step *Basic information on the purpose, organisation and structure of the literature review* was considered the most helpfully worded. It was recommended that each other section should be simplified in that way. A number of additions were recommended, particularly to the *Quality appraisal* step, such as links to papers about and sites listing quality criteria, including criteria for assessing existing reviews. It was also recommended that a section on *Reporting* should be added to the next version. Participants requested a web-based document with hyperlinks and a printed copy with boxes for the information that could be found by hyperlink, and a pdf version of that document.

One member of the Advisory Group had recommended inserting an extra section on *Inclusion and exclusion criteria*, which he was invited to draft.

Principal changes incorporated into version 4.1 included:

- changing the order of the sections on the first two pages, so *How to use this resource* moved to the front page, with the paragraphs within the section changing their order;
- adding a section on the iterative nature of reviews;
- changing the order of the first three steps, so that *Framing the question(s)* became the first step, after which it could be ascertained whether or not a literature review would be required and if so, what its scope should be.;
- expansion of advice on certain sections, such as *Interpretation*;
- a quote from the Wanless report⁴⁴ to go on the front page;
- addition of a comment on chance/bias/confounding and assessing causality (see section 4.7.2 below); and
- rephrasing certain sentences to improve clarity and reduce opportunities for misinterpretation.

4.4 Piloting version 4.1: Responses

Helpful comments were received from three of the five people invited to pilot the resource by mid-June 2005. Their comments were circulated to the steering group: an email discussion preceded a further steering group meeting in July 2005 to agree the revisions that should be made.

Those piloting the resource found no errors and agreed it contained nothing superfluous. No suggestions were made for changes to the overall format. They found it useful as a checklist.

One person piloting the study checked an HIA already carried out and tried to find out whether they would have done the evidence review differently if we had used the guidance: they would. It was a brief review, which is why they felt the work was not carried out fully according to the guidance.

These piloters stated that, in general, the tool could benefit from a couple of concrete "case-studies" taking the reader through the various steps. The case studies could be added as an extra column for each of the steps, or presented after the tool. However, this is the opposite of what those interviewed for the qualitative research we conducted at the start of this research said. Where there were differences of opinion, we followed the principles suggested by the qualitative research, which had been agreed at subsequent discussions with HIA and public health practitioners, the likely main users of the Guide.

The other two invited piloters did not respond, nor did two of the additional volunteers. One of the volunteers was going to give it to people who commission reviews but she never responded to follow-up e-mails as she moved job at short notice.

However, the two volunteers who had asked to use the draft guide to help them with a current literature review both reported very favourably on the Guide as being useful and user-friendly.

"I have found it very useful" (Experienced public health practitioner with much experience of critical appraisal and conducting literature reviews).

"I enclose the finished review that was hugely aided by your guide" (Public health trainee, little experience of reviewing evidence);

When asked, neither had any specific recommendations for changes, though one commented that time and other resource restraints could make it difficult to achieve the minimum standards set for even a brief review.

The comments of those invited to pilot the resource and the steering group's responses have been collated in Appendix G, along with version 4.1 of the resource and the questions about it that the piloters were sent.

4.4.1 Changes made to the resource in response to the piloters' comments

- We added a figure about the place of evidence in HIA and a short introductory section on what is meant by evidence in HIA and that this resource is limited to reviewing published evidence.
- We developed a glossary, as our attempts to avoid jargon had not been fully successful.
- We add brief examples of questions a literature review might be addressing for HIA.
- Minor changes included:
 - renaming the third column 'Tips and resources' instead of 'Examples';
 - removing numbering from the middle column;
 - ensuring all acronyms were written in full the first time they were mentioned; and
 - two sentences were moved to a more suitable location.

4.5 Peer review of version 5

Comments, received by the end of October 2005, were mostly favourable. Points already made that were endorsed, or where further emphasis was suggested, included the statement that lower quality primary studies can be important, and that too rigorous exclusion on methodological grounds can produce the wrong answer. However, with conflicting or absent evidence, the appropriate conclusion may be that no conclusion is possible.

The title of the resource was revised to include the word 'published' before 'evidence'.

Further rearranging of the first two pages was recommended, so *How to use this resource* became the opening section. A reference was then added to the end of this section to highlight the existence of a glossary and where it could be found.

An introductory paragraph was added to *Tips and resources* at the start of Step A (*Framing the question*) to explain that a number of topics and questions may need to be addressed in an HIA, with the necessary information found in different places and that it may also be decided, in a review of limited scope, to review some questions in depth and be satisfied with a brief review for others.

A number of statements were rephrased to improve clarity. For example, the statement '*Pragmatic need to inform decision-makers, regardless of the quality of the evidence*' was altered to '*Pragmatic need to inform decision-makers, even if the evidence is sparse.*' Similarly, the explanatory sentence was added to *tips and resources* in Step A (*Framing the question*) that a brief review may be based on existing reviews and / or on primary research reports.

Resources were added as a tip to step G7 for how to cite references.

Finally, a sentence was added at the end of the resource reminding users that the literature review is used by those conducting an HIA as part of their assessment of potential health impacts and as part of the evidence on which recommendations are made.

It was suggested that the resource should be piloted. This was the previous stage in the resource's development. However, we have added a note on the back cover that it will be revised after use, with a second edition prepared in 2008, and inviting those using the resource to provide feedback to JM.

4.6 Final Guide: Version 6.2

Change in terminology for the document: from 'resource' to 'Guide'

Version 6.1 was produced in November 2005 in response to the peer reviewers' suggestions. Although understood, the term 'resource' was not universally recommended as a title. There was unanimous agreement to call the final product a Guide and to refer to it as such throughout the document, instead of using the word 'resource'. The title has therefore become *A Guide to Reviewing Published Evidence for use in Health Impact Assessment*.⁴⁵ Version 6.2 (Appendix H) incorporated a few further minor changes suggested by those using the Guide to appraise existing reviews.

4.7 Other outputs

The following three documents were created and placed on the LHO website (with permission of the Department of Health) to support those reviewing evidence for use in HIA

4.7.1 Quality criteria for critical appraisal

As part of this research project, colleagues at Queen Mary University of London compiled a list of quality criteria that can be used for critical appraisal of papers under consideration for inclusion in a review of evidence for HIA. We collated existing, well-regarded quality criteria to enable HIA practitioners to have a single point from where they could locate them. The investigators found it difficult to find quality criteria for a range of different studies and could not find a single source providing comprehensive advice on criteria relevant for all the types of research likely to be considered. It seemed that a valuable outcome of this project would be to provide a resource to save HIA practitioners time in finding suitable sets of criteria, as well as summarizing these in very accessible language for non-specialists.

This list differs from most existing advice on critical appraisal, in that it collates in one location quality criteria for many different study designs. The current document contains basic information about quality criteria and links to key websites. However, this document can be developed further, based on suggestions for quality criteria for other study designs; the most recent update was in June 2006. It is available online at:

www.lho.org.uk/viewResource.aspx?id=9227.

4.7.2 Assessing causality

A detailed account of historical approaches to assessing causality and the widely used headings compiled by Bradford Hill was prepared as a supporting document. It was too detailed to be an integral part of the Guide. It is available online at:

www.lho.org.uk/viewResource.aspx?id=9377.

4.7.3 Glossary

In keeping with the recommendations from the qualitative research, jargon was kept to a minimum while developing the guidelines. However, it was not possible to avoid technical terms, or words that are used by different people with a range of meanings. A short glossary was therefore produced and also placed on the LHO website. It is available online at:

www.lho.org.uk/viewResource.aspx?id=10064.

4.8 Appraisal of existing literature reviews

Those conducting the appraisals generally provided their assessments in a table format, addressing either each group of steps (A, B, C) or each individual step (A1, A2, etc). One appraiser suggested colour coding the appraisal using a 'traffic lights' system to help give an overall impression (see example Table 2).

Table 2. Example of appraisal of a review using ‘traffic lights’ (selected steps only)

Step	Comment
C1	The review states who produced it. Its purpose is outlined in the foreword, the full report and the executive summary.
C2	The authors are listed but their positions are not stated.
C4	There is no indication that the review has been read or peer reviewed by someone other than the authors.
D1-4	There is no information about inclusion or exclusion criteria relating to the search of published scientific and grey literature referred to in the introduction to the review.
H2	The conclusion to the review is based on the results presented but given the absence of critical appraisal the robustness of the evidence base is uncertain.
H4	The conclusion does not refer back to interventions or mitigations or the effects on inequalities, despite mentioning these earlier.
I1	The report does not include all of the steps outlined – it is not clear if this is because the steps weren’t carried out or just not written up.
I2	A 4 page executive summary is provided as part of the full report. It is clearly written and reflects the information reported in the main body of the report.

4.8.1 Results

The five reviews sent for appraisal are listed below, with their origins and the appraiser.

Literature review for HIA of the proposed Western extension of the congestion charging zone, London

Author: PH consultant

Undertaken for: London Health Observatory

Reviewer: HIA academic, Sweden

Summary of appraisal: A few areas were highlighted where more information was desirable, such as air pollution, the short and long term and cumulative effects, and whether those who stop using their cars and start using public transport get more physical activity. According to data from Stockholms Lokaltrafik (Stockholm transport) motorists in Stockholm County walk about 500 metres per day. The corresponding figure for public transport users is two kilometres a day. Their overall conclusion was: *“The use of the Guide has definitely improved the quality of the literature review which we have found is of sufficient quality.”*

Steering group’s decision: Put the appraisal document and the review on the LHO website. The author agreed.

Literature review on Employment and health, Ireland

Authors: HIA academics

Undertaken for: Institute of Public Health, Ireland

Reviewer: HIA practitioner, England

Summary of appraisal:

'Health impacts of employment: a review' by the Institute of Public Health in Ireland does not provide a significant proportion of the information that the 'Guide to reviewing published evidence for use in HIA' criteria ask for and on that basis would not qualify as a high quality and rigorous evidence review. However, the document is termed an evidence briefing in the introduction and has the specific aim of providing key evidence to policy-makers rather than being as an evidence base for use in actual health impact assessments. Furthermore, it does provide a way of conceptualising the key vulnerable groups, key issues that need to be considered and potential policy solutions when considering the health impact of employment in a HIA. Taking all the above issues into consideration the evidence briefing is of sufficient quality to place on HIA websites across England.

Steering group's decision: Put the appraisal document and a link to the review on the LHO website. The authors agreed.

Literature review on Transport and health

Authors: HIA academics

Undertaken for: a Public Health body

Reviewers: HIA academic, England; HIA practitioner, England

Summaries of Appraisal 1: It is a "rapid review" of many existing evidence summaries and the rationale for the choice is well explained: "Many of the pathways through which transport affects health (air pollution, noise, physical activity) have been extensively studied, and good quality "off the shelf" reviews are available". However very little is mentioned about the literature searched and how certain studies have been chosen in order to define outcomes is not addressed (examples are offered in the analysis). The impression is that the majority of papers cited were already known to the authors as some of them are key documents on HIA of transport and therefore the HITr is more a non-systematic compilations of the published literature than a brief review as intended in the Guide.

Due to the flaws in the search and in the critical appraisal of the studies used doubt arise on the validity of the conclusions. Regarding reporting, the present review is unsatisfactory for a public health practitioner and probably too detailed for community members.

Summary of Appraisal 2: This is described as a rapid review and makes use of 'off the shelf' reviews as well as published scientific research and grey literature. The 'off the shelf' reviews are described as good quality but there is no indication given of the criteria used to make this assessment. Similarly there is no indication given of the search criteria used to identify the published scientific literature or grey literature or how it was critically appraised. For these reasons the review fails to conform to most aspects of the guidance.

However, the document has been written for ‘a wide audience’ and it may be that for stylistic reasons a detailed methodology has been withheld. As it stands it is a very readable summary of some of the available evidence. For people new to the subject this material would provide a useful introduction to the relationship between health and transport. It is well structured for this purpose and attempts to explain technical terms like ‘confidence intervals’, which is helpful.

A section on methodology, clearly setting out the process that the reviewers went through and in particular making clear the limitations of the review, might resolve many of the shortcomings highlighted below. In these circumstances the review might be appropriate for wider dissemination.

Response by authors: The staff of the institute from which this review came felt that similar criticisms were made by both appraisers. They felt the second appraisal was fair, in that it was critical but reasonable and said that the review was imperfect but still useful, but the tone of the first appraisal was harsh, with too much personal opinion and that the structure was not helpful.

Steering group’s decision: The second appraisal was balanced and, although a number of criticisms were made, concluded that the review was of sufficient quality to be useful. However, the first appraisal assessed similar criticisms as meaning the review was not of sufficient quality to be made more widely available. On balance, therefore, the steering group decided that neither the review nor the appraisals will be placed on the website, as stipulated in the method, section 3.7.2 above.

Literature review for HIA of Central Park Life Centre

Author: PH specialist

Undertaken for: Public Health Development Unit, City Council

Reviewer: HIA practitioner, Ireland

Summary of appraisal 1: Although not all the details were provided for the conduct of the literature search, most of the other steps in the Guide were adhered to. The critical appraisal and conclusions sections were disappointing but the review is of a ‘good-enough’ standard to be useful to other HIA practitioners.

Summary of appraisal 2: The review is generally OK. Before publishing it, though, I would consider to make a few “adjustments” as indicated. The “adjustments” will not affect the conclusions, which are quite clear and relevant, but will make the report more technically fluent, more articulated, clearer to read, more scientific.

Steering group’s decision: Put the review, the appraisal, and the author’s response (additional information about the review) on the LHO website. The author gave permission for this.

Literature review on Health implications of the draft growth strategy for the Milton Keynes and South Midlands Area

Authors: HIA practitioners

Undertaken for: Milton Keynes and South Midlands Health and Social Care organisations

Reviewer: HIA practitioner, Scotland

Summary of appraisal: The main concern with this review is that its breadth means that it is difficult to do justice to any of the individual sections. The questions addressed are not stated, the search strategy is not totally clear and neither is it clear how papers were appraised. The document would benefit from conclusions after each section and an overall conclusion summarising the key issues to consider. *“Despite these concerns, I think it is a useful review. It presents and summarises the issues that would need to be considered in carrying out an HIA of a spatial planning proposal.”*

Steering group’s decision: Put the review, the appraisal, and the authors’ response (additional information about the review) on the LHO website. The authors gave permission for this.

4.8.2 Comments from the appraisers

In addition to submitting their appraisals of the reviews they were sent, most appraisers also volunteered comments about the Guide (and gave permission to quote their comments in this report).

There was consensus that the Guide would promote high standards for HIA evidence reviews, although there may be practical problems in achieving these in all cases.

“The Guide is a very useful document for both making a new literature review and appraising an existing literature review in the context of HIA. The attempt of enhancing the evidence base of HIA is the main objective of the guide. Therefore the essential steps proposed are aiming at high standards that are in accordance with the requirements of evidence-based policymaking.

A few points already known to the practitioners using HIA have emerged again using the Guide for the current appraisal.

- *the possibility of achieving these standards within a brief review;*
- *the need of achieving these standards in a review that aims only at reproducing already identified impacts;*
- *the difference between a brief review intended for scholars and public health practitioners compared with a lay document intended for a wide audience;*
- *the difficulties of drawing conclusions from different studies/combining evidence. This is especially true in the case of different typologies of evidence (quantitative and qualitative).”*
HIA academic,
England

“Our impression is that the Guide is an excellent tool both in assisting the practitioners in reviewing literature in HIA and to help appraise the quality of an existing review. The quality of the literature reviews are insufficient in many HIAs being performed today and a tool like the Guide would be of great importance to help improving the quality of the HIAs.”

Public health academic, Sweden

Two reviewers were sceptical prior to its use but appreciative of its usefulness having used it:

“My initial thoughts were that the guidance was too rigid for rapid HIAs but the more I worked through it and thought about it the more I agreed with it.”
HIA practitioner, England

“I participated in the October 2004 UK and Ireland HIA conference workshop in Birmingham where a draft of this document was presented and worked through. At the time, while I considered the work important, given the diverse backgrounds of HIA practitioners, I felt that this would be a difficult, resource intensive and potentially unworkable set of criteria to use in reviewing health evidence for use in HIAs and for using when carrying out reviews during actual HIAs (which was my particular interest).

“However, having now undertaken a pilot of the finished guidance I find my early concerns unfounded. While the criteria do set a high standard for the quality of evidence reviews they are reasonable and well judged in the context of HIAs. I would and will use them as a benchmark when undertaking general evidence reviews for HIAs as well as for the reviews I undertake during actual HIAs. I will use it to consider the quality of a review and to set out more explicitly than I have done in the past the way I have conducted a review, its scope, its the limitations and its constraints. This excellent piece of work is likely to improve both the transparency and ethical use of evidence in my own and other practitioners’ HIAs as well as develop my own and other practitioners’ HIA practice with regards to the use and presentation of health evidence.”

In summary, “though it is a little daunting at first, the guide works well in practice. It is well written and clearly presented. In my judgment, the guide provides the gold standard criteria by which to measure the quality of general health impact literature reviews and HIA specific literature reviews. I will certainly use it in future HIA work when it is put in the public domain.”

HIA practitioner, England.

4.9 Awareness of and participation in this project

An initial paper, outlining the need for this research, was submitted to a peer-reviewed journal before funding was agreed for this project. It was published in June 2004: Mindell JS, Boaz AL, Joffe M, Curtis SE, Birley MH. Enhancing the evidence base for HIA. *J Epidemiol Community Health* 2004;**58**:546-551. <http://jech.bmjournals.com/cgi/reprint/58/7/546.pdf>³⁵

Information about the project and invitations to participate in the consultations on drafts have also been posted on the London Health Observatory’s website:

<http://www.lho.org.uk/HIA/ReviewingEvidenceHIA.htm>.

4.9.1 LHO web

With the permission of the Department of Health, a page was created on the London Health Observatory’s website to inform the HIA community about the project and invite them to contact the LHO if they wished to contribute to the development of the resource.

The page contained an overall introduction to the need for such a resource and the project aims and objectives. At later stages of the project, links were provided to additional information:

- [Qualitative research on format and presentation of guidelines for reviewing the evidence for HIA](#) (The full report)
- [Improving access to robust evidence for health impact assessment](#) (Abstract submitted to the 2004 UKPHA conference)

- [Improving access to robust evidence for health impact assessment](#) (PowerPoint presentation made at the 2004 UKPHA conference)
- [Improving Access To Robust Evidence For Health Impact Assessment \(PowerPoint Presentation\)](#) (PowerPoint presentation made at the 2004 IAIA conference to introduce the discussion)
- [Quality Criteria For Appraising Studies](#)
- [Assessing Causality](#)
- [Glossary](#)

The page can be seen at www.lho.org.uk/HIA/ReviewingEvidence.aspx.

4.9.2 Awareness of development of the resource through participation

Consultation was very wide. In addition to contributions from the Steering and Advisory Groups, there have been opportunities to comment on the developing guidelines for:

- members of the UK HIA JICSmial (which has international members also);
- members of the former Health Development Agency's HIA Gateway email list;
- those attending HIA training courses in the previous two years run by IMPACT in Liverpool, the HIA Research Unit in Birmingham, or the London Health Observatory;
- those attending presentations at the UKPHA conference in Brighton, April 2004, and the FPH Annual Scientific Meeting in Edinburgh in June 2004; and
- those attending workshops at the IAIA and UK HIA conferences in 2004 (see above).
- A copy of the current (third) draft of the resource (clearly marked as a draft not to be used except in consultation with JM) was given to each participant attending the UK HIA conference workshop in October 2004 and comments solicited.

In practice, responses were provided primarily by members of the steering and advisory groups and those attending workshops. Very few other individuals took up the offer to be involved in the development of the resource except through participation at conference workshops.

4.10 Dissemination

4.10.1 Information about the project as a work in progress

Dissemination of information about the project has occurred after prior notification to the Department of Health, where it was in fulfilment of an arrangement incurred prior to commencement of the research funding (such as the published paper and the abstract presented at the UKPHA), or after prior permission from the Department of Health representative thereafter.

Although only a minority of individuals informed of the project took the opportunity to comment on drafts of the resource, audiences at oral presentations welcomed its development and were keen to receive copies of the final document to aid their practice.

4.10.2 Publication and dissemination of the finished resource

The Guide will be published for dissemination in three formats as soon as we receive permission from the Department of Health.

In response to comments in the qualitative research and the workshops, we intend to produce a pdf file which will be published in hard copy and will also be placed on the LHO and other HIA websites for downloading. We propose to print 2,000 copies in two colour (black & white plus blue – as seen in Version 6.2 in Appendix H) for distribution at HIA, public health and local government conferences and via HIA training courses.

In addition, we will produce an online version of the Guide on the LHO website with hyperlinks to other resources. We will also ask the World Health Organisation (WHO), the International Association for Impact Assessment (IAIA), and the successor to the Health Development Agency's HIA Gateway website to place the Guide or information about the Guide on their HIA websites.

We have negotiated with the editor of the peer-reviewed journal *BioMed Central Public Health* that they will publish the finished resource promptly, after sending to their peer-reviewers information about comments received and the changes made as a result, together with our manuscript (currently being drafted). This is because we have already sent the Guide for external piloting and for external peer-review, and the Department of Health has also conducted its own peer review.

5 Discussion

5.1 Strengths of the project

5.1.1 *Qualitative research to inform the development of the Guide*

The qualitative research sub-project was a very useful contribution. In particular, our concerns about the variable quality of the evidence base currently available for HIA were echoed by participants in the qualitative research. Many of the issues raised about the quality of the evidence base had an impact on views that research participants expressed about the format and presentation of guidelines for reviewing the evidence for HIA.

Several respondents stressed the problem they had experienced of trying to disentangle specific evidence on health impacts from broad-based health studies. For example, a research study might have focused on the impact of housing on mental health, but not isolated the specific aspect of housing that has had a causal effect.

Absence of robust evidence, in the form of randomised control trials or epidemiological studies has frequently led HIA practitioners to access evidence from alternative sources, such as the views of stakeholders and communities has often specifically been used in the absence of other evidence. At the same time several respondents argued that community based evidence is an intrinsic part of the evidence base for an HIA. They considered qualitative sources of information to be as, if not more, important than epidemiological studies when considering the health impacts of a specific proposal on an individual community. However, many respondents reported problems in justifying the quality and value of softer more qualitative or consultative evidence, both to themselves and decision-makers. This is particularly so for those respondents with a public health specialist background, whose training in reviewing evidence has emphasised a hierarchy of levels of evidence where softer, participatory research is usually placed at the poorer quality end. In this context they struggled to find ways to prove the accuracy of anecdotal evidence, especially as it usually relates to future impacts. These difficulties are compounded where there is contrary epidemiological evidence that contradicts community evidence

We therefore developed the diagram for the Guide (Figure 1) to identify how published literature, the focus of this project, relates to other sources of information during the appraisal stage of an HIA.

We aimed to produce a simple, straightforward and accessible document rather than a detailed approach. However, we were unable to produce a document of only two sides of A4, as had been requested by participants in the qualitative research. We aimed to use plain English that can be easily understood by a cross-section of people not just academics but where jargon was unavoidable or words have different lay and technical meanings, we produced a glossary. Several respondents mentioned the former Health Development Agency's guidelines for conducting HIA as good examples of short, concise and easy to read documents that enable access to useful guidance in a limited amount of time⁴⁶. By contrast some well regarded guidelines for evidence reviews, such as those produced by NICE and Liverpool,⁴⁷ were judged high in quality, but their usability is limited for practitioners who are not trained to use them, because of the need to wade through considerable detail to tease out the core messages of guidance. Similarly, the Cochrane guidelines are thought by some

respondents to be a resource targeted more to professionals given the style of language and limited accessibility unless the user knows exactly what they are seeking.

5.1.2 Quality criteria for critical appraisal

We have fulfilled the stated objective (to collate existing criteria) but not the additional development work mentioned in the study. Quality criteria are specific to each study design, rather than to the end-product of a review (eg HIA or NICE Guidelines). Large volumes of work have already been done of quality of evidence for other purposes (eg CONSORT); we aimed to avoid over-repetition and duplication. CONSORT criteria apply to only a small proportion of studies used in HIA evidence reviews, as few randomised controlled trials exist in the topics examined in most HIAs.

As we were doing this work, what became obvious was that, rather than additional criteria (most types of work are covered somewhere by existing guidelines), HIA practitioners would need help to find:

- the criteria relevant to the type of study they were evaluating; and
- advice on how to interpret what were sometimes rather contradictory advice from sources which were often dealing with very different types of evidence.

This is why we have tried to distil some simplified advice and also to provide a comprehensive list of gateways to alternative sets of criteria with some advice about the circumstances under which each is likely to be useful. We therefore revised our project in light of the study findings.

5.1.3 Method for developing the Guide

The process that we adopted for developing this Guide was a combination of qualitative research with the progressive refinement of a draft document based on the pre-existing public health literature on systematic reviews. It was found to be generally suitable for the purpose in hand, with some modifications in the light of experience as set out above. Piloting and evaluating the guidelines was undertaken to look for evidence of their effectiveness or their need for development before too much investment is made in the further development and implementation process.

This approach was undertaken primarily because it is a normal part of tool development. In addition, there is evidence (for clinical guidelines) that involvement of end-users in development is essential for their subsequent use of the guidelines; it is important that users have a sense of ownership of resources of this type.^{48 49} Although there is an extensive literature on the development, dissemination, and implementation of clinical guidelines,⁵⁰ these have different purposes, attributes, and audiences from those of the Guide we have developed. It cannot be assumed that research on the development or implementation of clinical guidelines would be relevant to a Guide to reviewing evidence by public health and other specialists. Despite the large amount of research, there is an imperfect evidence base to support decisions about which clinical guideline dissemination and implementation strategies are likely to be efficient under different circumstances.⁵¹

Guidelines have been developed for reviewing evidence of health promotion and public health interventions⁵² but these were not used as they were being developed at the same time as this Guide; they are designed only for full, systematic reviews requiring resources (including

time) seldom available in HIA; and they focus on interventions, whereas broader questions are generally also addressed in literature reviews for HIA.

The iterative process of refining drafts in the light of written peer review as well as successive conference presentations and workshops proved to be extremely valuable, and many alterations were made as a result. This was, however, a difficult process to manage. The extensive peer review was heavily reliant on the contributions of a large number of professionals in HIA and related fields, and we are grateful to them for the important contributions that they have made to our project. These are all busy people, and the small size of the global HIA community meant that they were all irreplaceable. This made it difficult to keep to a tight schedule. The conference component was similarly vulnerable, because each one is quite infrequent, so that any delay in other parts of the project was then amplified by having to wait for the next opportunity. While this combination of challenges meant that the project took longer than intended, our view is that the delay is justified by the resulting quality.

5.1.4 The final Guide

The methods used to develop the Guide – consultation with those in the HIA and systematic review field - made a difference to the content and form of the Guide, as can be seen when the first draft is compared with subsequent and the final versions. It was particularly useful that contributors included academics in the systematic review field, who made many useful suggestions for steps that had been omitted or dealt with inadequately (such as inclusion and exclusion criteria) and for links to existing resources, and HIA practitioners, who ensured that the Guide was rooted in reality of conducting HIAs in England, was written in simple English, and was clear.

One of the seven assessors expressed reservations about the Guide; this was about difficulties inherent in conducting brief reviews for HIA, rather than faults of the Guide itself. The only specific criticism of the Guide concerned a lack of clarity to one appraiser of step A2 (*“The question/s asked in the literature review should be relevant to the local context of the HIA”*) but no-one else raised this as a concern. An issue that was raised on a number of occasions during the iterative consultations as well as in the qualitative research is the difficulty in framing questions for a broad literature review for HIA. We dealt with this by adding some brief examples and by emphasising the need to search for the best types of study to answer these, for example, by referring to Petticrew and colleagues’ paper *“Horse for courses”*⁵³ as a more useful approach than the traditional clinical hierarchy of evidence.

Some of the questions to be answered need local data and/or stakeholder knowledge; this Guide is limited to reviewing published evidence but was modified to include a diagram to illustrate the place of these different sources of information in appraisal of health impacts.

We have used the term ‘inequality’ rather than ‘inequity’ in the Guide and therefore in this report because ‘inequity’, implying an element of ‘unfair inequality’, generally also requires the collation of a variety of sources of data about the specific proposal / population(s) affected and may include a value judgement, i.e. the distinction may be part of the HIA appraisal process but is seldom relevant in the literature review. For example, a literature review may show that a particular subgroup is more susceptible to adverse impacts of emissions from a proposed industrial site. Local data and assessment of the proposals would be required to

ascertain if that inequality were inequitable (eg those with lower susceptibility may have worse existing health; those with higher susceptibility may have far less estimated exposure to the proposed emissions).

We believe that the Guide itself is a valuable document. It is written in user-friendly non-technical language, and presented in a succinct and attractive format. It is designed especially for the HIA context, primarily with practitioners in mind. This is important, because HIAs are often carried out by people who are neither specialists in HIA as a process nor the particular topic area of the HIA, and to a tight timescale. Our aim has been to reduce the burden on such people for the part of the task that is related to evidence so that they can focus on other aspects, as well as to improve the evidence-related aspects of the ensuing HIA. In addition, we consider that these qualities mean that the Guide will be equally useful for others involved in HIAs, including those who commission them.

Two other qualities of the Guide are worth pointing out. Whereas most such documents deal either with qualitative or quantitative types of evidence, we have combined the two in a single document. We have also included references to a range of other sources, so that those who have more time can access more technical and advanced reviewing methods.

The Guide is aimed at those who are organising or undertaking HIAs, to help them commission, conduct and/or appraise literature reviews. The results of the review would then be incorporated into the HIA report, which is aimed at the decision-makers. The Guide has been used for two of the three intended purposes (conducting and appraising reviews) without a need expressed for different formats. For commissioning a review, we envisage that commissioners would either specify that the Guide should be used when preparing the literature review or that all items in the 'brief' review column should be followed plus a specified list of 'more comprehensive elements'.

This project did not undertake to evaluate the impact of the Guide. Any evaluation of the Guide would focus primarily on the quality of the literature review, which would include an assessment of the scientific robustness but also the suitability of format of the report(s) of the literature review. It is reasonable to assume that recommendations based on more robust assessments of the evidence are better than those based on less robust reviews of the evidence. Many other factors within an HIA – and factors appertaining to the proposal under consideration – will determine the extent to which any or all of the recommendations are accepted by decision-makers.

A frequently mentioned idea for raising awareness was to have an announcement about the new guidelines put in journals and newsletter thought likely to have high readership amongst practitioners. In this respect Public Health News, Journal of Public Health and British Medical Journal were mentioned, as well as trade magazines for local authorities, community and voluntary organisations, and those working in transport, regeneration, housing and the environment. Additionally, several respondents commented that publication of the guidelines in a reputable journal such as the British Medical Journal was an ideal way to significantly increase awareness of the guidelines. After publishing the Guide on the LHO website, additional dissemination through these channels will be considered.

5.1.5 Appraisal of existing reviews

Several interviewees in the qualitative research mentioned that a key problem they faced in relation to reviewing evidence for HIAs was not so much the quality of accessible evidence, but an absence of evidence. Some policy areas were felt to be more problematic in this respect than others. Whilst there was judged to be quite a lot of quality evidence about the links between transport and health for example, there was felt to be little robust evidence to date on the specific impacts of housing or regeneration on health. Identifying and appraising four reviews considered of sufficient quality to be of use to others conducting HIA and making them available through the internet is therefore a valuable contribution of this project.

Most respondents in the qualitative research were keen that any guidelines should be linked in some way to practical examples of how the guidelines have been used in practice. But it was felt that these examples should not be included within the resource itself, as this would make it too lengthy. The resource should be discrete and just provide guidance on how to review the evidence for HIA. Placing existing reviews on a website along with appraisals of them using the Guide will therefore help interested practitioners examine practical examples.

The assessors' reports show that it is possible to use our guidelines to make a critical and structured appraisal of an existing review and judge its quality. This encourages us to have confidence in our guide as a usable instrument to guide reviewers. It is interesting that these reviewers were all from different countries and could all use the guide, which suggests that it has good general comprehensibility.

Because of the nature of HIA, the authors of appraised reviews were not in a position to remedy the deficits identified. However, some responded briefly to the appraisal, usually to put the review into context. We attached these responses to the end of the appraisals prior to placing the reviews and appraisals on the website, so that someone retrieving the appraisal would see the response. Each review and its appraisal(s) were linked on the website so that retrieving one would identify the other as being available.

Apparent differences between the evidence reviews shown here are probably, at least in part, due to differences in the ways that our volunteer reviewers interpreted our guidelines and applied them to the evidence review they considered. Some appraisers took a less systematic approach and did not mention each criterion on the guide, while others considered each step in turn.

The appraisers' reports showed that sections A and B1 (concerned with explaining the focus of the review and checking if there were existing reviews that served the purpose already) had been achieved at least partially, and most had attempted to provide an executive summary (I2). Three of four evidence reviews had covered at least some of the 'essential' points we identified in the guide (I1). Most had a fairly clear structure containing the key elements (C3).

Coverage of other aspects were more problematic (in that only two reviewers found that they had been covered to any real degree, and for several specific items, at least three reviews appraised lacked adequate coverage of these points, according to the reviewers. These were items in our guidelines listed in sections D concerning criteria for setting inclusion and exclusion criteria, section E on details of the organization and structure of the review undertaken (which tell us exactly how the review was conducted), section F on critical

appraisal of the evidence, and Section G on the principles used to interpret the material reviewed.

While it is certainly not reasonable to comment generally about the quality of reviews in this field on the basis of individual reviewers comments on such a small sample of reviews, it is interesting that the guide may have the potential to make appraisers of reviews as well as reviewers think more carefully about the detailed review process, especially the ways they are deciding which material to review, finding it and interpreting and critiquing it.

5.2 Difficulties

5.2.1 Delays

Unanticipated delays and timeliness were a difficult issue for this project. Although the agreed processes were undertaken, there were changes from the original timetable. These were discussed with the Department of Health at the relevant times and agreed. In addition to the issues discussed below, the time required to prepare the final report for the Department of Health was also underestimated.

Workshops

We relied on holding workshops at existing conferences for much of the consultation. However, the revised starting date meant these conferences were not at the right times relative to the start date. In addition, we were unable to obtain a workshop slot at the UKPHA conference, due to competition for the programme, so some consultation was conducted later instead.

Development of the Guide

The original proposal called for three drafts of the guidelines before it was piloted, amended if necessary, and then peer-reviewed. Because of the timing of the workshop discussions and the useful comments received at these discussions and by email that changed the Guide more substantially at each stage, an additional iteration was included in the development of the Guide to ensure greater clarity for users and scientific validity were not obtained at each others' expense.

However, the main problem was that we had been unrealistic in the time we allowed both for others to send us comments on the drafts of the Guide (including piloters and peer-reviewers) and for us to incorporate these into the next draft. This was a particular issue when consultees were tardy in responding; a consensus emerged that major changes were required, so discussion was needed to agree how to address such points; or there was no consensus, so the steering group needed to agree how to proceed. If designing a similar project in the future, we would recommend allowing at least two months to send out and collate responses for each iteration, plus an additional month for discussing these and redrafting the document. Allowing adequate time for reminders and late responses would enable steering group meetings to be planned in advance to occur at the correct time, whereas unanticipated delays in responses to consultation meant that organising meetings of people with busy diaries only after responses had been received necessitated further delays before a suitable date could be found.

Getting volunteers to provide reviews and/or conduct appraisals

The Advisory Group was asked on three occasions and members of the HIA e-network (JICSmial) was asked twice in 2004 and 2005 for volunteers to appraise existing reviews and for suggestions of existing non-peer-reviewed reviews (brief or more comprehensive) for appraisal. An email to the HIA e-network early in 2006 produced a number of volunteers both for reviews to appraise and people to do the appraisals. We do not know whether the difference was because the earlier appeals were for an unspecified date in the future and the final request was specific; the Guide was available for use in this project by the time of the final request; the network was functioning better; more people had heard of or seen earlier versions of the Guide by 2006 so were more interested; or it was coincidence.

We chose this source of potential reviewers as it would reach a very broad national and international network membership and would be a relatively inclusive approach not constrained by our own personal contacts. Of the people who volunteered to appraise reviews, five came from New Zealand, Scotland, Sweden, Ireland, or Italy. We valued their input because (a) they would have a neutral position towards the reviews produced (b) they could give a more international perspective on the validity of our approach.

5.2.2 Quality of appraisals

One issue that arose during the second part of the project was how to ensure the quality of appraisals of literature reviews. The focus of the guide was to improve quality assurance of literature reviews used in HIA by providing criteria to judge if a review was of sufficient quality. However, it became obvious that the notion of appraising if a review was of 'sufficient quality' can be problematic, particularly in the context of broad public health reviews for HIA compared with systematic literature reviews on a single defined subject. Transparent and robust critical appraisal is a difficult skill and is often underestimated. There is often little capacity for and experience of conducting appraisals of literature reviews in organisations. Good appraisals should be balanced in both tone and content, and provide both positive and negative comments on aspects of the review. This is important as it will help to feedback and change the practice of conducting literature reviews for HIA in the future by identifying consistencies in both the pattern of problems and consistent good practice.

Although an attractive idea, a potential problem of the traffic light system suggested by one person appraising a review is that the overall impression gives equal weight to each step (or group of steps if a single row is used for these). However, some deficiencies (eg failure to search the literature thoroughly enough or to appraise the studies used critically) are difficult to remedy later. A failure to specify what the search criteria were renders the review of uncertain quality but can be remedied by revision of the report or responses to enquiries; the absence of a summary version of the review for a lay audience, which can be produced at a later stage in response to such criticisms, does not affect the inherent quality of the literature review although may greatly affect its usefulness to the end users - the decision-makers whom the HIA is intended to influence.

This project illustrates some wider issues with respect to barriers to knowledge transfer and encouragement of evidence based practice in public health and related fields of work. The research outlined above showed that practitioners in the field often report that existing toolkits and guidelines (which are theoretically sound and well regarded by experts) are in some ways inappropriate for their needs. This project is unusual in that it focuses specifically on what

practitioners find difficult when trying to take an evidence based approach in everyday work situations. Specifically we have found that capacity to review and synthesise research findings is quite limited. The problems are at least in part due to very practical issues of presentation and communication of principles and procedures. A real commitment to knowledge transfer which would enable practitioners to adopt an evidence based approach to their work on routine basis will require a considerable advance in capacity building to give the workers concerned the skills to do this effectively and efficiently and/or development of guidelines which are very well adapted to their needs. We think that the development process we have followed to produce these guidelines for HIA literature reviews illustrates the issues which need to be addressed to achieve this and may also demonstrate a more widely applicable approach which involves a wide range of stakeholders from the outset.

5.3 Future research needs

It was suggested that training to accompany the guidelines would be useful. This is not part of this project: it would require time, staff, expertise and skills that would all need funding. However, one of the international reviewers is planning to introduce the Guide into their HIA training programmes once the Guide is published. Training has been mentioned both in use of the Guide but also in critical appraisal, for which courses already exist. Future research may also need to explore how previous experience and training in critical appraisal effects the quality of appraisal reports but that was beyond the scope of this research.

In a similar vein, a suggestion to provide more detailed guidance on synthesising the research evidence with local insights by residents and professionals was raised by one peer-reviewer, who answered her own comments by suggesting that work should be the subject of another guide. Ogilvie and colleagues have recently written how the “*lack of methodological research on how to deal with evidence from studies other than RCTs may make researchers feel vulnerable at key decision points in the process of synthesising evidence.*”⁵⁴

Properly conducted systematic reviews are the gold standard (which, when completed, can be used by others as a source of information). However, we expected that these very rigorous requirements mainly relevant to clinical science would be difficult to apply and possibly irrelevant to some types of research which can inform HIA. There is a need to synthesise in a comprehensible way the principles applicable to different types of research and give users a gateway to other more specialised resources for each of these.

It is clear that this Guide itself addresses an important gap in the field. At its simplest, evaluation of the Guide could be through hit rates and downloads from the LHO website. It would be interesting to conduct follow-up research into whether the Guide does in fact drive up the quality of reviews in HIA. This would require a process with random selection of literature reviews for HIA to be located (a potential problem in itself) from a range of time periods, and their quality assessed blind by at least two assessors (after all identifiers, date of conducting the review, and mention of use of the Guide had been removed by another researcher) before and after publication of the guide, and possibly ‘with mention / without mention of use of the Guide’, comparisons made. However, many people who have been involved in this project have mentioned issues they had not previously considered that are raised by the Guide, so a precise date for ‘before’ could be difficult to establish.

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Appendix A Membership of the Steering Group

Dr Jennifer Mindell (Chair)	Deputy Director, London Health Observatory and Honorary Senior Clinical Lecturer, Dept of Epidemiology & Public Health, Imperial College to July 2005, then Clinical Senior Lecturer, Dept of Epidemiology & Public Health, University College London
Dr Jane Biddulph	Lecturer in Research Methods and Statistics, Royal Free campus, University College London
Ms Annette Boaz	Senior Research Fellow, ESRC Centre for Evidence-based Policy and Practice, Queen Mary's, University of London (Senior Research Fellow, ESRC Centre for Evidence-based Policy and Practice, Kings College London from October 2005)
Ms Anna Boltong	HIA & Network Facilitation Manager, London Health Observatory, (to October 2005)
Prof Sarah Curtis	Professor of Geography, Dept of Geography, Queen Mary's, University of London
Dr Michael Joffe	Reader, Dept of Epidemiology & Public Health, Imperial College London
Dr Karen Lock	MRC Research Fellow, London School of Hygiene and Tropical Medicine
Ms Lorraine Taylor	Health Development Agency (HDA) to March 2005, then National Institute for Health and Clinical Excellence (NICE)
Ms Christine McGuire / Mr Adam Crosier	On behalf of Department of Health

Appendix B Membership of the Advisory Group

Dr	Muna	Aziz	HIA Practitioner	Sheffield North PCT
Mr	Ceri	Breeze	National HIA	Wales
Mr	Ben	Cave	HIA Practitioner	freelance, London
Ms	Anthea	Cooke	HIA Practitioner	freelance, London
Mr	Phil	Davies	Evidence	Campbell Collaboration & Cabinet Office
Dr	Margaret	Douglas	HIA Practitioner	Greater Glasgow Health Board, Scotland
Mr	Cathal	Doyle	National HIA	Ireland
Ms	Debbie	Fox	HIA Practitioner	U of Liverpool
Prof	Angela	Harden	Evidence	EPPI
Prof	Mike	Kelly	Evidence / National	HDA
Dr	Marco	Martuzzi	Evidence / International	WHO Europe, Rome
Dr	Jennifer	Mindell	Chair of Steering Group	
Dr	Jayne	Parry	HIA Academic	HIA Research Unit, University of Birmingham
Dr	Mark	Petticrew	HIA Academic / Evidence	MRC Glasgow
Prof	Jennie	Popay	Evidence	Campbell Collaboration
Dr	Alex	Scott-Samuel	HIA Academic	IMPACT, University of Liverpool
Dr	Amanda	Sowden	Evidence	CRD, York
Ms	Colleen	Williams	HIA Practitioner	Westminster City Council, seconded P/T to Department of Health

Improving the evidence base for Health Impact Assessment: First Draft of notes for Guidelines

Sarah Curtis, Queen Mary, University of London

s.e.curtis@qmul.ac.uk

1. Preamble

Health Impact Assessment (HIA) is “a combination of procedures or methods by which a policy, program or project maybe judged as to the effects it may have on the health of a population”. (European Centre for Health Policy, 1999). HIA is generally carried out prospectively, with the aim of anticipating the likely effects of an intervention, rather than during or after an intervention (when it is possible to evaluate what the impacts have actually been).

In order to make such predictions, HIA needs to draw on evidence from research and from evaluations of other, similar interventions which have been carried out in the past. It is important that the evidence is reliable and valid as a basis for understanding the possible health impacts and also that it is interpreted appropriately, so that reasonable conclusions are drawn about the potential health effects of the intervention of interest.

The aim of these notes is to provide a summary of some key points from selected guidelines for systematic reviews in the field of public health. These might provide a framework for guidelines to assist appraisal of rapid reviews produced for HIA and could be used to help structure a more systematic search procedure for a more thorough review of other, similar guidelines.

Why produce guidelines for reviewing evidence for HIA?

We have argued that there is a need to develop an agreed set of guidelines for use in gathering evidence to support HIA. This is because of the points outlined in Box 1, which distinguish evidence for HIA from evidence used for other purposes (for example, in evidence based medicine, in designing health sector initiatives in public health). In brief, we argue that, for HIA (and especially rapid HIAs) it is necessary to adapt existing approaches to reviewing research evidence because the range of relevant evidence is very wide, and includes findings from research carried out in different ways which may be difficult to compare. Also, HIA usually requires rapid reviews and there is not time to conduct detailed reanalysis of results from existing studies or to fill the gaps in research. Thus reasonable judgements have to be made on the basis of what is currently known, even when the knowledge is often quite incomplete.

This guide is intended as a useful tool for practitioners of HIA, rather than as a discussion for academic researchers. We will try to keep technical terms and detailed discussion to a minimum in order to concentrate on practical guidelines. Several of the more detailed handbooks and guides referred to below provide more complex analyses of the issues involved and will be useful references for expert reviewers.

We will also try to state the guidelines as simply as possible because it is important for these HIA guidelines, and the reviews based on them, to be accessible to the range of stakeholders involved in HIA, who will include non-experts such as members of local communities affected

by planned interventions. It is important for ethical, democratic and practical reasons that stakeholders likely to be affected by an intervention should have access to the relevant evidence, and, as far as possible, to be able to understand the evidence.

Box 1: The need for guidelines for reviewing evidence for use in HIA

Reviewing evidence for use in Health Impact Assessment can differ from other purposes for which evidence is collated in a number of ways, including:

- ◆ the focus on complex interventions or policy proposals and their diverse effects on determinants of health;
- ◆ the diversity of the evidence in terms of relevant disciplines, study designs, quality criteria and sources of information because of the wide range of interventions/approaches that may contribute to improving health, ie the need to search, obtain, and appraise a broad literature;
- ◆ the need for, but paucity of, evidence on the *reversibility* of adverse factors damaging to health (most evidence being of associations between factors and adverse effects, not studies of reversing these);
- ◆ the broad range of stakeholders involved;
- ◆ the need to seek evidence about potential impacts on inequalities as well as on overall effects;
- ◆ the need to apply health impact assessment within the realities of policymaking, planning and decision-making processes, which can often mean short timescales and limited resources generally available;
- ◆ the pragmatic need to inform decision-makers regardless of the quality of the evidence.

(Source: Mindell et al, 2004, Improving the Evidence Base for HIA: principles)

2. Principles and contents of these notes

In developing these draft notes for our guidelines, I have tried to bear in mind the principles outlined in Box 2. It is important that the evidence supporting health impact assessments is reviewed rigorously because it may be scrutinised in the case of a legal challenge. It is also important, therefore, that the inferences drawn from such reviews are reasonable and well justified. We therefore recommend that as far as possible, evidence should be collected and reviewed in ways which will be recognized and approved by professional researchers working in health sciences and other relevant fields of research.

There are several examples of guidelines for systematic reviews, which are generally regarded as best practice for rigorous reviews in the field of public health. We do not aim to 'reinvent the wheel' by reproducing here all the detail they contain. We aim instead to provide information on how to access these other guides, which some readers may wish to use. Different types of research require different approaches for reviewing evidence and so the 'gold standard' for compiling evidence for HIA will depend on the sort of research which is being considered.

Therefore our guidelines should draw on best practice for reviewing a wide range of different types of research.

The following notes are *not* the result of a thorough or systematic review of all the possible sets of guidelines in existence. This draft makes particular reference to three sources of guidelines which were identified by our expert panel as especially relevant to HIA in the UK. I have considered these in terms of their potential to provide the 'gold standard' criteria by which to judge HIA reviews and I summarize below some key points as they apply to evidence for HIA. The next step in compiling these guidelines might extend the search for existing guidelines more systematically according to agreed search criteria.

Reviews based on these 'gold standard' approaches are quite time consuming and costly and they often screen out research which does not meet all the necessary criteria. HIA often requires rapid reviews, and if the research results available are limited, it may be necessary to draw on information which may not fit all the 'gold standard' criteria, and make a reasonable summary of evidence which is limited, or of variable quality. For these reasons, we will also present some guidelines for rapid reviews for HIA, which aim to provide reasonably reliable reviews from the available evidence in a shorter time. Reviews for HIA also need to be comprehensible for a range of different stakeholders who need to use the evidence. The following notes include some first suggestions for guidance about how to interpret and present such rapid reviews, as well as the limitations of the evidence they provide when they are less stringent than the 'gold standard'.

Box 2 Principles for establishing guidelines for reviews of evidence for HIA

(source: Mindell et al, 2004, Improving the Evidence Base for HIA: principles)

1. We attempt to be systematic in synthesising evidence because of a desire to avoid drawing the wrong conclusion about the balance of benefit and harm. Properly conducted systematic reviews are therefore the gold standard (which, when completed, can be used by others as a source of information).
2. In addition to difficulties in searching a broad literature, the specific tools for appraising quality of primary studies and methods for synthesising the evidence will differ depending on the types of research (eg epidemiological studies, evaluation of uncontrolled interventions, qualitative studies). The types of research available or of relevance, and therefore the appraisal tools and methods for synthesis, will depend on the specific question being addressed.
3. In the real world of conducting HIAs, a pragmatic approach to reviewing the evidence is required because of limited resources (staff, skills, and/or time). This often necessitates a 'rapid review', conducted over days or sometimes weeks. While not fulfilling criteria for systematic reviews, some standards will be helpful to encourage good practice.
4. This project will not 'reinvent wheels'. It will draw on existing evidence guidelines and quality criteria wherever possible, collating them to be easily retrievable. It will also draw on methods of rapid review that already exist - e.g. those used by people doing NICE reviews and others.
5. The process of developing the guidelines for systematic and rapid reviews of evidence for use in HIA will be transparent and inclusive of practitioners, academics and those experienced in synthesising evidence.
6. The process used in conducting a review must be explicitly described. As the final decision depends on the quality of evidence behind it, the report of the evidence must also be explicit about the quality of the evidence and any limitations of the review.
7. A review must also be explicit about how generalisable the evidence is, ie how the review can be used to extrapolate from the evidence to the specific HIA, and whether, and with what constraints, it is possible to quantify potential impacts.

Guidelines for systematic reviews: how to recognize the 'gold standard'

Since our principles suggest that we should refer to systematic reviews as the 'gold standard', representing the most rigorous methods for reviewing evidence, we will take existing guidelines for systematic reviews as the starting point.

It is important to bear in mind that findings from a number of different types of research may be relevant for HIA and that some of the 'gold standard' criteria for reviewing these forms of research also differ. Broadly speaking, we can say that the research lies along a spectrum between 'quantitative' and 'qualitative' approaches. These are explained in Box 3.

Box 3 characteristics of qualitative and quantitative research informing HIA.

Swan and colleagues review a number of publications on research and review methods, and provide a glossary of key terms for those preparing evidence briefs in public health and the following description of qualitative and quantitative method is adapted from their definitions (Swan et al., 2003, p39)

Qualitative research is used by researchers aiming to examine subjective meanings and interpretation, focusing on "how" and "why" type questions such as how do people feel about issues or why do they behave in a particular way. For example in an HIA concerned with development of a new sports complex, qualitative research might answer questions such as what would effect an individual's decision to use the centre for healthy physical exercise and why. Qualitative research methods generally use non-numeric information. Examples of qualitative research methods include in-depth interviews, focus groups, participant observation and action research.

Quantitative research aims to generalise about factors associated with health in larger populations, using statistical methods that gather information in numeric form, based on measuring and counting and processing the resulting statistics. It answers questions about how many people in a community might experience impacts on their health from changes in their environment and what would be the size of the effect. For example, quantitative research might be use to find out how many people in a local community take physical activity, what amount of physical activity they take, and how much this might change if they used a new sports centre.

Source: Swann, C, Falce, C., Morgan, A., Kelly, M. Powell,G. (2003) HAD Evidence Base Process and Quality Standards for Evidence Briefings, 2nd Edition. Health Development Agency, London. p. 39

I refer below to three examples of existing sources which provide 'gold standard' criteria for carrying out rigorous systematic reviews for 'quantitative' and for qualitative' research.

1. The Cochrane Collaboration, which is an internationally recognized source of guidance for researchers in medical and health sciences, is currently compiling some guidelines for reviewers working in public health. The Cochrane Collaboration is best known for publishing guidelines for systematic reviews of medical research based strictly on quantitative methods (especially Randomized Controlled Trials (RCTs) of medical treatments, and it is adapting these for use in public health.
2. The Government Chief Social Researcher's Office has commissioned a manual produced by the National Centre for Social Research, which provides a framework for assessing evidence from 'qualitative research'.
3. The Health Development Agency has provided manuals for producing evidence briefings, which are specifically designed for public health professionals who need to review evidence to inform policy and interventions in public health, especially those aiming to reduce health inequalities.

The points in Box 4, drawn from the website for the *Cochrane Health Promotion and Public Health Field*, explain why Cochrane Collaboration reviews are valuable for those in public health and health promotion. It would be desirable if reviews for HIA had similar features.

Cochrane reviews:

- aim to be exhaustive, by searching widely for all the published and unpublished research which might be relevant, and they are regularly updated;
- carefully assess research in terms of its relevance and its quality, as well as the nature of the findings;
- are transparent in the way that information about research findings has been compiled and analysed;
- are usable to inform decision making.

**Box 4: The strengths of the types of review compiled by the Cochrane collaboration
(drawn from the 'Cochrane Health Promotion Public Health Field')*****Why are Cochrane reviews considered high quality?***

Systematic reviews produced by Cochrane Collaborative Review Groups are a result of exhaustive searches of all relevant studies (including unpublished), scrutinized for relevance and quality, assembled and analysed to draw conclusions about how the net result should be applied in practice. The highly structured end reports are transparent in their methodology and commitment to regularly update the reviews, incorporating new studies as they are completed, is a condition of undertaking a Cochrane review in the first place.

Source: www.vichealth.vic.gov.au/cochrane/faq/index.htm

Recognising that all evidence does not fit the Cochrane methodology

The Field does not contend that all health promotion and public health interventions must be justified by randomised controlled trials or a Cochrane review. This is a misconception that may have discouraged the involvement of health promotion and public health researchers in the the Cochrane Collaboration. What the Field does claim is that many interventions do lend themselves to the methodology of a systematic review and in these cases we should strive for the most comprehensive review of the available evidence as possible. We also strive to ensure the content and process of a Cochrane review is reflective of the principles of health promotion and public health and contains information that is applicable and useable for health promotion practitioners and decision makers.

Source: www.vichealth.vic.gov.au/cochrane/overview/index.htm

Jackson (2003) suggests that guidelines for systematic reviews of evidence relevant to public health should address how to:

- Plan a review (including the use of advisory groups and setting the questions to be addressed by the review);
- Decide which types of studies to include;
- Find the evidence (search procedures);
- Assess non-randomized studies;
- Synthesise the results of studies;
- Determine the applicability and generalisability of results.

Source www.vichealth.vic.gov.au/cochrane/activities/GuidelinesBackground%20paper.doc

A number of more specific aspects of the review methods advocated by the Cochran Collaboration are also relevant for HIA. Box 5 lists several points drawn from the handbook which are relevant as 'gold standard' criteria for systematic reviews.

The points outlined in box 5 are broadly relevant to both quantitative and qualitative research. However, in practice, the selection criteria and the method of interpreting the results of research will vary according to the type of research being considered, and if HIA reviewers wish to consider both types of research, it should be clear which criteria are being applied.

Box 5: Criteria for rigorous systematic reviews likely to be relevant for HIA (adapted from the Cochrane Collaboration Reviewer's Handbook)

A systematic review should:

- 1) have clearly stated objectives (and explain how these have been decided)
- 2) ensure that the review addresses the stated objectives of the review;
- 3) explain which types of study should be included in the review and which should be excluded;
- 4) determine what sorts of information about health outcomes is likely to be available;
- 5) consider whether it is possible to measure the health effects of an intervention and, if so, how;
- 6) consider how to assess diversity in the interventions studied in research and the settings in which the research has been carried out, and heterogeneity of methods used to study health outcomes;
- 7) consider how to deal with missing data in research;
- 8) decide how to deal with publication and/or reporting bias.
- 9) draw balanced conclusions from the whole body of research reviewed (rather than concentrating on selected findings);
- 10) avoid making recommendations for action (which is more properly the task of the decision makers using the review)

The handbook specifies that a suitable format for systematic reviews would include;

- citation details and contact addresses of authors
- a summary of the main points of the review
- a statement of the objectives of the review
- a description of the search strategy used to identify studies
- an explanation of the selection criteria used
- a structured presentation of the information collected and any analysis made
- the main results of the review about how an intervention effects health
- conclusions

Source: adapted from Cochrane Collaboration (2003) Cochrane Reviewer's Handbook 4.2.1. (especially sections 2, 3 and 8).

Box 6: Sources of bias in quantitative research

The Cochrane Collaboration (2003; section 6.0) recognizes four main types of *bias* which may effect the validity of the conclusions drawn from research. These are distinct from the separate issue of *precision* (accuracy with which factors effecting health and health outcomes can be measured):

Selection (how subjects are assembled and whether different types of people in the populations studied may have different chances of being selected, so that they are under- or over- represented among the ‘cases’ or ‘controls’)

Performance (systematic variation in factors other than the intervention of interest which might influence the comparability of ‘intervention’ and ‘control’ groups)

Attrition (systematic differences between comparison groups in the loss of participants to the study)

Detection (systematic variation across comparison groups in the ways that outcomes are assessed.

The emphasis in medical research is on *randomised control trials* because randomization controls for both known and unknown confounders. In some types of clinical trials, ‘*blinding*’ those who are providing and receiving treatment can also help to prevent these types of bias. (Measures are taken to make sure that neither the patients nor the health professionals know in advance whether individuals will be allocated to ‘case’ or ‘control’ groups, and as far as possible this allocation is also concealed from patients and health professionals while the study is taking place.)

For quantitative research, a key question is how far the results represent the situation in the general population. Usually the results are based on data collected for samples of people and statistical methods are used to judge how typical the samples are likely to be of the larger populations from which they were drawn. Also, quantitative studies are often based on scientific experimental methods that aim to measure the effects of particular factors on health. For this, it is necessary to make ‘control trials’, which compare groups of people for whom the factor of interest is present (‘cases’) with other groups for whom it is not (‘controls’). In order to judge whether we can draw reliable conclusions from quantitative research we need to have information on the possible sources of bias. Bias in quantitative research may confound the results, so it may not be possible to generalise from a particular study to the wider population, and this will limit the value of the findings for HIA. Box 6 summarises some different sources of bias in studies of medical treatment and explains why Cochrane Collaboration reviews of clinical trials rate ‘double blinded’ randomised control trials as the gold standard for selection and control for the possible effects of bias.

Much of the research which is relevant for HIA is carried out in situations where randomised control trials are not possible. Olssen (1999) discusses the aims of the Cochrane Non-randomised Studies Methods Group (NRSMG), to make recommendations about when and how to include non-randomised studies in systematic reviews of health care interventions. Box 7 is taken from Olssen’s paper and lists a range of studies which are not randomised control

trials but which are more 'scientific' in approach than 'opinion'. The research strategies are listed in order of the rigour with which they are likely to control for bias in the research method. Reviews for HIA which are seeking to establish whether there are measurable effects on population health due to change in particular factors should ideally indicate how the research reviewed is placed in this hierarchy.

It is also important to note from Box 7 that the most rigorous types of quantitative research for HIA are usually those which compare information about how change in health determinants affects health outcomes for *individual people* (as opposed to *ecological* studies, which compare sets of data for whole groups of people, but do not show whether changes in health determinants are linked to health changes at the individual level). Also, since HIA is concerned with change in health determinants and how these may affect health outcomes, the most powerful studies are those which are *longitudinal* collecting evidence over time, and include information for the same individuals about health before and after health determinants have changed. Studies that are *cross-sectional* in time (only measuring health once), may be able to compare health outcomes for populations which have experienced change in health determinants with those who have not. However, cross-sectional studies will not be able to establish whether the change in health determinant produce subsequent change in the health outcomes.

Box 7: From Olssen (1999) Study types; scope of NRSMG is between dashed lines. The study designs are listed in descending order of 'rigor' for producing quantitative evidence about the health effects of an intervention.

Randomised trial

Quasi-randomised trial - a trial applying a pseudo random allocation mechanism, like day of birth

Historically controlled trials - pre-planned studies where data on controls are retrieved from archives

Trials with concurrent controls - pre-planned studies where data on controls are sampled concurrently, (fx. in patients who refuse to be randomised or in patients from another department)

Controlled before-after studies

Prospective comparative cohort studies

Indirect comparisons, e.g. between intervention groups in two different trials.

Retrospective comparative cohort studies

Prospective case-control studies

Retrospective case-control studies

Before-after studies

Interrupted time series

Case-only studies - studies presenting series (or single cases) of patients without a control group

Opinion

Source: Olssen, O. (1999) Draft chapters for guidelines on non-randomised studies in Cochrane reviews. 2. Types of study design (*Prepared and developed by Ole Olsen – previous versions discussed by Cochrane Collaboration NRSMG at meetings in Rome 1999, Copenhagen 2000 and Cape Town 2000 - to be further revised*)

Box 8 lists some of the considerations that may be more important for judging qualitative research, drawn from the review by Spencer et al. (2003). This type of research does not attempt to quantify the findings, or measure the generalisability of the results. The reliability of the findings of qualitative research are more likely to be judged by the clarity and quality of the explanation of:

- Why the research method was suitable for the question being researched and for the setting in which the study was carried out?
- What were the concepts or theories on which the research was based?
- What were the characteristics of the people studied and how and why were they were chosen?

Whether all aspects of the detailed information collected about each one of those studied have been carefully considered?

Box 8. Key quality issues and concerns for assessing qualitative evaluations from Spencer et al, (2003)

the defensibility of the approach – will be indicated by:

a clear logic of enquiry and clarity of research questions

an adequate theoretical framework/rationale to the research questions

a design which is responsive to the 'real life' context in which the study is being carried out

a defensible rationale for choice of methods, showing they are 'fit for purpose'

a clear, logical defensible sampling strategy according to criteria for qualitative research

comprehensive and balanced sample coverage of the types of people to which the study relates

detailed profile of the characteristics of the sample studied

consideration of the implications of the sample coverage

rigour of conduct – will be indicated by:

collection of in-depth data

careful recording of data

narrative of data collection process

contextual documentation

systematic and thorough analysis including atypical and emergent issues

explanation of the origin and application of concepts

in depth interrogation of the data

multiple coding

skills and experience of the researchers

ethics can be assessed from evidence of:

securing consent and safeguarding privacy

participatory and interactive approaches

democracy

reflexivity (awareness of the impact of the researcher on the researched and v.v.

empathy, sensitivity, rapport, openness of the researcher to new ideas emerging from the research

credibility of claims made in the research will be indicated by:

triangulation (examining whether different forms of evidence point to the same conclusion)

checking by the research team, respondents, etc.,

peer review of results

display and explanation of diversity

consideration of negative cases which do not follow the general trend

discussion of alternative explanations

display and interpretation of data which is balanced, comprehensive, persuasive and conveys complexity

access to or presentation of the original data

unbiased and balanced selection from original data

indication on how selected cases relate to the whole of the data

demonstrable link between data and conclusions

discussion of scope and limitations.

Source: based on: Spencer, L., Ritchie, J., Lewis, J. Dillon, L. A. (2003) *Quality in Qualitative Evaluation: A framework for assessing research evidence*. Strategy Unit, Government Chief Social Researcher's Office. P. 73.

The list compiled by Spencer and colleagues is also interesting because it assumes that the researcher may have interacted with the respondents and influenced the results. Good qualitative research should be reflexive, showing *how* researchers may have affected their research. Also these authors emphasise that research should be ethical.

The examples discussed above have identified, from extensive reviews of literature on research methods and best practice in research, a number of criteria which are important for reviewing research about how change in health determinants may affect people's health. Box 9 reproduces some key questions proposed by the Health Development Agency (Swann et al 2003) as a framework for critical appraisal of reviews of evidence. This covers many of the considerations above and would form a useful basis for appraisal of reviews for Health Impact Assessment. In a restructured format, and with addition of some other points that are explained above, guidelines for appraising reviews for HIA might therefore be summarised as in Box 10. The manual prepared by Swann et al is also useful because it offers detailed recommendations for the process of making a review or evaluating existing reviews.

Box 9: Critical Appraisal Framework for judging the quality of reviews of evidence proposed by the Health Development Agency

If the research question that the review deals with is clear, does the review allow us to judge how strong the evidence marshalled in the paper is?

Is strength of the evidence calibrated in some way, and if so what is the calibration?

Does the review make plain the steps which have been taken to aggregate results of the data and reduce bias? What are those steps? If bias has only been partly addressed or not considered at all, what is/are the potential bias(es) which should be included and acknowledged by the original writers of the reviews?

To what extent does the treatment of bias in the paper affect its conclusions about the strength of the evidence?

Has the data on which the paper is based, been provided in a full enough way for readers of the review to judge for themselves, independently, the strength of the evidence?

To what extent does the review consider the theories of change, which may underpin their assessment of the evidence?

Have the authors made plain what their search strategies were?

Is it possible to replicate the search strategies?

Is it possible to identify search strategies that the reviewers have not conducted?

Can the statements made by the reviewers about the evidence be tracked back to primary sources exactly i.e. to specific pages in specific source documents?

Is the source material trustworthy? Is it drawn from reputable peer reviewed sources? If not why? Is it because the reviewers have accessed unpublished data in order to overcome publication bias?

Is the source grey literature? Is the apparent strength of the evidence an artefact of double counting of studies? Does the strength of the evidence depend on the use of fact sheets from pressure groups and or from self-referred work?

Are the authors explicit about any analytical processes they have used such as meta-analysis or other technique? How well known are the techniques used?

Do the reviewers have a vested interest in the direction of the evidence?

Do the authors of the review acknowledge the weaknesses in what they have written?

Source : Swan et al, (2003) HAD Evidence base: Process and Quality Standards Manual for Evidence Briefings, second edition, HDA, London. p22.

Box 10 Summary of draft guidelines for systematic reviews: gold standard criteria derived from the material summarised above.

The guidelines discussed above suggest that individual pieces of research, or reviews of research might be appraised in terms of their usefulness for HIA considering the following criteria.

The purpose of the review and the organization producing the research/review

The review should address questions relevant for HIA. These will usually be questions about of how change (improvement) in determinants of health is associated with change in health outcomes?

It should be clear who conducted the review and how can they be contacted.

The reviewers should not have a vested interest in the direction of the evidence.

The review should ideally be directed/ assessed by peers or a suitable advisory panel.

Questions about the conduct of the review/research

The research question that the review deals should be clear, and allow us to judge how strong the evidence marshalled in the paper is.

The authors of the review should acknowledge the weaknesses in what they have written.

The authors should make it clear what 'theories of change' which may underpin their assessment of the evidence.

Reviewers should make plain what their search strategies were.

It should be clear on what basis research findings have been included or excluded from the review.

The selection should be based on criteria relating to the quality and power of the research.

The search procedures should be comprehensive and report all the material found in the search which is relevant to the review and meets the necessary criteria.

It should be possible replicate the search strategies.

It should be possible identify search strategies that the reviewers have not conducted.

The review should consider whether the research reviewed was ethical.

It should be possible for the evidence to be tracked back to primary sources exactly i.e. to specific research papers or pages in specific source documents.

The source material should be trustworthy. Ideally it will be drawn from reputable peer reviewed sources. If not, this must be justified (eg reviewers may have accessed unpublished data in order to overcome publication bias)

If the source is 'grey' literature the reviewers should check whether the apparent strength of the evidence an artefact of double counting of studies. Reviewers should take care to check whether the strength of the evidence depends on the use of fact sheets from pressure groups and or from self-referred work.

Questions about how the evidence gathered has been reported and interpreted:

The data on which the review is based should be provided in a full enough way for readers of the research/review to judge for themselves, independently, the strength of the evidence. This may be achieved using structured format recording key information such as:

The reference for the study

The study design and the context in which it was carried out

The methods used to analyse the information collected about determinants of health and health outcomes

The conclusions that were drawn about how change in health determinants affects health outcomes in the study population

The strength of the evidence should appraised or calibrated in some way, according to qualitative or quantitative criteria. This should provide some guidance about how much weight to attach to different parts of the evidence.

The reviewers should be clear about any procedures they have used to analyse the information collected.

The review/research should make plain the steps have been taken to aggregate results of the data and reduce bias. If bias has only been partly addressed or not considered at all, there should be discussion of what is/are the potential bias(es) which should be included and acknowledged. It should be clear how far the treatment of bias in the review affects its conclusions about the strength of the evidence.

The review should provide conclusions and be summarised in a reasonably accessible way to aid decision makers, including comments on the limitations of the evidence.

Source : adapted from boxes 1-9 above

Rapid reviews

Rapid reviews which may need to be conducted in a few days in some cases, will probably always meet the 'gold standard' requirements in box 10. However, some consideration should be given to these criteria and Box 11 outlines some suggestions for guidelines for rapid reviews for HIA. It may be adequate for reviewers to include some self-appraisal of the review they have produced

The purpose of the review and the organization producing the research/review

The review should be framed in a way that addresses questions relevant for the HIA for which was designed. These will usually be questions about of how change (improvement) in determinants of health is associated with change in health outcomes?

It should be clear who conducted the review and how can they be contacted.

The reviewers should not have a vested interest in the direction of the evidence.

The review should ideally be directed/ assessed by peers or a suitable advisory panel.

Questions about the conduct of the review/research

The process of carrying out the review should be described clearly.

The research question that the review deals should be clear.

The authors of the review should acknowledge the weaknesses in what they have written.

The authors should make it clear what 'theories of change' which may underpin their assessment of the evidence.

Reviewers should make plain what their search strategies were.

It should be clear on what basis research findings have been included or excluded from the review. The selection should be based on criteria relating to the quality and power of the research.

The authors should comment on how far their search procedures could be comprehensive and they should report all the material found in the search which is relevant to the review and meets their selection criteria.

It should be possible identify search strategies that the reviewers have not conducted.

It should be possible for the evidence reported to be tracked back to primary sources exactly i.e. to specific research papers or pages in specific source documents.

The source material should be trustworthy. Ideally it will be drawn from reputable peer reviewed sources. If not, this must be justified (eg reviewers may have accessed unpublished data in order to overcome publication bias)

If the source is 'grey' literature the reviewers should check whether the apparent strength of the evidence an artefact of double counting of studies. Reviewers should take care to check whether the strength of the evidence depends on the use of fact sheets from pressure groups and or from self-referred work.

Questions about how the evidence gathered has been reported and interpreted:

The data on which the review is based should be provided in a full enough way for readers of the research/review to judge for themselves, independently, the strength of the evidence. This may be achieved using structured format recording key information such as:

The reference for the study

The study design and the context in which it was carried out

The methods used in the research to analyse the information collected about determinants of health and health outcomes

The conclusions that were drawn about how change in health determinants affects health outcomes in the study population

The strength of the evidence should appraised or calibrated in some way, according to qualitative or quantitative criteria. This should provide some guidance about how much weight to attach to different parts of the evidence (criteria from boxes 7 & 8 might be used where appropriate.)

The reviewers should be clear about any procedures they have used to analyse the information collected.

The review/research should make plain the steps have been taken to aggregate results of the data and reduce bias. If bias has only been partly addressed or not considered at all, there should be discussion of what is/are the potential bias(es) which should be included and acknowledged. It should be clear how far the treatment of bias in the review affects its conclusions about the strength of the evidence.

The review should provide conclusions and be summarised in a reasonably accessible way to aid decision makers, including comments on the limitations of the evidence.

NB The notes above are not fully referenced. The following is an incomplete list of sources referred to above (references) and background sources which we have compiled, but which I have not attempted to review in detail (bibliography).

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European Centre for Health Policy (1999) *Health Impact Assessment: Clarifying the Concepts, considering a feasible approach*. WHO Regional Office for Europe, Copenhagen, Denmark.

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Comments on format and presentation of the Guidelines in response to the earlier version of this document

(NB This will also be the subject of 9 semi-structured interviews with HIA practitioners from London, Birmingham and Cambridge and will be discussed in workshops at conferences)

Appendix D Version 1.1

1.1 D1 Summary of draft guidelines for systematic reviews: gold standard criteria derived from material summarised in a document available from the steering group.

We have made a rapid overview of some existing sources that offer advice about how to make systematic reviews of both quantitative and qualitative evidence in the public health field [1,2,3,4]. The following notes are derived and adapted from these other sources. We suggest that individual pieces of research, or reviews of research might be appraised in terms of their usefulness for HIA considering the following 'gold standard' criteria. These are 'first draft' criteria, and we are seeking advice from a range of experts and from the wider literature in order to see how these guidelines might be modified.

The purpose of the review and the organization producing the research/review

The review should address questions relevant for HIA. These will usually be questions about how *change* in determinants of health is associated with *change* in health outcomes or determinants of health

It should be clear who conducted the review and how can they be contacted.

The reviewers should not have a vested interest in the direction of the evidence.

The review should be directed/ assessed by peers or a suitable advisory panel.

Questions about the conduct of the review/research

The research question that the review deals with should be clear, and allow the authors? others? to judge how strong the evidence marshalled in the paper is.

Reviewers should make explicit what their search strategies were.

It should be possible to replicate the search strategies.

The search procedures should be comprehensive and report all the material found in the search that is relevant to the review and meets the necessary criteria.

It should be clear on what basis research findings have been included or excluded from the review. The selection should be based on explicit criteria ~~relating to the quality and power of the research.~~ *[if we use words like quality and power of research then we will need to qualify them].*

It should be possible identify search strategies that the reviewers have not conducted. */ don't understand what this means- leave this out?*

The authors of the review should acknowledge the weaknesses in what they have written.

The authors should make it clear what 'theories of change' may underpin their assessment of the evidence (*again not sure that this is clear- may not have a theory of change may be just 'looking at links between X and Y' for an HIA- although if there is an explicit hypothesis than this should be stated*).

The review should consider whether the research reviewed was ethical.

It should be possible for the evidence to be tracked back to primary sources exactly i.e. to specific research papers or pages in specific source documents.

The source material should be trustworthy. Ideally it will be drawn from reputable peer reviewed sources. If not, this must be justified (eg reviewers may have accessed unpublished data in order to overcome publication bias)

If the source is 'grey' literature, the reviewers should check whether the apparent strength of the evidence is an artefact of double counting of studies. Reviewers should take care to check whether the strength of the evidence depends on the use of fact sheets from pressure groups and or from self-referred work.

Questions about how the evidence gathered has been reported and interpreted:

The data on which the review is based should be provided in a full enough way for readers of the research/review to judge for themselves, independently, the strength of the evidence. This may be achieved using structured format recording key information such as:

- The reference for the study
- The study design and the context in which it was carried out
- The methods used to analyse the information collected about determinants of health and health outcomes
- The conclusions that were drawn about how change in health determinants affects health outcomes in the study population

The strength of the evidence should appraised or calibrated in some way, according to qualitative or quantitative criteria. This should provide some guidance about how much weight to attach to different parts of the evidence.

The reviewers should be clear about any procedures they have used to analyse the information collected.

The review/research should make plain the steps have been taken to aggregate results of the data and reduce bias. If bias has only been partly addressed or not considered at all, there should be discussion of what is/are the potential bias(es) which should be included and acknowledged. It should be clear how far the treatment of bias in the review affects its conclusions about the strength of the evidence.

The review should provide conclusions and be summarised in a reasonably accessible way to aid decision makers, including comments on the limitations of the evidence.

Rapid reviews, which may need to be conducted in a few days in some cases, will probably not always meet the 'gold standard' requirements listed in the box above. However, some consideration should be given to these criteria and this list outlines some suggestions for guidelines for rapid reviews for HIA (also drawn from sources 1,2,3,4). For some of these, it may be adequate for reviewers to include some self-appraisal of the review they have produced by including some commentary about these points. These are 'first draft' criteria, and we are seeking advice from a range of experts and from the wider literature in order to see how these might be modified.

The purpose of the review and the organization producing the research/review

The review should be framed in a way that addresses questions relevant for the HIA for which was designed. These will usually be questions about of how *change* (improvement) in determinants of health is associated with *change* in health outcomes?

It should be clear who conducted the review and how can they be contacted.

The reviewers should not have a vested interest in the direction of the evidence.

The review should ideally be directed/ assessed by peers or a suitable advisory panel.

Questions about the conduct of the review/research

The process of carrying out the review should be described clearly.

The research question that the review deals with should be clear.

The authors of the review should acknowledge the weaknesses in what they have written.

The authors should make it clear what 'theories of change' which may underpin their assessment of the evidence (*again what does this mean specifically in lay terms?*).

Reviewers should make plain what their search strategies were.

It should be clear on what basis research findings have been included or excluded from the review. The selection should be based on criteria relating to the *quality and power of the research.*? *Uncomfortable using quality and power of research – this needs to be made explicit (ie what criteria do we suggest are used ?)*

The authors should comment on how far their search procedures could be comprehensive and they should report all the material found in the search that is relevant to the review and meets their selection criteria.

It should be possible identify search strategies that the reviewers have not conducted.

It should be possible for the evidence reported to be tracked back to primary sources exactly i.e. to specific research papers or pages in specific source documents.

The source material should be trustworthy. Ideally it will be drawn from reputable peer reviewed sources. If not, this must be justified (eg reviewers may have accessed unpublished data in order to overcome publication bias)

If the source is 'grey' literature, the reviewers should check whether the apparent strength of the evidence an artefact of double counting of studies. Reviewers should take care to check whether the strength of the evidence depends on the use of fact sheets from pressure groups and or from self-referred work.

Questions about how the evidence gathered has been reported and interpreted:

The data on which the review is based should be provided in a full enough way for readers of the research/review to judge for themselves, independently, the strength of the evidence. This may be achieved using structured format recording key information such as:

- The reference for the study
- The study design and the context in which it was carried out
- The methods used in the research to analyse the information collected about determinants of health and health outcomes
- The conclusions that were drawn about how change in health determinants affects health outcomes in the study population

The strength of the evidence should appraised or calibrated in some way, according to qualitative or quantitative criteria. This should provide some guidance about how much weight to attach to different parts of the evidence.

The reviewers should be clear about any procedures they have used to analyse the information collected.

The review/research should make plain the steps taken to aggregate results of the data and reduce bias. If bias has only been partly addressed or not considered at all, there should be discussion of what is/are the potential bias(es) which should be included and acknowledged. It should be clear how far the treatment of bias in the review affects its conclusions about the strength of the evidence.

The review should provide conclusions and be summarised in a reasonably accessible way to aid decision makers, including comments on the limitations of the evidence.

1.2 **References:** the items listed above are derived and adapted from:

1. Cochrane Collaboration (2003) Cochrane Reviewer's Handbook
2. Olssen, O. (1999) Draft chapters for guidelines on non-randomised studies in Cochrane reviews. 2. Types of study design (*Prepared and developed by Ole Olsen – previous versions discussed by Cochrane Collaboration NRSMG at meetings in Rome 1999, Copenhagen 2000 and Cape Town 2000 - to be further revised*)
3. Swann, C, Falce, C., Morgan, A., Kelly, M. Powell, G. (2003) HAD Evidence Base Process and Quality Standards for Evidence Briefings, 2nd Edition. Health Development Agency, London.
4. Spencer, L., Ritchie, J., Lewis, J. Dillon, L. A. (2003) Quality in Qualitative Evaluation: A framework for assessing research evidence. Strategy Unit, Government Chief Social Researcher's Office.

Appendix E Summary of workshop held April 2004

at International Association for Impact Assessment (IAIA) conference Vancouver,

Issues raised

1. Need to **clarify** what we are doing (and that it is intended for the UK context)
 - a) (one person's view only) - unnecessary because relevant high quality reviews of evidence readily available for any HIA.
 - b) (another one person's view only) detailed guidance for comprehensive reviews: excellent idea but guidance for brief reviews pointless as HIA practitioners have neither time nor understanding to use criteria or do reviews.
 - c) reviews of evidence aren't readily available so what is needed is more reviews to be available for use; guidance also likely to be useful but only if piloted by "ordinary" local practitioners
2. Need to explain better **what** we are focusing on and **why** (i.e. improve access to quality reviews).
 - a) beware of focus on this element of evidence for this project misinterpreted, as this form of evidence paramount.
3. Are there different criteria for:
 - a) Scientific accountability
 - b) Social accountability
 - c) Legal accountability?
4. No. of outputs - not discussed in view of (1) above
 - a) (one view) - 2 sets of criteria - conducting reviews; appraising quality of reviews

What makes a good review?

- Involving stakeholders in framing the questions for the review
- Search criteria - key words
- Database searched, which years
- Appraisal of studies - inclusion criteria; exclusion criteria
- Advice sought from know topic experts
- Followed recognised protocol (e.g. Cochrane - if relevant)
- Accuracy of data (presumably accuracy of findings of review compared with the constituent primary studies)
- Accountability
- Generalisability (if conducting a generic review) **or**;
- Comparability (if conducting a review for a specific HIA) - i.e. need not be generalisable everywhere if the circumstances of the study are comparable to the circumstances of the proposal
- Defined specific question(s) for the review (including e.g. the population ; e.g. age-group to which it applies)
- Defined review outcomes [*Lorraine - can you explain what you mean?*]
- Review peer-reviewed
- Relevance of review to local community and to decision-makers i.e. does it meet their information needs? [*JM e.g. topics reviewed? Language? Format?*]

Other comments made but not part of quality criteria

- Accuracy of data
- Severity of impact
- More important issues require more critical appraisal
- Quality/credibility of review - who?

- Source of review - e.g. rated website, reputable, reliable
- How produced - individual vs panel

The **quality** of the review is assessed by the usual criteria (section B above) and not by those in section C. However, the weight given to the evidence, the need to invoke the Precautionary Principle, the recommendations **would** be influenced by section C. i.e. Good quality evidence is fine. When reviews or the underlying primary studies are of poor quality (or absent), the need to make recommendations would vary depending on section C. NB This is only about one aspect of the appraisal stage.

		COLLATED COMMENTS ON DRAFT 2.2 (with initials)	
NB this will eventually be available as a web-based tool. Underlined words will eventually appear as a hyperlink.	COLUMNS A & B ARE DRAFT 2.2 as a reminder for interpreting the comments	Key: JM Jenny Mindell, AB Anna Boltong, ABz Annette Boaz, Jpopay Jenny Popay, JayneP Jayne Parry, SC Sarah Curtis, MD Margaret Douglas, MJ Mike Joffe, AS Amanda Sowden, CL Carolyn Lester, CW Colleen Williams.	Amanda Sowden
A framework for conducting reviews for use in Health Impact Assessment		Looks fine. Agree with JM comments. When will it be available on the web? (CW) No specific comments (but only a quick look) (JayneP)	NB Paragraphs sent after lengthy phone discussion, summarised in italics below
The need for guidelines for reviewing evidence for use in HIA.			CRD Scoping reviews
<p>Reviewing evidence for use in Health Impact Assessment presents methodological challenges from other purposes for which evidence is collated in a number of ways, including:</p> <ul style="list-style-type: none"> the focus on complex interventions or policy proposals and their diverse effects on determinants of health; the diversity of the evidence in terms of relevant disciplines, study designs, quality criteria and sources of information because of the wide range of interventions/approaches that may contribute to improving health, ie the need to search, obtain, and appraise a broad literature; the need for, but paucity of, evidence on the reversibility of adverse factors damaging to health (most evidence being of associations between factors and adverse effects, not studies of reversing these); the broad range of stakeholders involved; the need to seek evidence about potential impacts on inequalities as well as on overall effects; the need to apply health impact assessment within the realities of policymaking, planning and decision-making processes, which can often mean short timescales and limited resources generally available; the pragmatic need to inform decision-makers regardless of the quality of the evidence. <p>These factors have implications for the commissioning and conducting of reviews.</p>		<p>? bullet point one - The focus on complex, multiple interventions - (AB) ? Bullet point three - & the quest for info on such a broad range of health and other impacts (AB) More emphasis on inequalities as this seems to be getting lost among other priorities. (CL) I think that I have previously commented that I think that this introductory material would be better if it were to be phrased positively in terms of the characteristics of HIA reviews that present challenges for methods rather than highlighting these as ways in which HIA review differ from other collations as increasingly these characteristics are common to other evidence synthesis approaches. (Jpopay)</p>	
			<p>Scoping reviews can be divided into two main types. The first is where systematic searches for a defined topic area are undertaken, and classification of the identified records is based on the titles and abstracts only. Usually the searches are limited to a small set of electronic databases and may be limited by year and/or by language. This gives a relatively rapid but very rough indication of a) the volume of literature and b) the type of literature (e.g. systematic review, RCT, cohort study, etc). The second approach involves systematic searches of a range of relevant databases, an initial assessment based on the titles and abstracts and retrieval of full documents that are of particular interest. Once the full documents are obtained they are screened and a limited amount of data is extracted. This allows a more accurate assessment of the body of the literature and in some cases also allows the reviewers to judge whether the existing evidence is consistent, ambiguous, inconclusive or of uncertain quality.</p>
How to use this resource			
This framework is meant as a step by step checklist to assist any practitioner who is reviewing evidence for use in an HIA. As there may be limited time and resources available it is presented in two columns; essential components that must be included even in a brief review; and additional criteria for more comprehensive reviews.		? Framework not checklist (JM) ?elements not criteria (JM)	<p>Use of terms: Terms such as research synthesis and meta-analysis, are often used to refer to what we call systematic review. Terms such as rapid review, scoping review, mapping of the literature, rapid evidence assessments, rapid appraisal are used to refer to reviews which are not full systematic reviews, but without clear definitions. Some examples can be found at the following websites:</p>
Those conducting a review should be familiar with basic concepts for critical appraisal and research methods. Some organisations offer <u>critical appraisal training in the UK</u> . [NB list and link to organisations in the UK such as CASP, Oxford which run training courses for health professionals]		Greater emphasis needed on using and adapting readily available review level evidence, e.g. Cochrane, HDA, HTA, CRD, etc. where critical appraisal has been done by 'reliable others'. (CL)+C20 I think that you need to spell out what you mean by critical appraisal as some people might not know what you mean by this and presumably many people will read this far into the guide before realising it is not for them. (Jpopay)	<p>http://www.policyhub.gov.uk/ see the Magenta Book for discussion of rapid evidence assessments http://eppi.ioe.ac.uk/EPPIWeb/home.aspx - see the EPPI-centre for examples of research maps/mapping the research literature</p>

	<i>DRAFT - NOT FOR USE EXCEPT FOR PILOTING after discussion with J Mindell</i>	Appendix F
Collated comments not addressed in Draft 3.0 and JM's responses	NB this will eventually be available as a web-based tool. Underlined words will eventually appear as a hyperlink.	COLUMNS D & E ARE DRAFT 3
	A resource for conducting literature reviews for use in Health Impact Assessment	Examples, URLs to link to, etc
	The need for guidelines for reviewing evidence for use in HIA.	
	<p>Reviewing evidence for use in Health Impact Assessment presents methodological challenges in a number of ways, including:</p> <ul style="list-style-type: none"> • the focus on complex &/or multiple interventions or policy proposals and their diverse effects on determinants of health; • the diversity of the evidence in terms of relevant disciplines, study designs, quality criteria and sources of information because of the wide range of interventions/approaches that may contribute to improving health and the broad range of health impacts, ie the need to search, obtain, and appraise a broad literature; • the need for, but paucity of, evidence on the reversibility of adverse factors damaging to health (most evidence being of associations between factors and adverse effects, not studies of reversing these); • the need to seek evidence about potential impacts on inequalities as well as on overall effects; • the broad range of stakeholders involved; • the need to apply health impact assessment within the realities of policymaking, planning and decision-making processes, which can often mean short timescales and limited resources generally available; • the pragmatic need to inform decision-makers regardless of the quality of the evidence. <p>These factors have implications for the commissioning and conducting of literature reviews.</p>	Information on systematic reviews in general: http://www.nelh.nhs.uk/systematic.asp
	Types of literature review	
	<p>A number of terms are used by different groups to describe similar, or different, approaches to conducting literature reviews. For example, 'rapid review' can be used to mean a systematic review conducted by six people in six months instead of two people over 18 months but it is also used within HIA to signify a review taking a few days, based on secondary sources alone. Terms such as 'research synthesis' and 'meta-analysis' are often used to refer to what we call 'systematic review'. (link to http://www.nelh.nhs.uk/systematic.asp) Terms such as 'rapid review', 'scoping review', 'mapping of the literature', 'rapid evidence assessments', and 'rapid appraisal' are used to refer to reviews which are not full systematic reviews, but without clear definitions. Some examples can be found at the following websites: http://www.policyhub.gov.uk/ (see the Magenta Book for discussion of rapid evidence assessments) http://eppi.ioe.ac.uk/EPPiWeb/home.aspx - (see the EPPi-centre for examples of research maps/mapping the research literature) The Centre for Reviews & Dissemination at York also uses the term 'scoping review' (link to text in next cell)</p>	<p>CRD Scoping reviews: Scoping reviews can be divided into two main types. The first is where systematic searches for a defined topic area are undertaken, and classification of the identified records is based on the titles and abstracts only. Usually the searches are limited to a small set of electronic databases and may be limited by year and/or by language. This gives a relatively rapid but very rough indication of a) the volume of literature and b) the type of literature (e.g. systematic review, RCT, cohort study, etc). The second approach involves systematic searches of a range of relevant databases, an initial assessment based on the titles and abstracts and retrieval of full documents that are of particular interest. Once the full documents are obtained they are screened and a limited amount of data is extracted. This allows a more accurate assessment of the body of the literature and in some cases also allows the reviewers to judge whether the existing evidence is consistent, ambiguous, inconclusive or of uncertain quality.</p>
	<p>This document uses two terms: 'brief' and 'more comprehensive'. While it is acknowledged that a comprehensive, systematic review of all relevant literature will provide the best evidence, such reviews generally take many person-months (or years) to complete, and require resources not generally available to those conducting HIA. In practice, 'brief' reviews are generally conducted or commissioned, taking a few days or weeks. These have been of variable quality. Assessing such reviews is hampered when the methods used are not stated explicitly. This resource therefore indicates the minimum criteria that are essential in any literature review, however limited the resources, and also points to additional elements to be included when circumstances permit to add to the robustness of a review's conclusions.</p>	
	How to use this resource	
	<p>This resource is meant as a step by step framework to assist any practitioner who is reviewing evidence for use in an HIA. As there may be limited time and resources available it is presented in two columns; essential components that must be included even in a brief literature review; and additional elements that can be included when resources (including time and skills) permit, for more comprehensive literature reviews.</p>	Catalogue of Evidence based medicine / healthcare website: http://www.herts.ac.uk/lis/subjects/health/ebm.htm#ebmint
	<p>Those conducting a literature review should be familiar with basic concepts for critical appraisal (ie assessing the quality and relevance of evidence) and research methods. Some organisations offer critical appraisal training in the UK [NB list and link to organisations in the UK such as CASP, Oxford which run training courses for health professionals]</p>	[NB list and link to organisations in the UK such as CASP, Oxford which run training courses for health professionals] PLEASE PROVIDE!!

A framework for conducting reviews for use in Health Impact Assessment		Looks fine. Agree with JM comments. When will it be available on the web? (CW) specific comments (but only a quick look) (JayneP)	No	NB Paragraphs sent after lengthy phone discussion, summarised in italics below
ESSENTIAL COMPONENTS OF A BRIEF REVIEW	ADDITIONAL CRITERIA FOR MORE COMPREHENSIVE REVIEWS	?Elements not criteria (JM) ? 'Components' - for consistency (AB) Maybe worth including an introductory section about the different kinds of reviews, with examples where possible. (AS)		
A. Basic information on the purpose, organisation and structure of the review		there is nothing in here on structure - should there be I think it would be good? (Jpopay) Add section on how to access 'readily available' existing systematic reviews; how to interpret these for quality & relevance to 'your' area; and how to update them (AS)		
1. The organisation producing the review and the purpose of the review should be clearly stated.				<i>Need to be clearer about why choosing a brief review, and terms used (see her suggestion above). What we're calling a 'rapid review' is now called a 'scoping review' at CRD York - decision taken early on limited literature search - eg limited by year(s) or database(s). Scoping review seeks to discover what types of studies have been carried out to indicate the breadth & depth of the evidence but without in-depth analysis, quality checks, or synthesis. NICE is also doing 'rapid review' following the systematic review methods but with shortcuts eg English language only. So need to alter introduction to incorporate WHY people do brief reviews and what we're trying to do with this resource.</i>
2. It should be clear who conducted the review (name and post). If multiple staff involved, who is/was responsible for specific roles should be listed.				Also, might be worth including information about when a 'review' is needed; have relevant sources of available reviews been checked (eg Cochrane database of Systematic reviews, (CDSR), Database of Abstracts of Reviews of Effects (DARE), Campbell Library. Together with information about how results of reviews can be used/interpreted/of relevance to local situations.
	4. The review should be subject to external peer review before dissemination. Details of the peer review process should be noted.	I would suggest that having somebody outside the team read the review should be essential even if it isn't a formal peer review (Jpopay)		
	5. For confidence in the unbiased nature of the review, the work should be managed by peers or a suitable advisory panel.	If resources are not available for peer group management, a steering group of stakeholders can be useful. (CL)		
	6. A date for planned updating of the review should be stated.	This is important if the review is intended to be used in other HIAs, but may not be planned in a review that is being carried out for a specific one off HIA (MD)		

A resource for conducting literature reviews for use in Health Impact Assessment		Examples, URLs to link to, etc	Appendix F
ESSENTIAL COMPONENTS OF A BRIEF LITERATURE REVIEW	ADDITIONAL ELEMENTS FOR MORE COMPREHENSIVE LITERATURE REVIEWS		
A. Determining whether a literature review is required and what its scope should be			
1. Do(es a) relevant, systematic literature review(s) already exist on relevant areas? Readily available systematic literature reviews can be found by searching Cochrane, Campbell, EPPI, HDA, HTA, CRD, ESRC (insert links here). Reviews found on these websites are already quality-assured	1. A search of literature reviews published in peer-literature reviewed literature could also be conducted, using 'literature review' as one of the search terms	Cochrane http://www.cochrane.org/index0.htm Campbell http://www.campbellcollaboration.org/Fralibrary2.html EPPI-Centre http://eppi.ioe.ac.uk/EPPIWeb/home.aspx?&page=/hp/reviews.htm Health Development Agency (HDA) Evidence Base http://www.hda-online.org.uk/html/research/index.html Health Technology Assessment (HTA) http://www.york.ac.uk/inst/crd/hta.htm Centre for Reviews & Dissemination (University of York) (CRD) http://www.york.ac.uk/inst/crd/ ESRC – <i>Annette – help! – I can never find the right part of the ESRC site</i>	
	2. The quality of other existing literature reviews should be formally assessed (eg insert link to quality appraisal tool)		
	3. For areas of relevance not covered by existing literature reviews, proceed via the steps below		
	4. Primary studies published since the literature search was conducted for the existing review(s) should be sought, reviewed and their findings integrated with those of the earlier review. Discrepancies should be discussed and explained where possible. (see below for details for each stage)		
B. Basic information on the purpose, organisation and structure of the literature review			
1. The organisation producing the review and the purpose of the literature review should be clearly stated.			
2. It should be clear who conducted the literature review (name and post). If multiple staff involved, who is/was responsible for specific roles should be listed.			
3. The literature review should be structured to include:	3. Additional useful information includes:		
* The review question	* Who contributed to formulating the review question(s)		
* Details of the literature search conducted (see section D)	* A summary of each included study		
* The findings	* Critical appraisal of each included article or report		
* The references for all included articles and reports	* A lay summary of the literature review		
* Conclusions			
* Date of completion of literature review			
4. The literature review should be read by at least one person not involved with conducting the review	4. The literature review should be subject to external peer literature review before dissemination. Details of the peer literature review process should be noted.		
	5. For confidence in the unbiased nature of the literature review, the work should be managed by peers, or a suitable advisory panel, including stakeholders.		
	6. A date for planned updating of the literature review should be stated if it is envisaged that the literature review will be used beyond this one HIA.		

A framework for conducting reviews for use in Health Impact Assessment		Looks fine. Agree with JM comments. When will it be available on the web? (CW) specific comments (but only a quick look) (JayneP)	No	NB Paragraphs sent after lengthy phone discussion, summarised in italics below
B. Framing the question(s)				
ESSENTIAL COMPONENTS OF A BRIEF REVIEW		ADDITIONAL CRITERIA FOR MORE COMPREHENSIVE REVIEWS		
1. The question asked by the literature review should be clear and specific. However it should be noted that the defined topic area may not necessarily be as tight and limited as that for a randomised controlled trial (e.g. a randomised controlled trial of 'exercise on prescription scheme' versus the health effects of local transport policies).				Question or question(s)? (MD) CRD York & Cochrane have same issues for their reviews re 'lumping' or 'splitting' eg address a wider question using a series of linked, more focused reviews. (AS) I still think its unnecessary to mention RCTs here. They are a type of primary research (ABz) Are you deliberately calling this a literature review - seems important to be clear about the phrase you are using and use this all the way through. I am also not clear why the example you give is a RCT - would the illustration not work better if you compared a HIA review with a cochrane style review of a specific drug therapy rather than with the hypothesis tested in a RCT?(Jpopay) sp. Prescription; also is the (useful) example really clearly explained?(SC)
2. The review question should be relevant to the HIA (i.e. identified by the scoping as part of the HIA process)				
3. What are the population groups and demographic factors that are of interest to the HIA ? (see comments on generalisability in section E 'Interpretation'.)				? 'relevant' rather than 'of interest'? (JM) Yes (AB). Also perhaps should read as an instruction rather than a question, again for consistency eg. 'the population groups.... should be stipulated' The focus should always be on the most disadvantaged, to at least ensure that their situation is not aggravated by any plan/policy. (CL) should there not be something in here on specifying the technology that is the focus of the impact? (Jpopay)
4. The following issues are important to consider in a review for an HIA as they may provide information for mitigation or alternative scenarios (NB there may be little of no information available) - Evidence of effectiveness of interventions or mitigations strategies (if identified as part of scoping) - Evidence of reversibility - Effect on inequalities - Economic appraisal				Should HIA be concerned with economic appraisal? Conclusions and recommendations should not be influenced by relative cost: economic appraisal should be separated from independent advice on health impacts. (CL) ? 'Economic effects' (AB) Could we insert a comprehensive box here that says something like 'If possible, stakeholder consultation on the scope of the question can help to build ownership of the review and to check the relevance of the review question.' (ABz) little or no information (MJ) sp. mitigation strategies (SC)
C. Literature search				
ESSENTIAL COMPONENTS OF A BRIEF REVIEW		ADDITIONAL CRITERIA FOR MORE COMPREHENSIVE REVIEWS		
The review should be explicit about the search strategies used. Specific issues that need to be recorded include:		Seek advice from a librarian or information specialist on search terms, search strategies and databases		
1. Range of years included				
2. Literature database(s) searched				might clarify years of publication (otherwise could be years to which the studies relate?) SC
3. Details of search terms used (you may wish to keep your search terms broad to identify the full range of relevant information)				
4. The inclusion and exclusion criteria used to identify studies to be included in the review				
5. The languages of articles included				sp. Included (SC)
6. The list of experts (if any) contacted				
7. How the Grey literature, if any, was identified? (Specify search criteria & sources used e.g. the internet, contact with organisations)				? Dates (AB) v
		Search cited references from articles identified		
		Hand search contents of potentially relevant journals.		
8. The number of articles or reports identified by the search that contribute to the review. (It is important to ensure removal of duplicate papers found in different databases, and articles that incorporate the same study population that have been reported more than once.)				what about keeping tally of the total number of items identified before inclusion and exclusion criteria applied (Jpopay) I'm not sure why 'duplicate' papers should be removed, as they are likely to contribute different findings from the same study. I agree that the number of different studies underlying the findings should be clear (SC)
9. Comments on any constraints e.g. if the review was limited by time, access to databases, or the inability to obtain copies of papers.				

A resource for conducting literature reviews for use in Health Impact Assessment		Examples, URLs to link to, etc	Appendix F
C. Framing the question(s)			
	ESSENTIAL COMPONENTS OF A BRIEF REVIEW	ADDITIONAL ELEMENTS FOR MORE COMPREHENSIVE REVIEWS	Examples, URLs to link to, etc
	1. The question(s) asked by the literature review should be clear and specific. However it should be noted that the defined topic area may not necessarily be as tight and limited as that for a meta-analysis of randomised controlled trials (e.g. the effects of 'exercise on prescription' schemes versus the health effects of local transport policies).	1. One approach to broader questions is to address this using a series of linked, more focused reviews	A website listing sites that provide advice on focusing the question (but with a very clinical focus): http://www.shef.ac.uk/scharr/ir/focusing.html
	2. The literature review question should be relevant to the HIA (i.e. identified by the scoping as part of the HIA process)	2. Stakeholder consultation on the scope of the question(s) can help to build ownership of the literature review and to check the relevance of the literature review question(s).	
<i>should there not be something in here on specifying the technology that is the focus of the impact? (Popay) I think this is seldom relevant in an HIA (in the sense of Health Technology); where other aspects of technology have health impacts, it is likely to have a range of impacts on health and the determinants of health. What do others think?</i>	3. The population groups and demographic factors that are relevant to the HIA should be stipulated, including vulnerable groups and others with different exposure or susceptibility. (see comments on generalisability in section E 'Interpretation'.)		
<i>Should HIA be concerned with economic appraisal? Conclusions and recommendations should not be influenced by relative cost: economic appraisal should be separated from independent advice on health impacts. (CL) A major theme in the 2004 Wanless report was the lack of evidence of effectiveness and even more, the lack of evidence on cost-effectiveness. We therefore feel it is important when reviewing the literature to seek such information. In reality, economics affects decision-makers more often than health. In many cases, the better options for health are also more cost-effective (which does not mean cheaper, necessarily) We are not saying that economic information is paramount, nor that it would necessarily influence conclusions, recommendations, or the independence of the review. Economic effects' (AB) not necessarily effects, may relate to cost-effectiveness of interventions not just to eg economic effects on business of eg congestion charging</i>	4. The following issues are important to consider in a literature review for an HIA as they may provide information for mitigation or alternative scenarios (NB there may be little or no information available) - Evidence of effectiveness of interventions or mitigation strategies (if identified as part of scoping) - Evidence of reversibility - Effect on inequalities - Economic appraisal		
D. Literature search			
	ESSENTIAL COMPONENTS OF A BRIEF REVIEW	ADDITIONAL ELEMENTS FOR MORE COMPREHENSIVE REVIEWS	Examples, URLs to link to, etc
	The literature review should be explicit about the search strategies used. Specific issues that need to be recorded include:	Seek advice from a librarian or information specialist on search terms, search strategies and databases	http://www.evidencenetwork.org/resources.asp
	1. Range of years (of publication dates) included		
	2. Literature database(s) searched		
	3. Details of search terms used (you may wish to keep your search terms broad to identify the full range of relevant information)		
	4. The inclusion and exclusion criteria used to identify studies to be included in the literature review		
	5. The languages of articles included		
	6. The list of experts (if any) contacted		
	7. How the Grey literature, if any, was identified? (Specify search criteria & sources used e.g the internet, contact with organisations, date(s) of search)		
		Search cited references from articles identified	
		Hand search contents of potentially relevant journals	
	8. The number of articles or reports identified by the search that contribute to the literature review. (It is important to ensure removal of all but one record of identical papers found in different databases, and all but one of a series of articles that present similar results from the same study population reported more than once.)	8. A tally should be kept of the total number of items identified before inclusion and exclusion criteria are applied, the number that meet the inclusion criteria, and the number excluded (with reasons)	
	9. Comments on any constraints e.g. if the literature review was limited by time, access to databases, or the inability to obtain copies of papers.		

A framework for conducting reviews for use in Health Impact Assessment		Looks fine. Agree with JM comments. When will it be available on the web? (CW) specific comments (but only a quick look) (JayneP)	No	NB Paragraphs sent after lengthy phone discussion, summarised in italics below
D. Quality Appraisal		earlier you call this critical appraisal? Jpopay		
ESSENTIAL COMPONENTS OF A BRIEF REVIEW	ADDITIONAL CRITERIA FOR MORE COMPREHENSIVE REVIEWS			
1. Any weaknesses in an article that may effect your confidence in its conclusion (which may effect the quality of the review) should be explicitly noted. E.g. the impartiality of sources, suitability and rigor of the research methods, the extent to which the conclusions are supported by the results	1. Apply appropriate quality criteria according to the study design of each article or literature review identified for inclusion in the review (if such a tool exists). <u>Examples of quality appraisal tools</u> [link on the LHO website]	E.g. the lack of impartiality of sources, suitability and rigor ... (MJ) ? Sample group size etc (AB) There is nothing in here on structure - should there be I think it would be good? (Jpopay) examples are fine, but are illustrations of strengths not weaknesses - might clarify that of concern is 'lack of' these attributes?(SC)		
2. It should be explicitly stated if any articles have been excluded on the grounds of limited quality.	2. Report on the method used to classify the quality of each paper (e.g. strong- weak, 1-5)	Are they all going to be articles? Jpopay		
	3. Ideally quality should be appraised by two independent assessors, and discrepancies detailed.			
	4. If quality criteria are used to exclude studies, explicitly specify how this was done, and detail the studies excluded.	Given your earlier comments on the range of material that could be included in these reviews it is worth noting perhaps that there are no available appraisal frameworks for use with some study designs - survey research for example? (Jpopay) If conclusions from reviews of high quality studies are inconclusive, results of lower quality studies should be reported with caveats. (CL)		
E. Interpretation				
ESSENTIAL COMPONENTS OF A BRIEF REVIEW	ADDITIONAL CRITERIA FOR MORE COMPREHENSIVE REVIEWS			
All reviews should include:				
1. Details of any process or methods that have been used to combine and synthesise the findings of the studies identified (either quantitative or narrative)	1. <u>Methods of synthesizing study findings</u> (e.g. meta-analysis). If applied are the techniques appropriate e.g. statistics. [weblink to examples and refs of synthesising evidence]	what about data extraction? Jpopay		
2. A discussion of gaps in the evidence found by the review		by the?? (ABz)		
3. Factors affecting the quality of the review (e.g. bias, confounding of articles). See section D.				
4. If applicable, discussion of specific consideration of the evidence of effectiveness of interventions or mitigation measures				
5. If available, discussion of specific consideration of the evidence of effect on inequalities				
6. If available, discussion of specific consideration of the evidence from economic appraisals				

	A resource for conducting literature reviews for use in Health Impact Assessment		Examples, URLs to link to, etc
<p>earlier you call this critical appraisal? (Jpopay) This section is just about quality, whereas there are other aspects (eg relevance, suitability of study design) that are included in critical appraisal, but I am happy to change either this to critical appraisal or the earlier comment to quality appraisal if the consensus is that we should use the same term in both places</p>	E. Quality Appraisal		Appendix F
	ESSENTIAL COMPONENTS OF A BRIEF REVIEW	ADDITIONAL ELEMENTS FOR MORE COMPREHENSIVE REVIEWS	Examples, URLs to link to, etc
	1. Any weaknesses in an article that may effect your confidence in its conclusion (which may effect the quality of the literature review) should be explicitly noted. E.g. lack of the impartiality of sources, suitability and rigor of the research methods (including sufficient sample size), the extent to which the conclusions are supported by the results	1. Apply appropriate quality criteria according to the study design of each article or literature literature review identified for inclusion in the literature review (if such a tool exists). Examples of quality appraisal tools [link on the LHO website]	
	2. It should be explicitly stated if any articles or reports have been excluded on the grounds of limited quality.	2. Report on the method used to classify the quality of each paper (e.g. strong- weak, 1-5)	
		3. Ideally quality should be appraised by two independent assessors, and discrepancies detailed.	
<p>Given your earlier comments on the range of material that could be included in these reviews it is worth noting perhaps that there are no available appraisal frameworks for use with some study designs - survey research for example? (Jpopay) If conclusions from reviews of high quality studies are inconclusive, results of lower quality studies should be reported with caveats. (CL)</p>		4. If quality criteria are used to exclude studies, explicitly specify how this was done, and detail the studies excluded.	
	F. Interpretation		
	ESSENTIAL COMPONENTS OF A BRIEF REVIEW	ADDITIONAL ELEMENTS FOR MORE COMPREHENSIVE REVIEWS	Examples, URLs to link to, etc
	All literature reviews should include:		
	Further useful information includes:		
	2. Details of any process or methods that have been used to combine and synthesise the findings of the studies identified (either quantitative or narrative)	1. Details of the method(s) used for extracting data from individual articles and reports 2. Methods of synthesizing study findings (e.g. meta-analysis). If applied are the techniques appropriate e.g. statistics.[weblink to examples and refs of synthesising evidence]	HDA paper on integrating qualitative and quantitative research: http://www.hda-online.org.uk/documents/integrative_approaches.pdf
	3. A discussion of gaps in the evidence found by the literature search		
	4. Factors affecting the quality of the literature review (e.g. bias, confounding of articles). See section D.		
	5. If applicable, discussion of specific consideration of the evidence of effectiveness of interventions or mitigation measures		
	6. If available, discussion of specific consideration of the evidence of effect on inequalities		
	7. If available, discussion of specific consideration of the evidence from economic appraisals		

A framework for conducting reviews for use in Health Impact Assessment		Looks fine. Agree with JM comments. When will it be available on the web? (CW) specific comments (but only a quick look) (JayneP)	No	NB Paragraphs sent after lengthy phone discussion, summarised in italics below
7. A summary of all the studies included in the review. This must contain: - The full reference for the study	Ideally a summary of all studies should also contain: - The study design, location and context in which it was carried out -The methods used to collect information (e.g. survey design) -The methods used to analyse information - The results, and conclusions drawn	? Should column B be moved to the essential column (AB)		
8. The review should discuss the comparability of the studies reviewed to the specific context of the HIA (i.e.relevance to the population groups and topic areas of interest in the HIA)	If the review is carried out not in relation to a specific HIA, the generalisability of specific studies and overall findings should be discussed.	? Relevance and transferability to the population groups (AB) relation not realtion (MJ, SC)		
9. Ideally, if the information is available, the review should report any exposure-effect/dose-response relationship.	More detailed information on the shape of any causal relationship, and the existence and threshold level for any effect should be stated. The magnitude of any effect should be estimated.			
10. If there is conflicting evidence identified in the review, the principles used to draw conclusions should be explicitly stated. For example, the weight given to the evidence could be appraised using quality criteria (see section D)	The 'hierarchy of evidence' is less relevant to most reviews of evidence for HIA than the suitability of the research design chosen [Link to Petticrew M, Roberts H. Horses for courses. <i>J Epidemiol Community Health</i> 2003;57:527-9.]	typo evidence (AB) "clinical" not "clinnical" (MJ)		
5. Conclusions				
ESSENTIAL COMPONENTS OF A BRIEF REVIEW		ADDITIONAL CRITERIA FOR MORE COMPREHENSIVE REVIEWS		
1. The review should provide clear conclusions of the literature review. These will not necessarily provide clear recommendations specifically about the options in an HIA unless this was part of the research question.		I think it would be useful to give an example here of both where it would be able to provide a clear recommendation and then another example of where it wouldn't (AB) should we have a line for 'overall presentation of the findings of the review' (brief or comprehensive). This might include production of a summary for practitioners/ summary for all readers/ a web accessible version?? (ABz) should it not be 'review' question rather than 'research' question? (Jpopay)		
2. The conclusions should be: • Based on the results presented • Justified by the evidence, with limitations of the evidence clearly described including evidence gaps and bias. The conclusion should state if the evidence is of poor quality, conflicting or not comparable.				
3. Relevance to the topic and the population groups of the HIA should be mentioned				
4. If included, specific conclusion should be drawn regarding implications for interventions and mitigation measures, reversibility, effect on inequalities; and economic appraisal.		I've enlarged the box (vertically) as the last line wasn't showing up (MJ) ?conclusions pl. (SC)		

	A resource for conducting literature reviews for use in Health Impact Assessment		Examples, URLs to link to, etc	Appendix F
	8. A summary of all the studies included in the literature review. This must contain: * The full reference for the study	8. Ideally a summary of all studies should also contain: * The study design, location and context in which it was carried out * The methods used to collect information (e.g. survey design) * The methods used to analyse information * The results, and conclusions drawn		
	8. The literature review should discuss the comparability of the studies literature reviewed to the specific context of the HIA (i.e.relevance and transferability to the population groups and topic areas of interest in the HIA)	If the literature review is carried out not in relation to a specific HIA, the generalisability of specific studies and overall findings should be discussed.		
	9. Ideally, if the information is available, the literature review should report any exposure-effect/dose-response relationship.	More detailed information on the shape of any causal relationship, and the existence and threshold level for any effect should be stated. The magnitude of any effect should be estimated.		
	10. If there is conflicting evidence identified in the literature review, the principles used to draw conclusions should be explicitly stated. For example, the weight given to the evidence could be appraised using quality criteria (see section D)	The 'hierarchy of evidence' is less relevant to most reviews of evidence for HIA than the suitability of the research design chosen [Link to Petticrew M, Roberts H. Horses for courses. J Epidemiol Community Health. 2003;57:527-9.]	Information on clinical 'levels of evidence' but these apply only to the validity of evidence about prevention, diagnosis, prognosis, therapy, and clinical harm: http://www.cebm.net/levels_of_evidence.asp Horses for courses: http://jech.bmjournals.com/cgi/reprint/57/7/527	
	G. Conclusions			
	ESSENTIAL COMPONENTS OF A BRIEF REVIEW	ADDITIONAL ELEMENTS FOR MORE COMPREHENSIVE REVIEWS	Examples, URLs to link to, etc	
<i>I think it would be useful to give an example here of both where it would be able to provide a clear recommendation and then another example of where it wouldn't (AB) suggestions from anyone of such examples, please!</i>	1. The literature review should provide clear conclusions of the studies reviewed. These will not necessarily provide clear recommendations specifically about the options in an HIA unless this was part of the review question.			
	2. The conclusions should be: • Based on the results presented • Justified by the evidence, with limitations of the evidence clearly described including evidence gaps and bias. The conclusion should state if the evidence is of poor quality, conflicting or not comparable.			
	3. Relevance to the topic and the population groups of the HIA should be mentioned			
	4. If included, specific conclusions should be drawn regarding implications for interventions and mitigation measures, reversibility, effect on inequalities; and economic appraisal.			
		5. Ideally, those reviewing the literature should produce: * a detailed report, giving as much information as is available * a lay summary for distribution to local stakeholders, including community members		
		6. Where possible, these should be available both in hard copy and via the internet		

Reviewing evidence for use in health impact assessment



The need for this resource

Reviewing evidence for use in health impact assessment (HIA) presents a number of methodological challenges, as follows.

- A focus on complex and/or multiple interventions or policy proposals, and their diverse effects on determinants of health.
- Diversity of the evidence – relevant disciplines, study designs, quality criteria and sources of information. Because of the wide range of interventions and approaches that may contribute to improving health and the broad range of health impacts, there is a need to search, obtain and appraise a broad literature.
- Need for, but paucity of, evidence on the reversibility of adverse factors damaging to health (most evidence is of associations between factors and adverse effects, not studies of reversing these).

Given the limited evidence base for public health, every opportunity to generate evidence from current policy and practice needs to be realised.

(Wanless, 2004)

- Need to seek evidence about potential impacts on inequalities as well as on overall effects.
- Broad range of stakeholders involved.
- Need to apply HIA within the realities of policy-making, planning and decision-making processes, which can often mean short time scales and limited resources.
- Pragmatic need to inform decision-makers, regardless of the quality of the evidence.

These factors have implications for commissioning and conducting literature reviews to ensure ethical use of evidence. For more detail see Mindell *et al.* (2004): <http://jech.bmjournals.com/cgi/reprint/58/7/546.pdf>

How to use this resource

This resource provides a step-by-step framework to assist practitioners in reviewing literature for use in an HIA. A literature review is an essential component of the evidence used in the appraisal stage. As there may be limited time and resources available, it presents both essential components that must be included, even in a brief literature review, and additional elements that can be included when resources (including time and skills) permit, for more comprehensive literature reviews.

When using this resource, please consider what type of review you are undertaking. If you are yourself making (or commissioning) a **new**

review of original research papers, this resource should help you ensure your review is rigorous. When commissioning a review, consider what is practical within the available resources (time and people/money) as well as what standards are wanted.

This resource may also be used to help appraise the quality of an **existing review**, whether based on original studies or drawing on one or more reviews by other authors. In this case each review will provide 'second-hand' reports of several original studies. This resource aims to help you judge the quality of the review process that other authors have applied.

Types of literature review

A number of terms are used to describe approaches to conducting literature reviews. More information on types of literature review and different approaches to conducting them can be found at:

www.lho.org.uk/hia/ReviewingEvidenceHIA.htm

This document uses two terms: **brief** and **more comprehensive**. While it is acknowledged that a comprehensive, systematic review of all relevant literature will provide the best evidence, such reviews generally take many person-months (or years) to complete and

require resources not generally available to those conducting HIA. In practice, brief reviews are generally conducted, taking a few days or weeks. These have been of variable quality. Critical appraisal of such reviews is hampered when the methods used are not explicitly stated.

This resource indicates the minimum criteria that are essential in any literature review, however brief or however limited the resources, and also suggests additional elements to be included when circumstances permit, to add to the robustness of a review's conclusions.

Nine steps to reviewing the evidence

The following tables provide details on the nine steps reviewers should follow. Less-experienced reviewers will find it helpful to work through the steps in the order presented, to ensure the review process proceeds in rational stages. More experienced reviewers will be familiar with the steps involved in carrying out a review, and may want to focus on certain areas to confirm particular aspects of good practice.

Reviewing evidence is an iterative process. The question/s to be answered need to be formulated at the beginning (**step A**), but the availability and content of primary studies and/or reviews (**steps B, E and F**) often refine the question/s remaining to be answered. For example, to answer the question '*What are*

the potential impacts of congestion charging on health and inequalities?', an absence of specific evidence on congestion charging might generate less specific questions on the impacts of congestion, traffic reduction, access, or job losses. Although framing the question is the first step, it will often need to be revised.

Those conducting a literature review should be familiar with the basic concepts of critical appraisal (assessing the quality and relevance of evidence) and research methods. Some organisations offer critical appraisal training in the UK (see below).

Step	
A	Framing the question/s
B	Determining whether a literature review is required
C	Purpose, organisation and structure
D	Setting inclusion and exclusion criteria
E	Literature search
F	Critical appraisal
G	Interpretation
H	Conclusions
I	Reporting

Training organisations

Critical Appraisal Skills Programme, Oxford
www.phru.nhs.uk/casp/casp.htm
 Centre for Reviews and Dissemination
 – Systematic reviews and critical appraisal
www.york.ac.uk/inst/crd/crdtraining.htm#sr
 National Training and Research Appraisal Group – Critical appraisal of qualitative research
www.ntrag.co.uk

Weblinks

For a catalogue of evidence-based medicine/healthcare websites:
www.herts.ac.uk/lis/subjects/health/ebm.htm#ebmint

Step A: Framing the question/s		
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Examples, tips and resources
1. The question/s asked by the literature review should be clear and focused, relating to the topic of the HIA	1. One approach to broader questions is to use a series of linked, more focused reviews	Examine the proposal on which the HIA is being conducted to inform the formulation of the question/s. It is likely that a number of different primary study designs and/or existing reviews may be included to answer the questions relevant to an HIA For a list of websites offering advice on focusing the question (but with a very clinical focus): www.shef.ac.uk/scharr/ir/focusing.html
2. The question/s asked by the literature review should be relevant to the local context of the HIA	2. Consulting stakeholders on the scope of the question/s can help to build their ownership of the literature review, and also to check the relevance of the question/s	Decisions made at the scoping stage of an HIA should help to frame the question/s. It is useful for stakeholders to decide at the start of an HIA what level and type of evidence is required
3. The population groups and demographic factors relevant to the HIA should be stipulated, including vulnerable groups and others with different exposure or susceptibility (see Step F)		It may be helpful to focus on the detail of the proposal for which the HIA is being undertaken
4. The following issues are important as they may provide information for mitigation or alternative scenarios: <ul style="list-style-type: none"> evidence of effectiveness of interventions or mitigation strategies (if identified as part of scoping) evidence of reversibility effect on inequalities economic appraisal 		There may be little or no information available, but it should be sought rather than assumed – e.g. it should not be assumed that if exposure to an adverse determinant of health (such as unemployment) causes poorer mental health, then providing job opportunities will reverse that. The lack of information on economic appraisal (e.g. evidence of cost-effectiveness) is mentioned in the 2004 Wanless report: www.hm-treasury.gov.uk/consultations_and_legislation/wanless/consult_wanless04_final.cfm

Step B: Determining whether a literature review is required, and its scope		
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Examples, tips and resources
<p>1. Check if there are existing relevant, systematic literature review/s in relevant areas</p> <p>Check key databases and websites</p> <p>Ask colleagues and professional networks and topic experts</p>	<p>1. Search of literature reviews published in peer-reviewed literature (e.g. through electronic databases of journals such as PubMed, PsychLit, etc.), using 'systematic review' or 'meta-analysis', for example, as one of the search terms</p>	<p>Readily available systematic literature reviews can be found by searching:</p> <ul style="list-style-type: none"> • The Cochrane Collaboration: www.cochrane.org/index0.htm • The Campbell Collaboration: www.campbellcollaboration.org/Fralibrary2.html <p>EPPI-Centre (and its Database of Promoting Health Effectiveness Reviews, DoPHER: these are not EPPI-Centre reviews, but ones that they have searched for and keyworded according to topic and quality markers):</p> <ul style="list-style-type: none"> • http://eppi.ioe.ac.uk/EPPiWeb/home.aspx?&page=/hp/reviews.htm • http://eppi.ioe.ac.uk/EPPiWeb/home.aspx?&page=/hp/databases.htm • Health Development Agency (HDA, soon to become NICE) – Evidence Base: www.hda-online.org.uk/html/research/index.html (from 1 April 2005, accessed via www.nice.org.uk) • CRD, University of York: Database of Abstracts of Reviews of Effects (DARE): www.york.ac.uk/inst/crd/darehp.htm • CRD's Health Technology Assessment Database: www.york.ac.uk/inst/crd/htahtp.htm • <i>Health Evidence Bulletins – Wales</i>: http://hebw.uwcm.ac.uk • TRIP Database of evidence-based articles: www.tripdatabase.com • Community Guide (Guide to Community Preventive Services): www.thecommunityguide.org <p>Reviews found on the above websites are already quality-assured</p> <ul style="list-style-type: none"> • ESRC UK Centre for Evidence Based Policy and Practice, Queen Mary, University of London: www.evidencenetwork.org/home.asp • HIA Gateway: www.hiagateway.org.uk/resources/evidence_and_hia_resources/evidence.asp • London Health Commission: www.londonshshealth.gov.uk/allpubs.htm#hia <p>CRD has produced a list of criteria for DARE reviews. These have been used as the basis of an appraisal tool developed by <i>Health Evidence Bulletins – Wales</i>: http://hebw.uwcm.ac.uk/projectmethod/appendix5.htm</p> <p>Another methodology for assessing quality can be found at: www.fhi.se/shop/material_pdf/r200410Knowledgebased2.pdf</p>
	<p>2. The quality of existing literature reviews should be critically appraised</p>	
<p>3. For areas of relevance not covered by existing good quality literature reviews, proceed via steps C–I below</p>		
	<p>4. Primary studies published since the first literature search should be sought, reviewed, and their findings integrated with those of the earlier review. Discrepancies should be discussed and explained where possible.</p>	

Step C: Purpose, organisation and structure		
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Examples, tips and resources
1. The organisation producing the review, and the purpose of the review, should be stated clearly		
2. It should be clear who is conducting the literature review (name and position)	If several staff are involved, it should be clear who is responsible for which role	
3. The review should be structured to include: <ul style="list-style-type: none"> the review question details of the literature search conducted (Step E) findings (Steps F and G) references for all articles and reports included conclusions (Step H) date of completion of literature review 	3. The review could also include: <ul style="list-style-type: none"> who contributed to formulating the review question/s? a summary of each study included critical appraisal of each article or report included discussion of the author's biases and values 	
4. The review should be read by at least one person not involved in conducting it	4. The review should be subject to external peer review before dissemination, and details of the peer-review process should be noted	
	5. For confidence in the unbiased nature of the review, the work should be steered by peers or a suitable advisory panel, including stakeholders	The CRD systematic review of Public Water Fluoridation had an expert Advisory Board: www.york.ac.uk/inst/crd/pdf/fluorid.pdf NHS Service Delivery and Organisation (SDO) reviews tend to involve advisory groups eg Nurse innovations for patients in the community with COPD: an extended systematic review: www.ichs.qmul.ac.uk/research/gppc/publichealth
	6. If it is envisaged that the literature review will be used beyond this HIA, a date for updating should be planned	

Step D: Setting inclusion and exclusion criteria		
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Examples, tips and resources
<p>1. There needs to be a clear statement of the type(s) of study sought to answer the review question(s). More than one study design may be included in the review</p>	<p>1. The inclusion criteria for a more comprehensive literature review would tend to encompass all relevant published and unpublished studies capable of answering the review question, from any country (where this is consistent with the review's purpose)</p>	<p>The choice of studies to include/exclude is not an inherent feature of the systematic review method, but a decision made by the reviewers. It is guided by the review question, by theoretical considerations, and by the needs of anticipated users of the review. Guidance on setting appropriate inclusion and exclusion criteria can be found in the following sources:</p> <ul style="list-style-type: none"> • Cochrane Collaboration reviewer's handbook (chapters 3 and 4): www.cochrane.dk/cochrane/handbook/hbook.htm • <i>CRD Report 4: Undertaking Systematic Reviews of Research on Effectiveness</i> (see www.york.ac.uk/inst/crd/report4.htm and in particular Stage II, Phase 4 for guidance on this topic)
<p>2. Restricted inclusion criteria: The inclusion/exclusion criteria for brief literature reviews may be restricted in many ways – see 'tips' for examples</p> <p>3. It is common practice to include a statement outlining which countries/languages are eligible for inclusion (or exclusion). This gives readers an idea of the degree of comprehensiveness of the review</p>	<p>2. The inclusion/exclusion criteria should describe clearly which study designs, populations, interventions and outcomes are included and excluded in the review</p>	<p>The inclusion/exclusion criteria for brief literature reviews may be restricted in many ways – e.g. a brief review may be limited to systematic reviews alone; to particular study designs; to studies from particular countries or particular languages (such as English); and/or studies carried out within a restricted time frame (e.g. past 10 years)</p> <p>Inclusion/exclusion criteria sometimes exclude unpublished and other grey literature for reasons of cost and difficulty of access</p> <p>The inclusion/exclusion criteria for a review are also determined by the outcomes of interest, e.g. systematic reviews investigating the adverse effects of interventions may include observational study designs (such as case-control studies and cohort studies). Such studies may also be included in reviews that explore causal relationships (e.g. reviews of aetiology)</p>
<p>4. A statement is needed outlining the study designs, interventions and populations that are eligible for inclusion</p>	<p>4 The inclusion/exclusion criteria should be described in detail in the final report or journal article</p>	<p>Systematic reviews that include qualitative research are also possible, and these may help answer questions about meanings and experiences, and about the implementation of interventions (among other things)</p>

Step E: Literature search		
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Examples, tips and resources
The literature review should be explicit about the search strategies used. Specific issues that need to be recorded include:	Seek advice from a librarian or information specialist on search terms, search strategies and databases	www.evidencenetwork.org
1. Range of years (publication dates) included		www.evidencenetwork.org/resources.asp
2. Literature database/s searched		You may wish to keep your search terms broad to identify the full range of relevant information, but this may mean being overwhelmed with the number of hits. When short of time, aim for specificity rather than sensitivity (a high ratio of relevant to irrelevant hits)
3. Details of search terms used		
4. Languages of articles included		
5. List of experts contacted (if any)		
6. Whether grey literature was included, and how it was identified		Specify search criteria and sources used, e.g. Internet, contact with organisations, date/s of search
	7. Search cited references from articles identified	
	8. Hand-search contents of potentially relevant journals	
9. Number of articles or reports identified by the search that contribute to the literature review	<p>9. A tally should be kept of:</p> <ul style="list-style-type: none"> total number of items identified before inclusion and exclusion criteria are applied number that meet inclusion criteria number excluded (with reasons) <p>Ideally, two independent assessors should apply the inclusion and exclusion criteria</p>	It is important to ensure removal of duplicate records of identical papers found in different databases. Where a series of articles present different results from the same study population, it is valid to include these, but where similar results are reported more than once (e.g. five-year and 10-year follow-up; or an identical study reported in different papers), ensure there is no double-counting when considering the weight of evidence
10. Comments on any constraints, e.g. if the literature review was limited by time, access to databases, or inability to obtain copies of papers		

Step F: Critical appraisal		
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Examples, tips, and resources
1. Any weaknesses in a study that may affect your confidence in its conclusion (which may affect the quality of the literature review) should be explicitly noted, e.g. lack of impartiality of sources; suitability and rigour of research methods (including sufficient sample size); how far conclusions are supported by results	1. Apply appropriate quality criteria according to the study design of each article or literature review identified for inclusion in the review (if such a tool exists)	It may be more efficient in a time-limited review to use relevant critical appraisal tools, or to specify a few 'fatal flaws' to look out for, e.g. when appraising an existing review, if the search strategy is so inadequate (or not specified at all) that the review findings are meaningless, you may exclude it without further appraisal For examples of quality appraisal tools: www.lho.org.uk/HIA/ReviewingEvidenceHIA/Attachments/Word_Files/HIAQualityCriteria.doc www.nhmrc.gov.au/publications/synopses/cp65syn.htm www.fhi.se/templates/Page_1305.aspx
2. It should be stated explicitly if any articles or reports have been excluded on the grounds of quality	2. Report on any method used to grade the quality of each paper (e.g. strong–weak; 1–5; good enough/not good enough)	If the literature is sparse there may be a need to include lower-quality studies or articles, but their deficiencies should be highlighted when discussing the study and its findings and drawing conclusions. However, a lower-quality study may be answering a different question, or be from a real-life setting, so may have better external validity
	3. Quality should be appraised by two independent assessors, and discrepancies detailed	
	4. If quality criteria are used to exclude studies, specify how this was done and detail the studies excluded	

Framing the question/s, conducting the literature search and reviewing the literature are all parts of an iterative process, as findings can suggest further questions that then need to be answered, or may clarify earlier questions. It is therefore helpful to 'show your working' to clarify the process followed.

Step G: Interpretation		
Essential steps in a brief literature review include:	Additional elements for a more comprehensive literature review include:	Examples, tips and resources
	1. Details of method/s used for extracting data from individual articles and reports	
2. Details of any process or methods used to combine and synthesise the findings of the studies identified (either quantitative or narrative methods)	2. Methods of synthesising study findings (e.g. thematic analysis, content analysis around themes or questions, or meta-analysis if appropriate). Are the techniques applied appropriate? (e.g. statistics) Is there heterogeneity between studies?	See HDA paper on integrating qualitative and quantitative research: www.hda-online.org.uk/documents/integrative_approaches.pdf ESRC project on narrative synthesis: www.ccsr.ac.uk/methods/projects/posters/popay.shtml
3. Discussion of gaps in the evidence found by the literature search		
4. Factors affecting the quality of the literature review (e.g. bias, confounding of articles; Step E)	4. Is there any suggestion of publication bias?	The smaller or shorter a study, the lower its power to detect a real difference. If most small studies show large positive effects, this may be due to selective publication of positive studies. This can be assessed formally
5. If applicable, specific consideration of the evidence for effectiveness of interventions or mitigation measures		
6. If available, specific consideration of the evidence for effect on inequalities		
7. If available, specific consideration of the evidence from economic appraisals		
8. A summary of all studies included in the review – must contain full references for the studies	8. Ideally, a summary of all studies should also contain: <ul style="list-style-type: none"> • study design, location and context • methods used to collect information (e.g. survey design) • methods used to analyse information • results and conclusions drawn 	

Step G continued			
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Examples, tips and resources	
9. The review should discuss the comparability of the studies reviewed with the specific context of the HIA	9. If the literature review is carried out not for a specific HIA, the generalisability of specific studies and overall findings should be discussed	For a generic review of a subject, it is important to consider the generalisability of the findings of specific studies to other situations (often referred to as transferability). A review undertaken for a specific HIA needs to consider only whether the circumstances (and therefore the findings) of specific studies are transferable to the particular situation of that HIA (relevance and transferability to the population groups and topic areas of interest in the HIA).	
10. Consider whether the literature being reviewed has addressed issues of cause and effect	10. Consider whether the literature being reviewed has addressed issues of cause and effect: <ul style="list-style-type: none"> • chance • bias • confounding criteria for assessing causality 		
11. Ideally, if the information is available, the literature review should report any exposure-effect / dose-response relationship.	11. More detailed information on the shape of any causal relationship, and the existence and threshold level for any effect should be stated. The magnitude of any effect should be estimated.	For most environmental exposures or determinants of health, the effects on health increase as the exposure increases (e.g. particulate air pollution, income and education each have a graded effect on health)	
12. If there is conflicting evidence identified in the review, the principles used to draw conclusions should be stated explicitly, e.g. the weight given to the evidence could be determined using quality criteria (Step F)		Some people have a hierarchical view of evidence, but this is less relevant to most evidence reviews for HIA than is the suitability of the research design for answering the research question. See Petticrew M, Roberts H (2003) Evidence hierarchies and typologies: horses for courses. <i>Journal of Epidemiology and Community Health</i> 57: 527–529. http://jech.bmjournals.com/cgi/reprint/57/7/527 Hill, AB. (1965) The environment and disease: association or causation? <i>Proc. Roy. Soc. Med.</i> 58: 295-300. Assessing causality: www.who.org.uk/hia/ReviewingEvidenceHIA.htm	

Step H: Conclusions	
All reviews require the following:	
1. The literature review should provide clear conclusions concerning the studies reviewed. These will not necessarily provide clear recommendations specifically about the options for an HIA, unless this was part of the review question	
2. Conclusions should be: <ul style="list-style-type: none"> • based on the results presented • justified by the evidence – any limitations of the evidence should be described clearly, including gaps and bias. Conclusions should state if the evidence is of poor quality, conflicting or not comparable 	
3. Relevance to the topic and to the population groups of the HIA should be mentioned	
4. If included, specific conclusions should be drawn regarding: <ul style="list-style-type: none"> • implications for interventions and mitigation measures • reversibility • effect on inequalities • economic appraisal 	

Step I: Reporting		
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Examples, tips and resources
1. The report should contain all the information listed as essential in the steps described above: B1–3, C1 and 3, E1–10, F2, G2–10, H1–4	1. Ideally, those reviewing the literature should produce a detailed report, giving as much information as is available	CRD's Effective Health Care bulletins are a good example of how to present detailed information simply for a review: www.york.ac.uk/inst/crd/ehcb.htm
2. A short 'lay summary' should also be prepared for distribution to local stakeholders, including community members. It should: <ul style="list-style-type: none"> • be easy to read, but rigorous in content • use lay language • make it clear that there is a detailed report, and how to obtain this 	2. There may be a range of summaries for local practitioners, community members and other stakeholders	The format of the Guide to Community Preventive Services (Community Guide) illustrates one way of summarising the conclusions for local stakeholders: www.thecommunityguide.org The Canadian Health Services Research Foundation has developed a two-page guide to presenting and communicating research findings for policy-makers and practitioners (www.chsrf.ca/knowledge_transfer/pdf/cn-1325_e.pdf) – the 1:3:25 method, referring to the need to publish: 1 page (maximum) Summary of main message bullets 3 page (maximum) Executive Summary 25 page (maximum) full Report of the research
	3. Where possible, both lay summary and detailed report should be available both as hard copy and via the Internet	

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This document was developed by:

Dr J Biddulph, University College London
 Ms A Boaz, Queen Mary University of London
 Ms A Boltong, London Health Observatory
 Professor S Curtis, Queen Mary University of London
 Dr M Joffe, Imperial College London
 Dr K Lock, London School of Hygiene & Tropical Medicine
 Dr J Mindell, London Health Observatory
 Ms L Taylor, Health Development Agency

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Mindell JS, Boaz AL, Joffe M, Curtis SE, Birley MH (2004) Enhancing the evidence base for HIA. *Journal of Epidemiology and Community Health* **58**: 546–551.
<http://jech.bmjournals.com/cgi/reprint/58/7/546.pdf>

London Health Observatory

The London Health Observatory (LHO) was set up in 2001 following the government White Paper *Saving Lives – Our Healthier Nation* (1999; www.ohn.gov.uk). The LHO brings together the information and know-how needed to analyse and research health in the capital. It also has a role in helping all those working to improve the health of Londoners to make better use of health and health-related information. The LHO is part of a national network of public health observatories, and has a lead role on health inequalities, social exclusion, regeneration and tobacco. www.lho.org.uk

Further printed copies of this resource can be obtained from: London Health Observatory, 11–13 Cavendish Square, London W1G 0AN Tel: 020 7307 2826, Email: enquiries@lho.org.uk

This resource is also available on the Internet:

- as a web tool to use online: www.lho.org.uk/hia/ReviewingEvidenceHIA.htm
- as a pdf to download: www.lho.org.uk/hia/ReviewingEvidenceHIA.htm
www.biomedcentral.com/bmcpublichealth/???
www.hiagateway.org.uk

ISBN [to come]

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Appendix G Responses of the piloters to using version 4.1

Questions asked of the piloters	Piloters comments	Changes made to the draft Guide in response
CONTENT		
<i>Have we omitted anything important?</i>	All three piloters recommended the resource should include an explanation (for HIA newcomers) about the role of evidence in HIA addressing why there is a need for reviewing the evidence and explaining where this stage fall in the HIA cycle (with a figure about the HIA process).	We therefore added a figure about the place of evidence in HIA and a short introductory section on what is meant by evidence in HIA and that this resource is limited to reviewing published evidence.
	Certain terms used (such as whether evidence referred only to evidence published through peer reviewed journals, and what was meant by 'grey literature') caused confusion.	The suggestion of a glossary of terms had been raised earlier in the development of the resource. At that time, we had attempted to minimise the use of jargon and to explain any terms used in a non-lay sense. Following the piloting of the resource, it was decided to construct a glossary (see section Error! Reference source not found.).
<i>Are there the right number of tips/examples/resources to make it useful but not too long?</i>	It was suggested that these should be called <i>Tips and resources</i> , as using the term examples makes one think you would find examples from HIAs that were carried out.	This was amended.
<i>Are there important tips/examples/resources to add (or any that are less to remove)?</i>	It was suggested that examples of the review of evidence and use of evidence in HIAs be added.	There was already a link to the HIA Gateway. Links to 'off-the-shelf' reviews of evidence for use in HIA could be added once these had been identified, appraised as of adequate quality, and placed on a website.
	<i>Step G 11.</i> Tips could include references to the Health Protection Agency and Environmental Agency websites. www.hpa.org.uk and www.environment-agency.gov.uk/	These were added.

Questions asked of the pilots	Pilots comments	Changes made to the draft Guide in response
<i>Are the comments in the right columns?</i>	Sometimes the text in the middle column (additional elements) is not exactly a true addition to the text in the left one. E.g. when there is no text in the left column. One of those piloting the resource assumed that in those cases the text relates to the row above. In fact, this was because there is a sub-step that is not deemed essential, so does not appear in the left-hand column, but does make the review more comprehensive, so it goes in the middle column. If there is no direct counterpart, or it is not a more rigorous or extensive approach to a specific point in the left hand column, we had given it a row by itself.	It was agreed that this remains the correct approach and that explaining this in the resource is an unnecessary detail to add. However, numbering was removed from the middle column, with the stages for a brief review numbered consecutively within each step.
	The addition does not always concern the review as such. e.g. first two rows page 3: this relates more to a more extensive HIA process (including stakeholder participation) than to a more extensive review.	These were indeed in the wrong place and were subsequently moved into the third column.
FORMAT		
<i>Is the layout OK?</i>	Yes, very attractive layout	
<i>Is the language OK?</i>	Clear, understandable, nice 'tone' All acronyms should be spelt out when first used, with the acronym in brackets.	This was done, although we put the full phrase in brackets where the acronym is in more general use (eg ESRC (Economic and Social Research Council))
USABILITY / USEFULNESS		
<i>What could be done to make it more useful (if anything)?</i>	Link up more closely to the HIA process - what makes this evidence reviewing guide specifically suitable for HIA practitioners?	This was addressed by the addition of a diagram of the steps of HIA and where evidence fits into this.
	Step A: suggest providing examples of what would be the typical "priority questions".	Although these vary, depending on the context and content of the proposal on which an HIA is performed, brief examples were added to the introductory pages.
	You could also consider adding the WHO "HEN" (health evidence network) initiative : see www.euro.who.int/eprise/main/who/progs/HEN	This very useful site that lists numerous other online resources was added.
	It was pointed out that the web resources cited are mainly from the UK: if the tool is to be usable outside of the UK, perhaps other resources (still in English language) could be added.	The project has been funded by the English Department of Health so is intended primarily for an English audience. We have no problem in adding other, useful web resources (in English) if people recommend these – indeed, a few are already listed.

Questions asked of the pilots	Piloters comments	Changes made to the draft Guide in response
<i>What could be done to make it easier to use (if anything)?</i>	Since there are a lot of references to the web, it would be a good idea to make it digitally available with clickable weblinks. Moreover the links could then be kept up-to-date, and perhaps extended.	This was planned for the final version.
<i>Other comments</i>	One piloter was uncertain about the target users for the tool. It seems addressed to professionals in the health sector, but the principle of this should be "grasped" also by other groups of professionals (e.g. EIA consultants, transport/urban planners), if anything to make a case for the involvement of health experts with the appropriate rigourousness and evidence-based background to give extra solidity to the exercise.	The resource is intended for anyone who is commissioning, conducting, or appraising evidence for use in an HIA, regardless of their professional (or lay) background. However, it does assume (and states explicitly) that those conducting a literature review have an understanding of critical appraisal. The section <i>How to use this resource</i> includes comments directed towards those conducting a review, commissioning others to conduct a review, or those appraising an existing review.
<i>Recommendations that were not accepted, with our reasons</i>	Suggest to add to the section on "need for this resource" about the scarcity of information on effects of different interventions on health (e.g. on urban air pollution)	This was felt to be unnecessary.
	Step C (<i>Purpose, organisation and structure</i>): point 4 of essential steps: should the peer reviewer however have a high degree of competence and familiarity with the issues reviewed?	The steering group felt no further changes were required to this section
	Step E (<i>Literature search</i>): it seems to me that the text under "Seek advice from a librarian..." would be better placed under "Example, tips and resources"	The steering group believed a comprehensive review needs librarian advice. The wording was therefore amended to "Involve a librarian..." as this is more of an instruction for a more comprehensive review, whereas the "Seek advice from" sounded more like a tip.
	Would it be helpful to have something on how the evidence/literature review is used in relation to the appraisal process itself? Sometimes they seem very separate processes, but it is important that the evidence and the appraisal come together to inform the recommendations to make them robust.	The steering group felt this was beyond the scope of this resource and was better covered by guidance on conducting HIAs

Questions asked of the pilots	Pilots comments	Changes made to the draft Guide in response
	A couple of references were suggested which the steering group felt were not at all helpful, so were not added to the resource. Step D 4. It might be helpful to include outcomes, as in 2. Additional Elements	The steering group felt this was not essential for a brief review and would have been covered by A2
	It might be helpful to suggest considering the literature, evidence or information from other types of impact assessment such as Strategic Environmental Appraisal, Environmental Impact Assessment, Social Impact Assessment and Regulatory Impact Assessment.	The steering group felt that such reviews were hard to locate unless they were publicly available through the peer-reviewed literature or the HIA Gateway.

A Guide to Reviewing Published Evidence for use in Health Impact Assessment



How to use this Guide

This Guide provides a step-by-step framework to assist practitioners in reviewing literature for use in a health impact assessment (HIA). A literature review is an essential component of the evidence used in the appraisal stage (see Figure). As there may be limited time and resources available, this guide presents both essential components that must be included, even in a brief literature review, and additional elements that can be included when resources (including time and skills) permit, for more comprehensive literature reviews.

When using this Guide, please consider what type of review you are undertaking. If you are yourself making (or commissioning) a **new review** of original research papers, this resource should help you ensure your review is rigorous. When commissioning a review, consider what is practical within the available resources (time and people/money) as well as what standards are wanted.

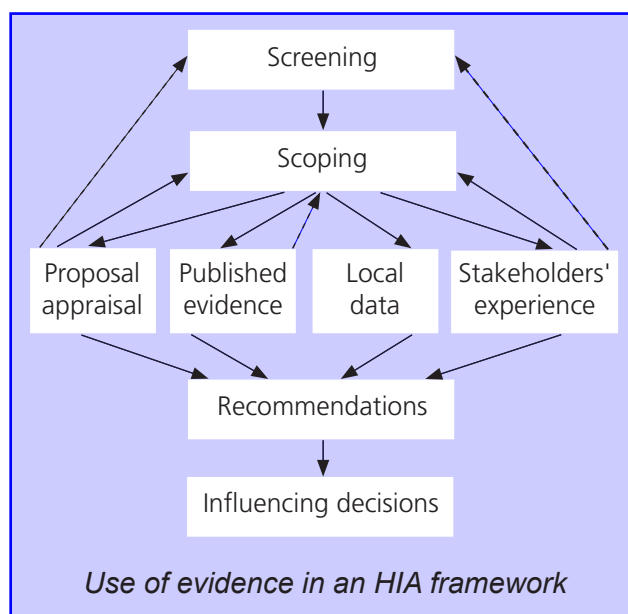
This Guide may also be used to help appraise the quality of an **existing review**, whether based on original studies or drawing on one or more reviews by other authors. In this case each review will provide 'second-hand' reports of several original studies. This resource aims to help you judge the quality of the review process that other authors have applied.

A **glossary** of key terms used in this Guide can be found at www.lho.org.uk/HIA/ReviewingEvidence.aspx

The need for this Guide

Evidence in HIA includes:

- *published evidence* from elsewhere (eg peer-reviewed journal articles and 'grey' literature)



- *local data* (eg community profiles, census data)
- *stakeholder experience* (write-ups from stakeholder workshops, surveys, etc.) (see Figure).

This Guide is limited to helping the reader to review *published evidence*, both scientific (research) literature in peer-reviewed journals and grey literature, mostly internal documents from a range of disparate organisations, including other HIAs. This then needs to be integrated with the other sources of evidence.

Reviewing evidence for use in HIA presents a number of challenges:

- A focus on complex and/or multiple interventions or policy proposals, and their diverse effects on determinants of health.
- Diversity of the evidence – relevant disciplines, study designs, quality criteria and sources of information. Because of the wide range of interventions and approaches that may contribute to improving health and the broad range of health impacts, there is a need to search, obtain and appraise a broad literature.

- Need for, but paucity of, evidence on the reversibility of adverse factors damaging to health (most evidence is of associations between factors and adverse effects, not studies of reversing these).
- Need to seek evidence about potential impacts on inequalities as well as on overall effects.
- Broad range of stakeholders involved.
- Need to apply HIA within the realities of policy-making, planning and decision-making processes, which can often mean short time scales and limited resources.
- Pragmatic need to inform decision-makers, even if evidence is sparse.

These factors have implications for commissioning and conducting literature reviews to ensure ethical use of evidence. For more detail see Mindell *et al.* (2004)*.

Types of literature review

A number of terms are used to describe the approaches to conducting literature reviews. More information on types of literature review and different approaches to conducting them can be found at: www.lho.org.uk/hia/ReviewingEvidenceHIA.aspx

In this Guide we use two terms: **brief** and **more comprehensive**. While it is acknowledged that a comprehensive, systematic review of all relevant literature will provide the best evidence, such reviews generally take many person-months (or years) to complete and require resources not generally available to those conducting HIA. In practice, brief reviews are generally conducted, taking a few days or weeks. These have been of variable quality. Critical appraisal of such reviews is hampered when the methods used are not explicitly stated.

This Guide indicates the minimum criteria that are essential in any literature review, however brief or however limited the resources, and also suggests additional elements to be included when circumstances permit, to add to the robustness of a review's conclusions.

Nine steps to reviewing the evidence

The following tables provide details on the nine steps reviewers should follow. Less-experienced reviewers will find it helpful to work through the steps in the order presented, to ensure the review process proceeds in rational stages. More experienced reviewers will be familiar with the steps involved in carrying out a review, and may want to focus on certain areas to confirm particular aspects of good practice.

Reviewing evidence is an iterative process. The question/s to be answered need to be formulated at the beginning (**step A**), but the availability and content of primary studies and/or reviews (**steps B, E and F**) often refine the question/s remaining to be answered. For example, to answer the question 'What are the potential impacts of congestion charging on health and inequalities?', an absence of specific evidence on congestion charging might generate less specific questions on the impacts of congestion, traffic reduction, access, or job losses. Although framing the question is the first step, it will often need to be revised.

Those conducting a literature review should be familiar with the basic concepts of critical appraisal (assessing the quality and relevance of evidence) and research methods. Some organisations offer critical appraisal training in the UK (see below).

Training organisations

- Critical Appraisal Skills Programme, Oxford www.phru.nhs.uk/casp/casp.htm
- Centre for Reviews and Dissemination – Systematic reviews and critical appraisal www.york.ac.uk/inst/crd/crdtraining.htm#sr
- National Training and Research Appraisal Group – Critical appraisal of qualitative research www.ntrag.co.uk

Weblinks

- Catalogue of evidence-based medicine/healthcare websites: www.herts.ac.uk/lis/subjects/health/ebm.htm#ebmint
- Health Impact Assessment: www.publichealth.nice.org.uk/hiagateway

*Mindell J, Boaz A, Joffe M, Curtis S, Birley M. Enhancing the evidence base for health impact assessment. *Journal of Epidemiology and Community Health* 2004; 58(7): 546-551. <http://jech.bmjournals.com/cgi/reprint/58/7/546.pdf>

Step A: Framing the question/s	
Essential steps in a brief literature review	Tips and resources
A1. The question/s the literature review seeks to answer should be clear and focused, relating to the topic of the HIA	<p>An HIA on any specific proposal is likely to involve a number of topics, e.g. transport, employment and social cohesion. Each of these may require a number of questions to be answered, e.g. potential impacts of a transport proposal on physical activity levels, road traffic collisions, and access to goods, services, jobs and education. The evidence relevant to each of these may be found in different places and require different reviews. One may also decide to review some questions in depth, and be satisfied with a brief review for others. Questions will generally need to focus on potential changes that may occur due to implementation of the proposal being assessed.</p> <p>Examine the proposal on which the HIA is being conducted to inform the formulation of the question/s. It is likely that a number of different primary study designs and/or existing reviews may be included to answer the questions relevant to an HIA</p> <p>One approach to broader questions is to use a series of linked, more focused reviews</p> <p>For a list of websites offering advice on focusing the question (but with a very clinical focus): www.shef.ac.uk/scharr/ir/focusing.html</p>
A2. The question/s asked by the literature review should be relevant to the local context of the HIA	<p>Decisions made at the scoping stage of an HIA should help to frame the question/s.</p> <p>It is useful for stakeholders to decide at the start of an HIA what level and type of evidence is required</p> <p>Consulting stakeholders on the scope of the question/s can help to build their ownership of the literature review, and also to check the relevance of the question/s</p>
A3. The population groups and demographic factors relevant to the HIA should be stipulated, including vulnerable groups and others with different exposure or susceptibility (see Step G)	<p>It may be helpful to focus on the detail of the proposal for which the HIA is being undertaken</p>
A4. The following issues are important as they may provide information for mitigation or alternative scenarios: <ul style="list-style-type: none"> evidence of effectiveness of interventions or mitigation strategies (if identified as part of scoping) evidence of reversibility effect on inequalities economic appraisal 	<p>There may be little or no information available, but it should be sought rather than assumed – e.g. it should not be assumed that if exposure to an adverse determinant of health (such as unemployment) causes poorer mental health, then providing job opportunities will reverse that.</p> <p>The lack of information on economic appraisal (e.g. evidence of cost-effectiveness) is mentioned in the 2004 Wanless report: www.hm-treasury.gov.uk/consultations_and_legislation/wanless/consult_wanless04_final.cfm</p>

Step B: Determining whether a literature review is required, and its scope		
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Tips and resources
<p>B1. Check if there are existing relevant, systematic literature review/s in relevant areas</p> <p>Check key databases and websites</p> <p>Ask colleagues and professional networks and topic experts</p>	<p>Search of literature reviews published in peer-reviewed literature (e.g. through electronic databases of journals such as PubMed, PsychLit, etc.), using 'systematic review' or 'meta-analysis', for example, as one of the search terms</p>	<p>Readily available systematic literature reviews can be found by searching:</p> <ul style="list-style-type: none"> • The Cochrane Collaboration: www.cochrane.org/index0.htm • The Campbell Collaboration: www.campbellcollaboration.org/Frailibrary2.html • EPPI-Centre (Evidence for Policy and Practice Information) and its Database of Promoting Health Effectiveness Reviews, DoPHER: these are not EPPI-Centre reviews, but ones that they have searched for and keyworded according to topic and quality markers: http://eppi.ioe.ac.uk/EPPIWeb/home.aspx?&page=/hp/reviews.htm • http://eppi.ioe.ac.uk/EPPIWeb/home.aspx?&page=/hp/databases.htm • National Institute for Health and Clinical Excellence (NICE) Public Health: www.publichealth.nice.org.uk • Centre for Reviews and Dissemination (CRD), University of York: Database of Abstracts of Reviews of Effects (DARE): www.york.ac.uk/inst/crd/darehp.htm • CRD's Health Technology Assessment Database: www.york.ac.uk/inst/crd/hta.htm • <i>Health Evidence Bulletins – Wales</i>: http://hebw.uwcm.ac.uk • Turning Research into Practice (TRIP) Database of evidence-based articles: www.tripdatabase.com • Community Guide (Guide to Community Preventive Services): www.thecommunityguide.org <p>Reviews found on the above websites are already quality-assured</p> <ul style="list-style-type: none"> • Economic and Social Research Council (ESRC) UK Centre for Evidence Based Policy and Practice, Queen Mary, University of London: www.evidencenetwork.org • World Health Organization (WHO) Health Evidence Network: www.euro.who.int/HEN (also provides links to many other online databases: www.euro.who.int/HEN/20030602_2) • HIA Gateway: www.publichealth.nice.org.uk/hীগateway • London Health Commission: www.londonhealth.gov.uk/allpubs.htm#hia <p>CRD has produced a list of criteria for DARE reviews. These have been used as the basis of an appraisal tool developed by <i>Health Evidence Bulletins – Wales</i>: http://hebw.uwcm.ac.uk/projectmethod/appendix5.htm</p> <p>Another methodology for assessing quality can be found at: www.fhi.se/shop/material_pdf/r200410Knowledgebased2.pdf</p>
<p>B2. For areas of relevance not covered by existing good quality literature reviews, proceed via steps C–I below</p>	<p>The quality of existing literature reviews should be critically appraised</p> <p>Primary studies published since the first literature search should be sought, reviewed, and their findings integrated with those of the earlier review. Discrepancies should be discussed and explained where possible.</p>	

Step C: Purpose, organisation and structure		
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Tips and resources
C1. The organisation producing the review, and the purpose of the review, should be stated clearly		
C2. It should be clear who is conducting the literature review (name and position)	If several staff are involved, it should be clear who is responsible for which role	
C3. The review should be structured to include: <ul style="list-style-type: none"> • the review question • details of the literature search conducted (Step E) • findings (Steps F and G) • references for all articles and reports included • conclusions (Step H) • date of completion of literature review 	<p>The review could also include:</p> <ul style="list-style-type: none"> • who contributed to formulating the review question/s? • a summary of each study included • critical appraisal of each article or report included (Step F) • discussion of the author's biases and values 	A brief review may be based on existing reviews and/or on primary research reports
C4. The review should be read by at least one person not involved in conducting it	The review should be subject to external peer review before dissemination, and details of the peer-review process should be noted	
	For confidence in the unbiased nature of the review, the work should be steered by peers or a suitable advisory panel, including stakeholders	The CRD systematic review of Public Water Fluoridation had an expert Advisory Board: www.york.ac.uk/inst/crd/pdf/fluorid.pdf NHS Service Delivery and Organisation (SDO) reviews tend to involve advisory groups eg <i>Nurse innovations for patients in the community with COPD: an extended systematic review</i> : www.ichs.qmul.ac.uk/research/gppc/publichealth
	If it is envisaged that the literature review will be used beyond this HIA, a date for updating should be planned	

Step D: Setting inclusion and exclusion criteria			
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Tips and resources	
D1. There needs to be a clear statement of the type(s) of study sought to answer the review question(s). More than one study design may be included in the review	The inclusion criteria for a more comprehensive literature review would tend to encompass all relevant published and unpublished studies capable of answering the review question, from any country (where this is consistent with the review's purpose)	<p>The choice of studies to include/exclude is not an inherent feature of the systematic review method, but a decision made by the reviewers. It is guided by the review question, by theoretical considerations, and by the needs of anticipated users of the review. Guidance on setting appropriate inclusion and exclusion criteria can be found in:</p> <ul style="list-style-type: none"> • Cochrane Collaboration reviewer's handbook (chapters 3 and 4): www.cochrane.dk/cochrane/handbook/hbook.htm • CRD Report 4: <i>Undertaking Systematic Reviews of Research on Effectiveness</i> (see www.york.ac.uk/inst/crd/report4.htm and in particular Stage II, Phase 4 for guidance on this topic) 	
D2. Restricted inclusion criteria: The inclusion/exclusion criteria for brief literature reviews may be restricted in many ways – see 'tips' for examples	The inclusion/exclusion criteria should describe clearly which study designs, populations, interventions and outcomes are included and excluded in the review	<p>The inclusion/exclusion criteria for brief literature reviews may be restricted in many ways – e.g. a brief review may be limited to systematic reviews alone; to particular study designs; to studies from particular countries or particular languages (such as English); and/or studies published within a restricted time frame (e.g. past 10 years)</p> <p>Inclusion/exclusion criteria sometimes exclude unpublished and other grey literature for reasons of cost and difficulty of access</p> <p>The inclusion/exclusion criteria for a review are also determined by the outcomes of interest, e.g. systematic reviews investigating the adverse effects of interventions may include observational study designs (such as case-control studies and cohort studies). Such studies may also be included in reviews that explore causal relationships (e.g. reviews of aetiology)</p> <p>Systematic reviews that include qualitative research are also possible, and these may help answer questions about meanings and experiences, and about the implementation of interventions (among other things)</p>	
D3. It is common practice to include a statement outlining which countries/languages are eligible for inclusion (or exclusion). This gives readers an idea of the degree of comprehensiveness of the review			
D4. A statement is needed outlining the study designs, interventions and populations that are eligible for inclusion	The inclusion/exclusion criteria should be described in detail in the final report or journal article		

Step E: Literature search		
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Tips and resources
The literature review should be explicit about the search strategies used. Specific issues that need to be recorded include:	Involve a librarian or information specialist on search terms, search strategies and databases	www.evidencenetwork.org
E1. Range of years (publication dates) included		
E2. Literature database/s searched		www.evidencenetwork.org/resources.asp
E3. Details of search terms used		You may wish to keep your search terms broad to identify the full range of relevant information, but this may mean being overwhelmed with the number of hits. When short of time, aim for specificity rather than sensitivity (a high ratio of relevant to irrelevant hits)
E4. Languages of articles included		
E5. List of experts contacted (if any)		
E6. Whether grey literature was included, and how it was identified		Specify search criteria and sources used, e.g. Internet, contact with organisations, date/s of search
	Search cited references from articles identified	
	Hand-search contents of potentially relevant journals	
E7. Number of articles or reports identified by the search that contribute to the literature review	<p>A tally should be kept of:</p> <ul style="list-style-type: none"> total number of items identified before inclusion and exclusion criteria are applied number that meet inclusion criteria number excluded (with reasons) <p>Ideally, two independent assessors should apply the inclusion and exclusion criteria</p>	It is important to ensure removal of duplicate records of identical papers found in different databases. Where a series of articles present different results from the same study population, it is valid to include these, but where similar results are reported more than once (e.g. five-year and 10-year follow-up; or an identical study reported in different papers), ensure there is no double-counting when considering the weight of evidence
E8. Comments on any constraints, e.g. if the literature review was limited by time, access to databases, or inability to obtain copies of papers		

Step F: Critical appraisal		
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Tips and resources
F1. Any weaknesses in a study that may affect your confidence in its conclusion (which may affect the quality of the literature review) should be explicitly noted, e.g. lack of impartiality of sources; suitability and rigour of research methods (including sufficient sample size); how far conclusions are supported by results	Apply appropriate quality criteria according to the study design of each article or literature review identified for inclusion in the review (if such a tool exists)	It may be more efficient in a time-limited review to use relevant critical appraisal tools, or to specify a few 'fatal flaws' to look out for, e.g. when appraising an existing review, if the search strategy is so inadequate (or not specified at all) that the review findings are meaningless, you may exclude it without further appraisal For examples of quality appraisal tools: www.lho.org.uk/HIA/ReviewingEvidence.aspx www.nhmrc.gov.au/publications/synopses/cp65syn.htm www.fhi.se/templates/Page_1305.aspx
F2. It should be stated explicitly if any articles or reports have been excluded on the grounds of quality	Report on any method used to grade the quality of each paper (e.g. strong–weak; 1–5; good enough/not good enough)	If the literature is sparse, there may be a need to include lower-quality studies or articles but their deficiencies should be highlighted when discussing the study and its findings and drawing conclusions. However, a lower-quality study may be answering a different question, or be from a real-life setting, so may have better external validity
	Quality should be appraised by two independent assessors, and discrepancies detailed	
	If quality criteria are used to exclude studies, specify how this was done and detail the studies excluded	

Framing the question/s, conducting the literature search and reviewing the literature are all parts of an iterative process, as findings can suggest further questions that then need to be answered, or may clarify earlier questions. It is therefore helpful to describe how you reached your conclusions, to clarify the process followed.

Step G: Interpretation		
Essential steps in a brief literature review include:	Additional elements for a more comprehensive literature review include:	Tips and resources
G1. Details of any process or methods used to combine and synthesise the findings of the studies reviewed (either quantitative or qualitative/narrative methods)	Details of method/s used for extracting data from individual articles and reports Methods of synthesising study findings (e.g. thematic analysis, content analysis around themes or questions, or meta-analysis if appropriate). Are the techniques applied appropriate? (e.g. statistics) Is there heterogeneity between studies?	See HDA paper on integrating qualitative and quantitative research: www.publichealth.nice.org.uk/page.aspx?0=508055 ESRC project on narrative synthesis: www.ccsr.ac.uk/methods/projects/posters/popay.shtml
G2. Discussion of gaps in the evidence found by the literature search		
G3. Factors affecting the quality of the literature review (e.g. bias, confounding of articles, search; Step E)	Is there any suggestion of publication bias?	The smaller or shorter a study, the lower its power to detect a real difference. If most small studies show large positive effects, this may be due to selective publication of positive studies. This can be assessed formally.
G4. If applicable, specific consideration of the evidence for effectiveness of interventions or mitigation measures		
G5. If available, specific consideration of the evidence for effect on inequalities		
G6. If available, specific consideration of the evidence from economic appraisals		
G7. A summary of all studies included in the review – must contain full references for the studies	Ideally, a summary of all studies should also contain: <ul style="list-style-type: none"> • study design, location and context • methods used to collect information (e.g. survey design) • methods used to analyse information • results and conclusions drawn 	www.evidencenetwork.org/cgi-win/enet.exe/biblioview?406 www.education.ex.ac.uk/dll/studyskills/harvard_referencing.htm www.rdg.ac.uk/studyskills/study%20guides/references%202.htm Cite Them Right: referencing made easy – http://northumbria.ac.uk/sd/central/library/ir/orginfo/

Step G: Interpretation continued		
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Tips and resources
G8. The review should discuss the comparability of the studies reviewed with the specific context of the HIA	If the literature review is carried out not for a specific HIA, the generalisability of specific studies and overall findings should be discussed	For a generic review of a subject, it is important to consider the transferability of the findings of specific studies to other situations (often referred to as generalisability). A review undertaken for a specific HIA needs to consider only whether the circumstances (and therefore the findings) of specific studies are transferable to the particular situation of that HIA (relevance and transferability to the population groups and topic areas of interest in the HIA).
G9. Consider whether the literature being reviewed has addressed issues of cause and effect	Consider whether the literature being reviewed has addressed issues of cause and effect: <ul style="list-style-type: none"> • chance • bias • confounding • criteria for assessing causality 	<ul style="list-style-type: none"> • Hill, AB. (1965) The environment and disease: association or causation? <i>Proc. Roy. Soc. Med.</i> 58: 295–300. • Assessing causality: www.who.org.uk/hia/ReviewingEvidence.aspx
G10. Ideally, if the information is available, the literature review should report any exposure-effect / dose-response relationship	More detailed information on the shape of any causal relationship, and the existence and threshold level for any effect should be stated. The magnitude of any effect should be estimated.	For most environmental exposures or determinants of health, the effects on health increase as the exposure increases (e.g. particulate air pollution, income and education each have a graded effect on health) www.environment-agency.gov.uk
G11. If there is conflicting evidence identified in the review, the principles used to draw conclusions should be stated explicitly, e.g. the weight given to the evidence could be determined using quality criteria (Step F). In some cases, it may not be possible to reach a conclusion.		Some people have a hierarchical view of evidence, but this is less relevant to most evidence reviews for HIA than is the suitability of the research design for answering the research question. See Petticrew M, Roberts H (2003) Evidence hierarchies and typologies: horses for courses. <i>Journal of Epidemiology and Community Health</i> 57: 527–529. http://jech.bmjournals.com/cgi/reprint/57/7/527

Step H: Conclusions	
All reviews require the following:	
H1. The literature review should provide clear conclusions concerning the studies reviewed. These will not necessarily provide clear recommendations specifically about the options for an HIA, unless this was part of the review question	
H2. Conclusions of the literature review should be: <ul style="list-style-type: none"> • based on the results presented • justified by the evidence – any limitations of the evidence should be described clearly, including gaps and bias. Conclusions should state if the evidence is of poor quality, conflicting or not comparable 	
H3. Relevance to the topic and to the population groups of the HIA should be mentioned	
H4. If included, specific conclusions should be drawn regarding: <ul style="list-style-type: none"> • implications for interventions and mitigation measures • reversibility • effect on inequalities • economic appraisal 	

Step I: Reporting		
Essential steps in a brief literature review	Additional elements for a more comprehensive literature review	Tips and resources
I1. The report should contain all the information listed as essential in the steps described above: B1–2, C1–3, D1–4, E1–8, F1–2, G1–11, H1–4	Ideally, those reviewing the literature should produce a detailed report, giving as much information as is available	CRD's <i>Effective Health Care</i> bulletins are a good example of how to present detailed information simply for a review: www.york.ac.uk/inst/crd/ehcb.htm
I2. A short 'lay summary' should also be prepared for distribution to local stakeholders, including community members. It should: <ul style="list-style-type: none"> • be easy to read, but rigorous in content • use lay language • make it clear that there is a detailed report, and how to obtain this 	There may be a range of summaries for local practitioners, community members and other stakeholders Where possible, both lay summary and detailed report should be available both as hard copy and via the Internet	The format of the <i>Guide to Community Preventive Services (Community Guide)</i> illustrates one way of summarising the conclusions for local stakeholders: www.thecommunityguide.org The Canadian Health Services Research Foundation has developed a two-page guide to presenting and communicating research findings for policy-makers and practitioners: www.chsrf.ca/knowledge_transfer/pdf/cn-1325_e.pdf – the 1:3:25 method, referring to the need to publish: 1 page (maximum) Summary of main message bullets 3 page (maximum) Executive Summary 25 page (maximum) full Report of the research

Finally, the literature review is used by those conducting the HIA as part of their assessment of potential health impacts and as part of the evidence on which recommendations are made.

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This document was developed by:

Dr J Biddulph, University College London
 Ms A Boaz, Queen Mary University of London
 Ms A Boltong, London Health Observatory
 Professor S Curtis, Queen Mary University of London
 Dr M Joffe, Imperial College London
 Dr K Lock, London School of Hygiene & Tropical Medicine
 Dr J Mindell, London Health Observatory
 Ms L Taylor, former Health Development Agency

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London Health Observatory

The London Health Observatory (LHO) was set up in 2001 following the government White Paper *Saving Lives – Our Healthier Nation* (1999; www.ohn.gov.uk). The LHO brings together the information and know-how needed to analyse and research health in the capital. It also has a role in helping all those working to improve the health of Londoners to make better use of health and health-related information. The LHO is part of a national network of public health observatories, and has a lead role on health inequalities, social exclusion, regeneration and tobacco. www.lho.org.uk

Further printed copies of this resource can be obtained from: London Health Observatory, 11–13 Cavendish Square, London W1G 0AN Tel: 020 7307 2826, Email: enquiries@lho.org.uk

This Guide is also available on the Internet:

- as a web tool to use online: www.lho.org.uk
- as a pdf to download: www.lho.org.uk/HIA/ReviewingEvidence.aspx
www.biomedcentral.com/bmcpublichealth

A report to the Department of Health describing the work undertaken to develop this Guide can be found on the London Health Observatory website at www.lho.org.uk/HIA/ReviewingEvidence.aspx

Your feedback on this Guide will be used to produce a second edition in 2008. Please send comments to j.mindell@ucl.ac.uk

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