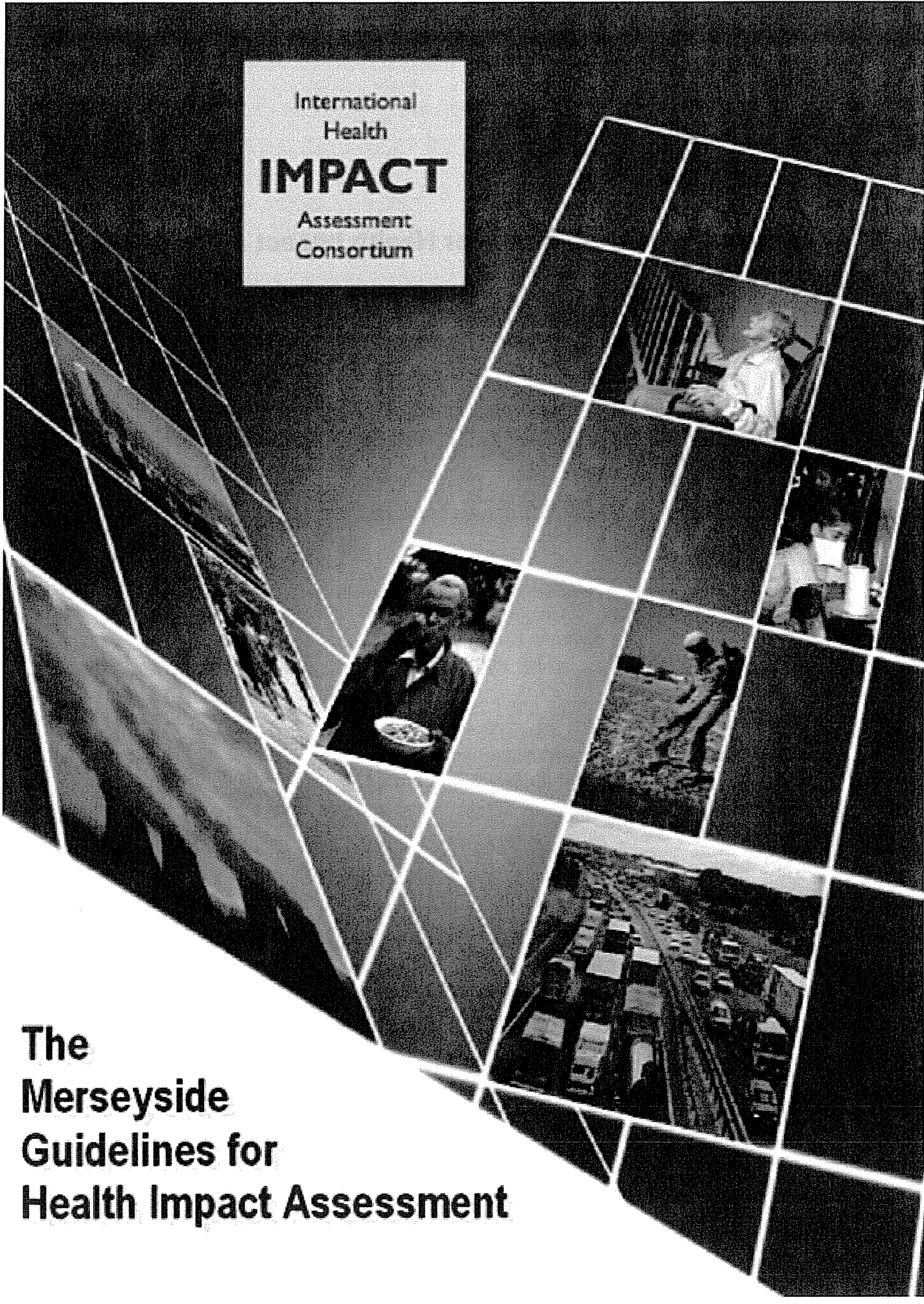


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**The
Merseyside
Guidelines for
Health Impact Assessment**

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This report was originally published by the
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Merseyside Health Impact Assessment Steering Group represents the four Merseyside health authorities (Liverpool, St Helens and Knowsley, Sefton and Wirral) and other agencies involved in the health impact assessment (HIA) programme commissioned by the health authorities from Liverpool Public Health Observatory in the period since April 1997. Its membership is:

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Dr John Reid (Chair)	Director of Public Health, Sefton Health Authority
Dr Alex Scott-Samuel	Director, Liverpool Public Health Observatory

In commissioning the Merseyside HIA programme, the local Directors of Public Health were in part seeking support for their involvement in regeneration projects such as the City Challenge, Single Regeneration Budget and European Union Objective One programmes. The HIA developments followed discussions with the then Government Office for Merseyside on how closer collaboration could be promoted and health could be more explicitly recognised within such programmes.

Acknowledging earlier problems in the establishment of health needs assessment, there was a wish to secure the early establishment of HIA within Merseyside, and in so doing to harness local interest and expertise within the University of Liverpool, the Liverpool School of Tropical Medicine, and the health authorities themselves.

In addition to the Merseyside HIA Steering Group, we acknowledge the considerable contribution to this work of the researchers in Liverpool Public Health Observatory: Lyn Winters, Nigel Fleeman, Darice Broomfield and Vicky Jeffrey.

INTRODUCTION

These Guidelines have been written for those who wish to commission or to carry out a health impact assessment (HIA). They will be of use to those working in central or local government, the health sector, the voluntary sector, and other bodies whose work influences (or is influenced by) public policy. The Guidelines therefore address commissioning issues and procedures, and outline methods for undertaking HIA. The Bibliography lists relevant publications by the authors and reports from Liverpool Public Health Observatory's HIA programme.

Background

Health impact assessment has been defined as "the estimation of the effects of a specified action on the health of a defined population" (Scott-Samuel, 1998). The actions concerned may range from projects (for instance, a housing development or a leisure centre) to programmes (such as an urban regeneration or a public safety programme) to policies (like the integrated transport strategy, the introduction of water metering or the imposition of value added tax on domestic fuel). HIA builds on the now generally accepted understanding that a community's health is not only determined by its health services, but also by a wide range of economic, social, psychological, and environmental influences. Once this is accepted, it is clearly important to attempt to estimate the effects of these influences on health; this is the aim of health impact assessment. Ideally, such work should be prospective. In other words, it should precede the start of the project, programme or policy concerned, in order that any potential negative health effects can be avoided or reduced, and any positive ones enhanced. The principles of this approach have much in common with those behind the established practice of environmental impact assessment (Birley et al, 1998).

The UK Government is strongly committed to the principle of prospective HIA. All four of the UK nations' consultative documents on public health strategy have referred to the requirement for health impact assessment of both national and local policies and projects (Secretary of State for Northern Ireland, 1997; Secretaries of State for Health, Scotland and Wales, 1998). This will be further emphasised by the introduction (in the forthcoming local government White Paper) of a new duty on local authorities to promote the economic, social and environmental well-being of their areas, in partnership with all relevant local interests.

Aims of prospective HIA

- to assess the potential health impacts, both positive and negative, of projects, programmes and policies
- to improve the quality of public policy decision making through recommendations to enhance predicted positive health impacts and minimise negative ones.

Definitions

For the purposes of these Guidelines, the following definitions apply:

- Health impact** a change in health status (or in the determinants of health status) of an individual or group attributable to a project, programme or policy
- Health determinant** a factor known to have the potential to cause changes in health status

THE HIA PROCESS

The guidance presented here is intended as a general overview of the HIA process, and may require adaptation to suit the particular project, programme or policy under review. Although HIA methods are still at a relatively early phase in their development, initial indications are that HIA can draw attention to potential health impacts in a way which permits constructive changes to project / policy proposals to be carried out. We should, however, point out that this publication constitutes 'work in progress' and that development and refinement of the HIA procedures and methods described here is a continuing process.

HIA as presented here needs to be distinguished from the established technical procedure (sometimes termed HIA or health risk assessment) employed retrospectively after chemical and other environmental incidents, and also prospectively in emergency planning.

It is important to distinguish between **procedures** and **methods** for health impact assessment. Procedures are frameworks for commissioning and implementing HIAs; methods are the systems for carrying them out. In summary, **procedures** for HIA involve:

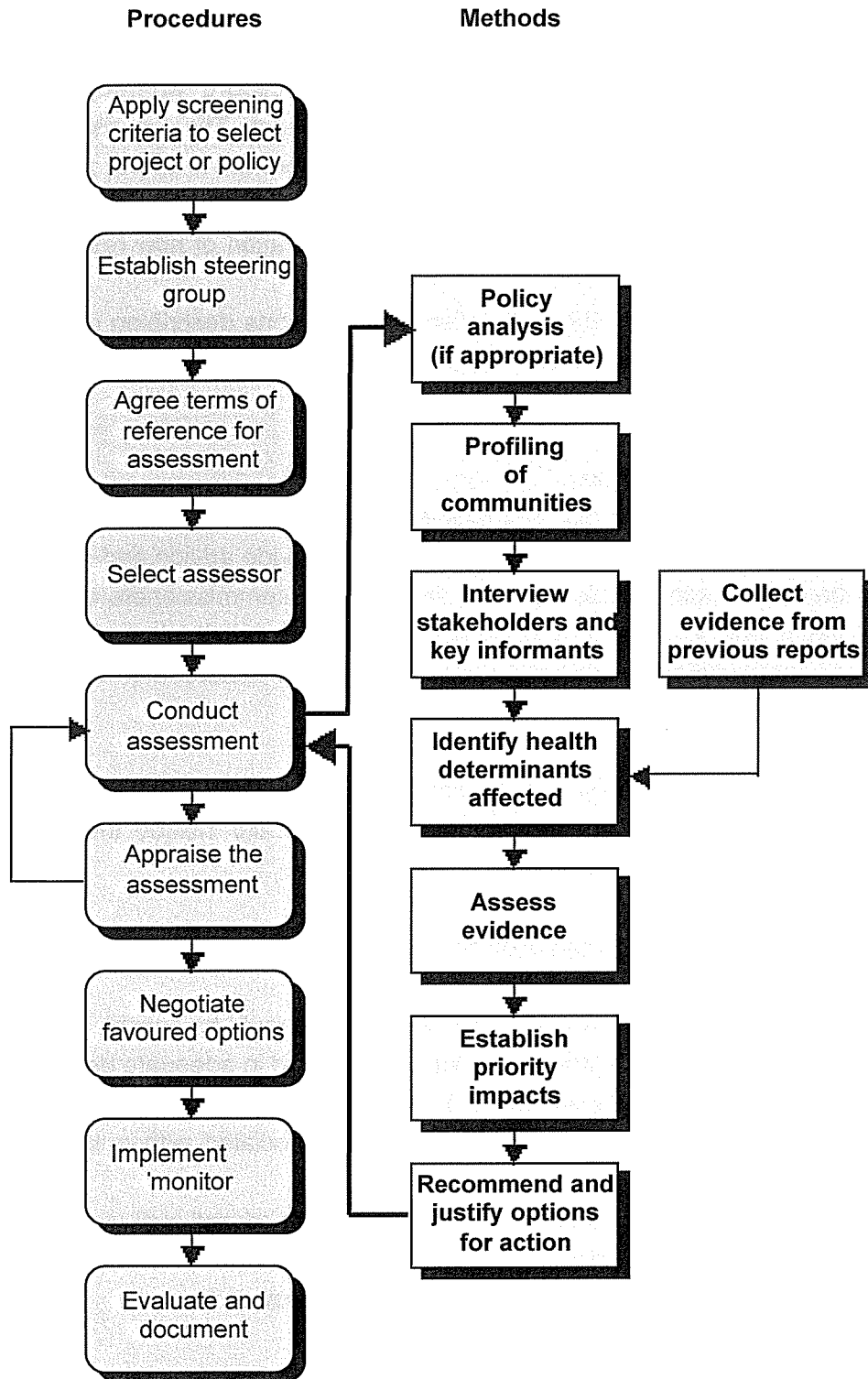
- screening, to select policies or projects for assessment
- establishing a Steering Group and agreeing Terms of Reference
- carrying out the health impact assessment
- negotiating the favoured option(s) for achieving optimal health impact
- monitoring and evaluating processes and outcomes of the HIA and providing feedback to influence continuing review

Methods for undertaking HIA involve:

- policy analysis (where appropriate)
- profiling the areas and communities affected
- involving stakeholders and key informants in predicting potential health impacts, using a predefined model of health
- evaluating the importance, scale and likelihood of predicted impacts
- considering alternative options and making recommendations for action to enhance or mitigate impacts

A more detailed picture is given in Figure 1 and in the sections that follow.

Figure 1: Stages in the HIA process



Screening

In order to make the most efficient use of available expert resources, it is necessary to be selective about what work is undertaken. Screening is the procedure whereby projects, programmes or policies are selected for health impact assessment. The issues on which selection is based are shown in Figure 2. Candidate projects, programmes or policies should be rapidly assessed with regard to their likely performance in relation to each of these issues. While the procedure is necessarily crude, it can give a useful indication of how resources for HIA can be most effectively deployed.

In Figure 2 (shown on page 8) - and for the remainder of the sections describing procedures and methods - the term 'project' is used for brevity to refer to projects, programmes or policies.

Steering Group and Terms of Reference

Following screening and project selection, a multidisciplinary Steering Group should be established to agree the Terms of Reference of the HIA and to provide advice and support as it develops. Its membership should include representatives of the commissioners of the HIA, the assessors carrying it out, the project's proponents (ie those developing, planning or working on it), affected communities, and other stakeholders as appropriate. Members should ideally be able to take decisions on behalf of those they represent.

The purpose of the Terms of Reference (TOR) is to provide a quality assurance procedure for the work being undertaken. The TOR are project specific, but should include the following elements:

- Steering Group membership should be listed in the TOR, together with members' roles, including those of Chair and Secretary
- the nature and frequency of feedback to the Steering Group should be specified
- the methods to be used in the assessment should be described in adequate detail
- the TOR should outline the form and content of the project's outputs, and any conditions associated with their production and publication. Issues associated with publication of outputs include ownership, confidentiality and copyright
- the scope of the work should be outlined - what is to be included and excluded, and the boundaries of the HIA in time and space
- an outline programme - including any deadlines - should be provided
- the budget and source(s) of funding should be specified

Figure 2: Health impact assessment screening procedure

The term 'project' is used for brevity to refer to projects, programmes or policies. The issues are not ranked in priority order.

Economic issues

- The size of the project and of the population(s) affected
- The costs of the project, and their distribution

Outcome issues

- The nature of potential health impacts of the project (crudely estimated)
- The likely nature and extent of disruption caused to communities by the project
- The existence of potentially cumulative impacts

Epidemiological issues

- The degree of certainty (risk) of health impacts
- The likely frequency (incidence / prevalence rates) of potential health impacts
- The likely severity of potential health impacts
- The size of any probable health service impacts
- The likely consistency of 'expert' and 'community' perceptions of probability (ie risk), frequency and severity of important impacts - this could be described via a simple matrix (a completed example is given below). The greater the likely consistency - ie the greater the likely agreement between expert and lay perceptions of important impacts - the greater the need for a HIA.

Expert / lay consistency	<u>Aspect of potential impact</u>		
	Probability	Frequency	Severity
High		x	x
Low	x		

Strategic issues

- The need to give greater priority to policies than to programmes, and to programmes than to projects, all other things being equal. (This results from the broader scope - and hence potential impact - of policies as compared to programmes and to projects)
- Timeliness:
 - re ensuring that HIA is prospective wherever possible
 - re Planning Regulations and other statutory frameworks
- Whether the project requires an Environmental Impact Assessment
- Relevance to local decision making

Negotiation of favoured options

Once a HIA has been carried out, the consideration of alternative options (or the undertaking of a formal option appraisal) - detailed below - does not conclude the process. Even when there appear to be clear messages regarding the best way forward, it cannot be assumed that these will automatically be adopted. Political imperatives, either beyond or within the Steering Group may ultimately determine the outcome. Disagreements or power inequalities between different stakeholder factions may be similarly important. In these and other such cases, the quality of leadership shown by the Steering Group Chair and members can prove crucial. Achieving agreement on options for mitigating or enhancing predicted health impacts may require skilful negotiation on the part of those involved.

Implementation, monitoring and evaluation

HIA can be viewed as analogous to an audit cycle in which, following project implementation, the results of subsequent monitoring and evaluation in turn influence the continuing operation of the project. The indicators and methods proposed for monitoring will depend not only on the nature and content of the project, but also on the perceived importance of this stage of the assessment. If significant resources can be made available, monitoring may include not only the collection and interpretation of appropriate indicators but also the phased replication of parts of the actual health impact assessment.

Outcome evaluation is (paradoxically) constrained by the degree of success of the HIA; negative impacts which have been successfully avoided (or weakly positive ones which have been successfully enhanced) due to the modification of the project will clearly not be identifiable. In practice, things are rarely this perfect and it may be possible to construct and compare notional and actual outcomes relating to the originally-proposed and actually-implemented projects. Multi-method assessments of specified outcomes (triangulation) should be undertaken where feasible, in order to increase validity.

Process evaluation involves the assessment of the HIA procedures against the Terms of Reference initially agreed by the Steering Group, and the assessment of the extent to which agreed recommendations of the HIA were actually implemented.

METHODS

Policy analysis

HIAs of policies will require initial policy analysis to determine key aspects which the HIA will need to address; this may build on or use material already available from earlier policy development work. Key aspects may include content and dimensions of the policy; the socio-political and policy context in which it will be implemented; policy objectives, priorities, and intended outputs; and tradeoffs and critical sociocultural impacts which may determine the effectiveness with which it is implemented.

Profiling of affected areas / communities

A profile of the areas and communities likely to be affected by the project should be compiled using available socio-demographic and health data and information from key informants. The profile should include an assessment of the nature and characteristics of groups whose health could be enhanced or placed at risk by the project's effects. Vulnerable and disadvantaged groups require special consideration. It will often be possible to use specially collected survey or other information in the profile in addition to routine data.

Depending on the nature of the project being assessed, affected communities may be defined by geography, age, sex, income, or other social, economic or environmental characteristics; they may also be communities of interest, eg arts or sport enthusiasts, vegetarians, or cyclists.

Stakeholders and key informants

The process of HIA requires broad participation if a comprehensive picture of potential health impacts is to be established. The co-operation and expertise of a wide range of stakeholders (people who are involved in the project or will be directly affected by it) and key informants (people whose roles result in them having knowledge or information of relevance to the project and its outcomes) will be needed. Public participation throughout the HIA is essential, both to ensure that local concerns are addressed and for ethical reasons of social justice.

While the exact identity of stakeholders and key informants is clearly project-specific, they are likely to include

- representative(s) of affected communities
- proponents of the project
- experts whose knowledge is relevant to the project (or particular aspects of it) and who may or may not be from the locality concerned
- relevant health (or related) professionals, eg general practitioners, health visitors, social or community workers
- relevant voluntary organisations
- key decision makers

Identification of potential positive and negative health impacts

Clearly the range of potential health impacts identified in HIA is dependent on the definition of health which is employed. We use a socio-environmental model of health derived from the work of Lalonde (1974) and Labonté (1993). This model is similar to that currently being applied by the UK Government and other bodies such as the World Health Organisation. The elements of this model can be used to generate detailed lists of health determinants which have been demonstrated to influence health status (Figure 3).

Figure 3 Key areas influencing health

Categories of influences on health	Examples of specific influences (health determinants)
Biological factors	age, sex, genetic factors
Personal / family circumstances and lifestyle	family structure and functioning, primary / secondary / adult education, occupation, unemployment, risk-taking behaviour, diet, smoking, alcohol, substance misuse, exercise, recreation, means of transport (cycle / car ownership)
Social environment	culture, peer pressures, discrimination, social support (neighbourliness, social networks / isolation), community / cultural / spiritual participation
Physical environment	air, water, housing conditions, working conditions, noise, smell, view, public safety, civic design, shops (location / range / quality), communications (road / rail), land use, waste disposal, energy, local environmental features
Public services	access to (location / disabled access / costs) and quality of primary / community / secondary health care, child care, social services, housing / leisure / employment / social security services; public transport, policing, other health-relevant public services, non-statutory agencies and services
Public policy	economic / social / environmental / health trends, local and national priorities, policies, programmes, projects

The collection of data on potential health impacts involves qualitative research with the stakeholders and key informants identified above. The nature and number of subjects involved will obviously depend on the nature and scope of the project under study, as well as on sampling considerations and practical constraints. The range of potential methods includes semi-structured interviews, focus groups, Delphi exercises and with- and without-project scenarios.

The first step involves providing informants with a summary of the proposed project which is sufficiently detailed to elicit an adequate response. Timeliness is crucial; assessment should ideally take place early enough in the development process to permit constructive modifications to be carried out prior to implementation, but late enough for a clear idea to have been formed - and documented - as to the nature and content of the project.

While in some contexts open-ended questions will be sufficient to facilitate the identification of potential health impacts, on others it may help to ask closed questions using the categories and determinants listed in Figure 3. Issues which have been highlighted in initial interviews can also be explored in greater depth in focus groups or brainstorming sessions. Interviews are more appropriate where sensitive or confidential issues are involved.

Data are recorded on the form shown at Figure 4, which is designed to separately record the following information:

- potential health impacts during project development and operation phases
- positive and negative health impacts (for example - a potential negative impact - increased levels of asthma)
- health categories and determinants resulting in the impacts identified (eg physical environment and air pollution)
- project activities altering determinants (eg increased traffic flow)
- nature and size of potential impacts
- measurability of potential impact - qualitative, estimable or calculable certainty (risk) of potential impact - definite, probable or speculative

In recording the views of stakeholders and key informants (and - later - in judging these against the available evidence base), it will be necessary to assess the extent to which predicted impacts are modified by factors specific to the project being studied. There may be particular groups affected by the project whose resistance or vulnerability differs from that of the population at large. Environmental conditions (such as wind direction, water courses, or pre-existing local conditions) may influence health impacts - sometimes in the long term and / or over long distances. Similarly, long latent periods prior to the development of certain diseases may mean that some impacts are distant in time from the intervention under study.

In addition to these specific constraints, predicted impacts will also need to be assessed against the temporal and spatial boundaries which were defined in the Terms of Reference of the HIA. The quality and quantity of health care and other health-relevant services (eg environmental health, social services) should not be overlooked as factors which may also mediate potential impacts.

Assessment of health risks

Perceptions of risk are, when possible, recorded at the time of identification of potential impacts. In some instances existing evidence (which may require to be researched) will permit precise assessment of risk. In many cases, however, risk assessment will be based on subjective perceptions - especially in the case of informants such as community members. Assuming adequate sampling, such subjective risk data are arguably no less

Figure 4

Phase 1: development /
Phase 2: operation*

Identification of potential health impacts

In the first column of the table, list the categories (eg physical environment) and health determinants (eg noise) which may be affected by the project's development / operation. In the second column, list all the activities likely to cause these effects during the project's development / operation. In the third and fourth columns, identify all predicted health impacts during project development / operation, separating positive from negative health impacts, and assessing their measurability (see below). In the final column, estimate the degree of certainty (risk) of the impact.

Categories / specific influences on health	Project development / operation activity	Predicted health impacts (nature and where possible, size of impact and how measurable impact is - i.e., is it qualitative (Q), estimable (E), or calculable(C)?)		Risk of impact - Is it definite (D), probable (P), or speculative (S)?
		Positive impacts	Negative impacts	

*delete as appropriate

valid or important than are more precise technical data - particularly where sensory perceptions (such as increased noise or smell, or deterioration of outlook) are concerned. Risk perceptions are recorded using simple three point scales of measurability (potential impacts are characterised as qualitative, estimable or calculable) and of certainty of occurrence (definite, probable or speculative). The temptation to quantify such scales should be resisted - such numbers could not be compared with validity and would carry a wholly spurious authority.

It should also be pointed out that definite, quantifiable data are in no sense superior to speculative, qualitative data. For instance, a definite increase of, say, 0.5% in levels of the common cold is arguably less important than a speculative risk of a less attractive outlook from the windows of a block of houses.

Quantification and valuation of health impacts

In some cases it will prove possible to assess the size of quantifiable impacts at the time they are identified by informants; in others, this will require to be done separately. eg through reviews of previously published evidence. The same applies to valuation - though evidence on the resource implications and opportunity costs of potential impacts will often prove hard (or impossible) to come by. However, such data can in principle be made comparable using quality-adjusted life years (QALYs) or other such cost-utility measures.

Ranking and researching the most important impacts

In almost all health impact assessments it will prove impossible to consider all potential impacts in detail; informants should be encouraged to prioritise or rank those they identify. Once all the initial evidence has been collected, a priority-setting exercise should be carried out - the Steering Group may be best placed to undertake this. Because of differential perceptions of risk there will rarely be complete consensus; criteria may need to be agreed so that the views of all informants are adequately reflected. The number of priorities to be pursued will vary with the size of the HIA, the importance of the project and the nature of the impacts identified. Once this has been done, available information and relevant evidence concerning priority impacts (from both published and 'grey' literature) will need to be collated. This may result in some re-evaluation of the TOR - for instance, when detailed consideration of the possible scale of an important impact suggests that the agreed geographical boundaries of the HIA need broadening.

Consideration of alternative options and recommendations for management of priority impacts

Although it will occasionally prove possible to define a single clear solution which will provide the optimum health impact of the project being assessed, in most cases a series of options will require to be defined and presented. Formal option appraisal will in some cases be appropriate; in others a less formal approach based on criteria agreed by the Steering Group will suffice. In either case the ultimate result will be an agreed set of recommendations for modifying the project such that its health impacts are optimised - in the context of the many and complex constraints which invariably constitute the social, material and political environment in which it will be undertaken. Occasionally, the option of not proceeding with the project will need to be addressed.

The following characteristics of alternative options or recommendations are likely to require consideration:

- the stage(s) of project development or operation when the recommendation will be implemented
- the precise timing of implementation
- the health determinants which will be affected by implementation
- the nature of these effects and the probability that they will occur
- the agencies that will implement and fund the carrying out of the recommendation
- the technical adequacy of the recommendation
- the social equity and acceptability of the recommendation
- the costs of the recommendation - direct / indirect; capital / revenue; fixed / variable; financial / economic
- how the implementation of the recommendation will be monitored

IMPORTANT CONCEPTUAL AND METHODOLOGICAL ISSUES

Is health impact assessment a science?

It is important to emphasise that HIA is not strictly a science. Having said this, it most certainly draws on a scientific knowledge base. Scientific evidence on health impacts of specific determinants forms the backbone of this creative, interdisciplinary form of enquiry. But each HIA is uniquely located in time, space and local conditions - though its evidence base can be evaluated, and the rigour with which procedures and methods were implemented can (and should) be assessed. Uncertainties encountered during the undertaking of HIAs will frequently dictate the need to make assumptions, which may result in challenges to the HIA's validity: such assumptions are acceptable as long as they are stated explicitly, so that the reader is free to agree or disagree.

Prospective and retrospective HIA

While ideally, HIA should take place early enough in the development of a project to permit constructive modifications to be carried out prior to its implementation, but late enough for a clear idea to have been formed as to its nature and content, circumstances will often make this unrealistic. In many cases it will be desirable to retrospectively assess the past or continuing health impact of an existing project; in others, there will be some smaller departure from the ideal situation described. The Merseyside Guidelines are, we believe, sufficiently flexible to accommodate the range of possibilities.

It is also important to recognise that the knowledge base for prospective studies essentially derives from existing retrospective assessments of the health impacts of public policies. While some attempts have been made to collate this literature (Canadian Public Health Association, 1997), it is clear that more systematic work will be required.

Values, equity and participation

Much research claims to be value-neutral - which usually means that its values are implicit rather than stated. The aims of public policy dictate that HIA should openly declare its values - and that social, material and environmental equity should feature strongly among them. This is because public policy impacts disproportionately on the already disadvantaged. Consistent with the adoption of an equity-focused approach are the use of participatory methods which fully involve those affected by public policy at every stage of assessment, and openness of all stages of the HIA process to public scrutiny.

Methods

The range of methods and of approaches to HIA should reflect the nature and complexity of the subject-matter. This implies not merely that qualitative and quantitative methods should be used, but also that multi-method and interdisciplinary approaches are required. In addition to different methods being appropriate to different aspects of a HIA, the use of several methods to examine a specific aspect (triangulation) will help define the most sensitive method for that aspect, as well as increasing the HIA's overall validity.

Comprehensive health impact assessment, health impact rapid appraisal and health impact policy audit

The financial and opportunity costs of undertaking health impact assessment dictate the need both to screen potential candidate projects and also to have a range of methods available according to the depth of analysis required. The methods described in these Guidelines are designed for **comprehensive health impact assessments** prior to the implementation of major policies, programmes and projects.

The briefer (but still in-depth) work which will probably be required for a substantial minority of central or local government policies, programmes and projects - work which might typically involve policy administrators and public health physicians - could be undertaken using an adapted, **health impact rapid appraisal** version of the Guidelines.

With regard to the routine HIA that could be undertaken on all policy proposals, broadly equivalent to the equal opportunity appraisal often undertaken in local government, a brief **health impact policy audit** method is required. It has been suggested that an adaptation of the type of screening tool illustrated in Figure 2 could fulfil this role - though this suggestion still needs to be critically evaluated.

Staffing implications

Comprehensive health impact assessment

On the assumption (not currently valid) that staff have been suitably trained, the specialist expertise required to apply the methods described in these Guidelines would be one health / social scientist, policy officer or public health specialist (for 4-6 months per project) - this person to be supervised by a senior person trained in public health. An alternative is for comprehensive HIA to be undertaken by independent specialists (consultants) in HIA research.

Health impact rapid appraisal

Rapid appraisal of a project would require a three-hour stakeholder workshop run by the type of assessor required for comprehensive HIA, followed by a further four-hour session for report writing. Separate guidance on health impact rapid appraisal will be available in 1999.

Health impact policy audit

Health impact policy audit would require one trained policy officer for 1-2 hours.

Training

HIA should be undertaken by competent individuals and agencies, in liaison with local public health departments, if it is to fully establish its value. Training is required for each of the three levels of HIA described above. Merseyside Health Impact Assessment Steering Group is currently developing training programmes to respond to both local and national demands.

Costs of comprehensive HIA

Resource implications of undertaking HIA will influence how widely it is adopted. Within the Merseyside HIA programme we have costed projects (Fleeman, 1998) on the basis of:

- actual costs of the person-hours input of assessors and of administrative / secretarial staff
- notional costs of the person-hours input of academic staff, Steering Group members and key informants
- notional travel expenses

The mean cost of the three projects costed - which represent the comprehensive health impact assessment approach - was £12650, of which £10497 (83%) represented the actual costs of assessor / support staff time.

CONCLUSION

These Guidelines describe one approach to the prospective assessment of the health impact of public policy, both centrally and locally. Given the present state of development of HIA, the methods outlined have the advantage of having already undergone a degree of field testing. Clearly, however, other approaches to HIA can and will be developed in the future; indeed, the authors are actively involved in further research and development on methods for comprehensive health impact assessment, health impact rapid appraisal, and health impact policy audit.

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