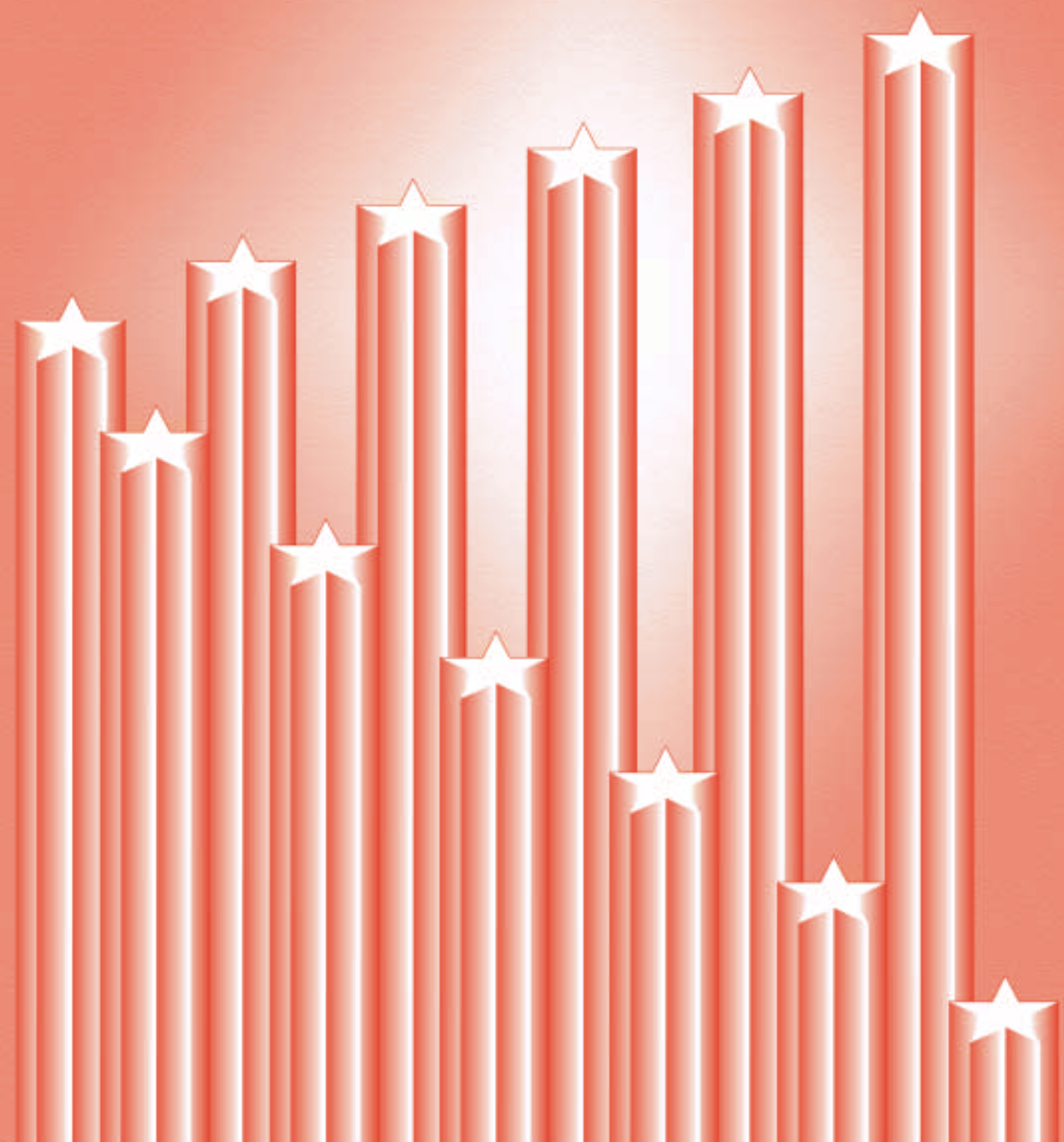
European Policy Health Impact Assessment

EPHIA



A GUIDE

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1 Introduction

The Health and Consumer Protection DG of the European Commission awarded a contract to a team of public health researchers and practitioners from England, Germany, Ireland and the Netherlands following a call for proposals in 2001 (2001/c147/06). The remit was to synthesise a generic methodology on health impact assessment (HIA) for use in EU policy development. This, in part, contributes to the European Council's commitment under Article 152, Treaty of Amsterdam, (EC, 1999) by developing methods and procedures to ensure that human health is protected in EU policy development and implementation.

In addition it supports the EC Public Health strategy (EC, 2002), which includes objectives to establish pilot projects to develop and use HIA methodologies to assess the health impact of Community policies and actions. The 'Policy Health Impact Assessment for the European Union' project is one such project.

This document has been developed for the European Community and its institutions, and provides a guide to assessing or commissioning an assessment of the impacts of EU policies on human health. It is also applicable to EU policy development at Member State level, for HIA practitioners and commissioners.

The document:

- presents the features of this generic HIA methodology, the EU Policy HIA or 'EPHIA' methodology
- summarises the EU Policy HIA project and how EPHIA was synthesised, piloted and amended
- describes the EPHIA methodology's underpinning concepts and principles
- provides a step-by-step explanation to the procedures and methods, defining the purpose, skills needed and outputs. Examples of methods and tools derived from the EPHIA pilots in the main report are provided.

The Policy HIA for the European Union Project

The aim of the Project was to:

- Synthesise a standard generic methodology for HIA of EU policies and activities
- Apply this HIA methodology to selected EU policies
- Disseminate the findings and the lessons learned from the Project by means of seminars, publications and high-level briefings

The specific objectives of the Project were:

- To search, identify, collect and review HIA methodologies and methods
- To synthesise a generic policy HIA methodology
- To pilot and refine the new HIA methodology
- To identify, screen and select an EU policy for HIA
- To apply the new HIA methodology to the selected EU policy
- To disseminate the findings from the HIAs and the lessons learned about HIA for EU policy to EU policy-makers and Member States

The development of the generic EU policy HIA methodology used a systematic and rigorous approach involving the following steps:

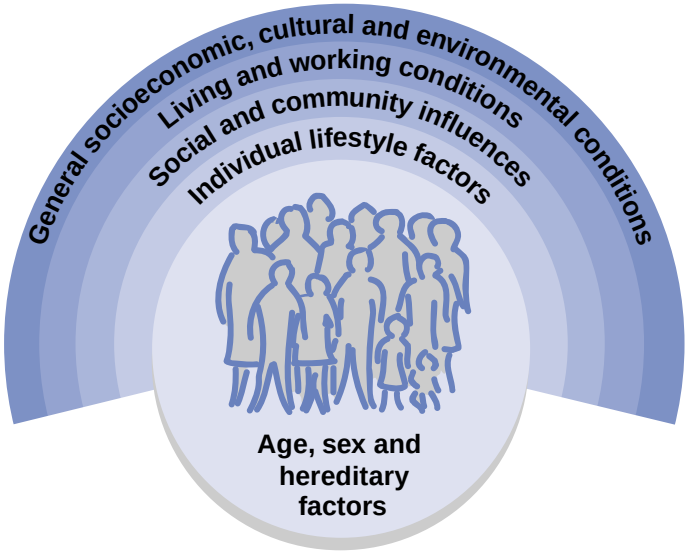
- An extensive search and collection of HIA documents
- Developing an HIA classification framework to facilitate selection of HIA tools from collected material
- A review and classification of HIA documents using the classification framework
- Developing a draft EPHIA methodology following the synthesis of HIA material
- Selecting the European Employment Strategy as a pilot policy to test the draft EPHIA methodology following an extensive selection process
- Conducting pilot HIAs in nation states and EU-wide using the draft EPHIA methodology
- Systematically evaluating the draft EPHIA methodology following pilot HIAs
- Refining the EPHIA methodology in light of the experience of the HIA pilots

3 Key EPHIA Concepts and Principles

3.1 Health and well being

It is generally acknowledged that health is more than the absence of illness or disease; it is also about the physical, mental, social and spiritual well being of people. Inextricably linked to this is the understanding that at every stage of life, health and well being are affected by complex interactions between social and economic factors, the physical environment and individual behaviour, as well as by hereditary factors. Factors such as income, employment, housing, access to basic services such as education and facilities such as shops are *determinants of health*, as they influence the degree of health, wellbeing, or *health outcomes*, achievable by individuals and communities. This concept of health and what affects it is referred to as a social model of health (Black et al, 1980; Acheson, 1998). The determinants of health are illustrated as layers of influence in Figure 3.1 (Whitehead & Dahlgren, 1991). EPHIA has adopted a social model of health as an underpinning concept.

Figure 3.1 The main determinants of health



Some individuals and groups of people experience systematically better, or worse, health than others. This is referred to as health inequalities and reflects the differential exposure across the life span to risks associated with their socio-economic circumstances. The differential exposures can also help to explain health inequalities that exist by ethnicity and gender.

Within each main category of health determinants, there is a range of specific health determinants. Some examples of these are in table 3.1.

Table 3.1 Examples of specific health determinants

Categories of health determinants	Specific health determinants
Socio-economic, cultural and environmental conditions	International, national and local public policies (eg economic, health, employment, education, defence, transport, housing, foreign, immigration, welfare policies) International, national and local public/ population-based services (eg, emergency services, policing, health and social care, immigration, education, transport, welfare, child care, leisure) Expressed/perceived social/cultural values and norms (eg discrimination, fear of discrimination, attitudes to different population groups, equity and fairness) Relationship between state and citizen
Living and working conditions (physical environment)	Housing (eg conditions, availability) Working conditions (eg exposure to hazards) Quality of air, water, soil Noise Waste disposal Energy use and sustainability of resources Land use Biodiversity Accessibility to people, places, products
Social and community influences (socio-economic environment)	Social support and integration Social exclusion Community spirit Community involvement in public policy decision-making Employment (eg, availability, quality) Education/training (eg, availability, quality, affordability)
Individual lifestyle factors	Personal behaviours (eg diet, activity, smoking, alcohol consumption, drug misuse) Personal safety Employment status Educational attainment Income, including disposable income Self-esteem and confidence Attitudes, beliefs - 'locus of control'
Biological factors	Age, sex, genetic factors

3.2 What is Health Impact Assessment?

Health impact assessment has been defined as a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population (Lehto & Ritsatakis, 1999). It aims to identify what potential changes in health determinants might result from a new policy or project, for example an employment or transport policy, and what effects these changes might have on the health of a population. The assessment of the differential distribution of effects across the population is essential to analysing the potential impact on health inequalities. Whilst health is improving across Europe as measured by average life expectancy, health inequalities between certain population sub-groups are widening, for example affluent as opposed to poor socio-economic groups.

Through the application of the methodology, EPHIA aims to inform and influence decision-making in the policy development process, adding value to European policy by enabling decision-makers to consider the health implications of their policies.

3.3 Principles and values of the EPHIA methodology

The principles and values underpinning EPHIA reflect those identified in HIA work elsewhere (including Hirschfield et al, 2001; Douglas et al, 2001; Lehto & Ritsatakis, 1999) and they are reflected throughout this methodology.

EPHIA is a **collaborative** process whose benefits are best realised through **shared ownership**, for example between the DG proposing the policy and DG SANCO. EPHIA has been designed to be **practicable** and the methods chosen for each assessment should be appropriate for the time and resources available. The process should be as **democratic** as possible, with the interests of population groups reflected either through representatives or through direct **public involvement** of community members themselves. EPHIA is concerned with **reducing health inequalities** and should assess the differential distribution of health impacts across the population. It should be **objective** in its identification of evidence of health impacts and data collected should be based on recognised research quality standards. It should be **transparent** with methods and procedures clearly stated. Recommendations developed through EPHIA should be **practicable** and achievable and should consider both short and long-term health impacts.

3.4 HIA and Health Inequalities

EPHIA can make a significant contribution to reducing health inequalities by informing policy-makers about the potential impacts of a proposed policy on different population groups.

Health inequalities can be a point of attention in all stages and methods of EPHIA. For example profiling should include data concerning vulnerable population sub-groups, and groups that are specifically affected by the policy. Stakeholder and key informant involvement should include representatives from different sub-groups; the methods and tools should include considerations of health inequalities. Mathematical models could be developed with population and sub-population data; similarly causal webs could be developed and compared for different population sub-groups. Impact analysis should include analysis for different population sub-groups. Finally priorities and recommendations should reflect the needs of all population groups with the aim of 'levelling up', that is improving the health of the least healthy population groups to that of the most healthy. It is equally important to pay attention to gender differences.

Wherever relevant these differences should be included in the different HIA stages.

Box 3.1 Health inequalities

The term health inequalities refers to unjust and avoidable health differences between population groups. The term *socio-economic health inequalities* refers to the fact that people with a low socio-economic status live shorter lives and have worse health than others. Another widely used term is *vulnerable* groups, meaning people who run a higher risk of health damage. Vulnerability may be due to age (children, old people), or health situation (e.g. chronically ill people, pregnant women) or due to social (e.g. membership of an ethnic minority group) or economic disadvantage.
Finally there are gender based differences, which cut through all other (health) inequalities.

When discussing health inequalities or differences this includes not only health status but also risk factors such as life style aspects (e.g. smoking, lack of exercise).

Examples of population sub-groups in the EPHIA pilots included:
• Women • Older people • People with disabilities • Black and Minority Ethnic Groups
• People with low qualifications • Lone parents

3.5 EPHIA options

The methodology can be used at different depths of assessment which require different resource inputs. The selection of which depth of assessment to undertake depends on the context, for example the policy context, time available, purpose of the HIA, available resources. These are three examples of different depths that could be applied:

Desk-based EPHIA
- provides a broad overview of possible health impacts
- could be used at early policy development stage (e.g. green paper) or where limited time/resources are available
- involves collecting and analysing existing, accessible data
- takes approximately 2-6 weeks (for one assessor)

Rapid EPHIA (appendix)
- provides more detailed information of possible health impacts
- typical or most frequently used HIA approach
- allows more thorough investigation of health impacts, increases reliability of impacts
- involves collecting and analysing existing data and some new qualitative data from stakeholders and key informants
- lasts approximately 12 weeks (for one assessor)

In-depth EPHIA
- provides comprehensive assessment of potential health impacts
- most robust definition of impacts, but least frequently used - the 'Gold standard' of HIAs
- involves collecting and analysing data using multiple methods and sources (quantitative and qualitative, including participatory approaches involving stakeholders and/or their representatives and key informants)
- lasts approximately 6 months (for one assessor)

Box 3.2 poses some questions to help decide what depth of HIA might be carried out:

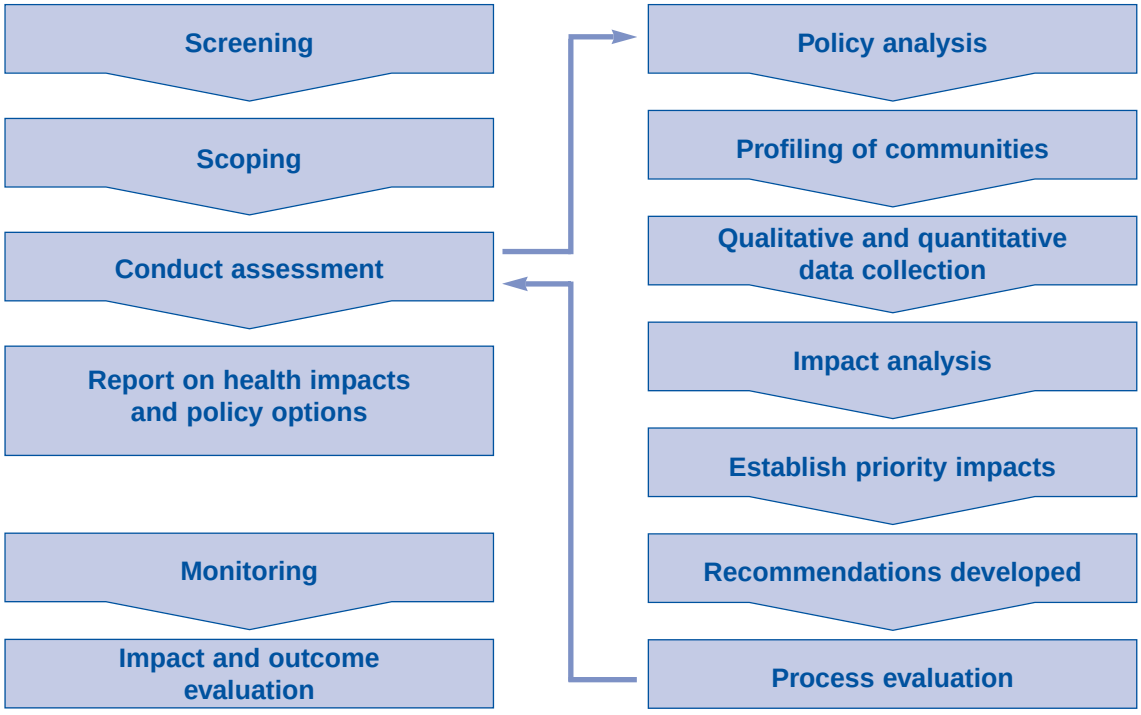
Box 3.2 Guidance on how to decide what depth of EPHIA to employ

1. When does the EPHIA report have to be completed?	If less than 6 months, probably desk or rapid
2. Who will be the EPHIA assessor/s?	If in-house, probably desk or rapid
3. What funds are available for EPHIA?	If resources available more choice of assessors and depth
4. Is the policy a key policy (eg, type, topic, investment)? Are there significant policy changes proposed?	In-depth
5. Does screening suggest significant potential health impacts of the policy change?	In-depth
6. What data associated with the policy are available and accessible? What is the health evidence-base on the policy topic?	If more data, in-depth
7. What is the level of political and/or public interest?	If more interest, in-depth

4 EPHIA Procedures and Methods

Figure 4.1 illustrates the procedures and methods that make up EPHIA. The left hand side contains the main organisational steps to be carried out during a health impact assessment. The right hand side contains the steps and methods that are carried out within the actual assessment. Some of these steps may be carried out concurrently with information aimed at one step feeding in to other steps.

Figure 4.1 Schematic representation of EPHIA



4.1 Screening

Screening is the first stage in identifying policies for assessment by EPHIA by making a quick judgement as to the potential effects of the policy on the health of a population. Various tools and checklists have been developed including the screening tools of the Greater London Authority (GLA, 2001) and the Merseyside Guidelines (Scott-Samuel et al, 2001). The European Commission could do this using the Preliminary Assessment tool (EC, 2002).

4.2 Scoping

Scoping is about designing and planning the HIA. Ideally it involves convening a steering group as a first step, and results in clearly defined terms of reference (TOR) for the assessment, and the identification of the assessor or assessment team. The steering group's role is to define the TOR for the assessment, to identify the assessors and to project manage the HIA; it is recommended to document the group's role, membership, and reporting arrangements. Alternatively those commissioning the HIA, for example the policy proponent (initiator) can assign an assessment team to carry out these tasks.

Potential steering group members include the policy proponent, other stakeholders (individuals or groups who have a 'stake' in the policy under investigation), key

informants ('experts' or 'specialists' in the specific policy field) and the assessors. Examples are in table 4.1.

Table 4.1 Stakeholder and Key Informants in the UK EPHIA pilot of the European Employment Strategy (* Steering group invitees)

Stakeholder/Key Informant Category	Stakeholder/Key Informant
Organisational stakeholder - health	Department of Health* Health Development Agency* Health and Safety Executive
Organisational stakeholder - policy proponents	Department for Work & Pensions* Department for Education and Skills* Department of Trade & Industry*
Organisational stakeholder - relevant to policy	Department for the Environment, Food and Rural Affairs Office of the Deputy Prime Minister
Organisational stakeholder - regional government	North West Development Agency
Organisational stakeholder - social partners	Confederation of British Industry* Trade Union Congress* Chartered Institute of Personnel Development
Organisational stakeholder (NGO/VS) - special interest groups	Commission for Racial Equality Equal Opportunities Commission Disabilities Rights Commission Low Pay Commission University of the Third Age National Unemployment Centres
Key informants - Employment and health	University College, London* European Foundation for Improvement of Living and Working Conditions*
Key informants - Employment	Manchester Business School* Institute for Employment Research

The TOR of the HIA should include the design, (eg, aims, objectives, methods), scope (depth of the assessment, geographical and time boundaries, policy context, unit of analysis), outputs, resources and timetable. It is envisaged that this would be an iterative process with the steering group defining and refining the TOR, eg with the subsequently appointed HIA assessors.

Decisions about the depth of the assessment need to reflect the status and complexity of the policy. In addition practical considerations will also affect the depth, eg the existence of models for predicting health impacts, the evidence-base, availability of

data; some questions to help decide on the depth of the assessment are defined in box 3.2. For policies that are very broad or complex the HIA commissioner may wish to limit the focus of the HIA to specific aspects of the policy in question.

Following the development of an outline TOR by the HIA steering group, the range of skills and expertise needed in the assessment team will be known. With appropriate training most desk top or rapid EU Policy HIAs could be undertaken 'in-house', for example by DG SANCO in liaison with the DG responsible for the policy. For more in-depth EU Policy HIAs it is likely that external expertise would be needed. In these cases, it is important that the lead HIA assessor is a public health professional who has been HIA-trained and ideally has experience in conducting HIAs. Other skills will vary according to the policy type as well as the depth of the assessment.

4.3 Conduct Assessment

The methods involved in this are described in the following section. The assessment procedure is an iterative and learning process. Each step feeds into the others and during the actual process steps can be carried out to a certain degree concurrently.

The methods used for data collection and analysis will vary according to the depth of the EPHIA. It will always involve the collection and analysis of existing data, however multiple data collection methods, quantitative and qualitative, involving stakeholders and/or their representatives and key informants are used in in-depth EPHIA.

Given the complexities of implementing European Commission policy throughout Europe and the variety of populations affected, there are different ways ('units of analysis') that the EPHIA methodology could be applied to assess potential health impacts. For example

Option 1 - At Europe wide level
The health impacts of the policy could be estimated for the European population as a whole (EU-25 post April 2004). This would be suitable for a rapid desktop exercise and for policies that are likely to have relatively uniform health impacts.

Option 2 - At Europe and regional level
The implementation of EU policies is likely to have different health impacts in different European countries by virtue of their different socio-economic and health contexts. However a regional (for example, Northern, Southern and Eastern Europe) or 'range' assessment (countries with the 'best' or the 'worst' levels for key health determinants, eg employment, affected by the policy under investigation) could be undertaken. This option could be conducted in-house by accessing centrally available data (for example, through Eurostat) or by assembling assessors from selected Member States.

Option 3 - At Europe wide level and at nation state level
Given the principle of subsidiarity within the EU, the European Commission depends largely on member states to implement its policies. An assessment at Member State level may be deemed more appropriate than a regional approach, due to the significance of the policy or variability across Member States.

Policy analysis

The primary purpose of policy analysis is to inform the HIA design and iteration.

It should identify:
- rationale, context and strategies of the policy;
- populations and sub-populations who are affected, positively or negatively, by the policy;
- key informant and stakeholder sample groups.
- the relationship of the proposed policy with other policies
- the results from evaluations of other similar policies

This could consist of the audit and analysis of three types of documents:
- The proposed policy and supporting documents;
- Other policies and official documents that relate to the policy under investigation;
- Evidence of the social, economic, political, cultural scientific context of the policy.

Policy analysis also contributes to the generation of the data set for the profile, the question guides for the stakeholder and key informant interviews and the topics for the literature search.

Box 4.1 Example of policy analysis criteria and questions used in the EU EPHIA pilot

Policy development
What are the issues associated with the policy topic, eg employment in the EU? How was the policy initiated and developed? Who was involved, eg policy networks? How were decisions made when finalising the policy content?

Policy content
What are the policy's proposed aims, objectives, interventions, targets, timescales, funding? Who does the policy affect? Does the proposed policy address the identified issues? Are the proposals evidence-based? What are the values and theoretical model underpinning the policy?

Policy implementation
What are the opportunities and challenges facing the effective and efficient implementation of the policy, eg communication, synergy between policies, adequate resources, supportive culture, political will? What are the political ramifications of the policy's implementation, eg electoral?

Health in policy planning
What considerations of the health effects of the proposed policy were taken? What is the relationship/model of action between the policy theme, eg employment and health outcomes? NB This model will be enhanced by stakeholder data. What are the potential intervention points for the proposed policy on this model?

Profiling

The purpose of profiling is to give a picture of the health and socio-demographic context of the policy in order to understand better its potential health impacts and particular population groups that may be affected. Profiling involves collecting data on a number of *indicators* that are expected to be relevant given the content of the policy selected and its possible impacts on health or health determinants. Indicators are measurable variables that reflect the state of a community or of persons or groups in a community. The profile would ideally consist of trend (time series) data. An indicator

set for a community profile could include indicators concerning:

- Population, eg EU, member state, population sub-groups
- Health status, eg mortality rates, perceived health and well being
- Health determinants, eg housing conditions, employment status, air quality, social support, access to health care services, diet and activity

Box 4.2 Examples of indicators

Examples of *health* indicators that were included in the HIA pilot of the European Employment Strategy:

- Healthy life expectancy at birth
- Proportion of population who are disabled
- Occupational morbidity

Examples of *health determinant* indicators:

- Population by occupational class
- Proportion of unemployment/inactivity
- Proportion employed by status
- Trends in employment

Data for the indicators selected can often be found in available international databases such as EUROSTAT, OECD, WHO and in national level databases.

Some examples of online databases:
EU Statistics - Eurostat:
http://europa.eu.int/comm/eurostat/Public/datashop/printcatalogue/EN?catalogue=Eurostat
Organisation of Economic Co-operation
and Development statistics- OECD Statistics Portal:
http://www.oecd.org/statsportal/0,2639,en_2825_293564_1_1_1_1_1,00.html
World Health Organisation Statistics - WHO Statistical Information System (WHOSIS):
http://www3.who.int/whosis/menu.cfm
National level statistics – United Nations Statistics Division
The following site contains links to every available (UN) national statistics site in Europe and the rest of the world:
http://unstats.un.org/unsd/methods/inter-natlinks/sd_natstat.htm

If an in-depth EPHIA is being undertaken at EU and national levels, involving national data sources, it is important to be aware of the comparability between indicators. That is, the operational definitions of indicators should be the same wherever possible. The European Community Health Indicators (ECHI) are a comprehensive indicator set compiled from various data sources which is in the process of being defined; these will enhance comparability between Member States in the future.

The information gathered during policy analysis and profiling will generate a clearer picture of the most important and relevant aspects of the policy in terms of health. This will usually lead to the focus of the HIA being further refined and defined. As a consequence, during the HIA the initial profile produced may be adapted: some indicators may prove less relevant while others that were at first not included, are added.

Box 4.3 Adapting the community profile: example from the Netherlands EPHIA of the European Employment Strategy

The initial community profile in the HIA of the European Employment Strategy contained a number of basic indicators on demography, health status and employment. In the Netherlands, during the subsequent data collection phase one of the topics that came up was the discouragement policy regarding early retirement. Therefore two extra indicators were added:

- Average retirement age
- Proportion of the population between 55 and 65 years that are employed

Qualitative and quantitative data collection

During the data collection stage, evidence on the effects of the policy on health determinants and health outcomes is gathered. Generally the only new data used in most health impact assessments is gained through the participative qualitative approaches mentioned below. It is often not necessary or practical to collect new quantitative data. Already available resources such as health and environmental reporting can be often utilised. Also data from previous studies can be further analysed, for example for mathematical modelling. Systematic reviews of available research are a particularly useful way of gathering evidence. If systematic reviews are not readily available, a review of available literature could support this. In the case of a desktop EPHIA, data collection would be probably limited to a literature review while an in-depth EPHIA could employ multiple methods to generate new data.

Box 4.4 Types of evidence from the literature

Not all data from research are evidence. The quality and strength of evidence are dependent on the research design; this applies to qualitative and quantitative research. The strongest evidence is provided when different research studies are combined in a *systematic review*. Systematic reviews available on the internet are shown below. They have different emphases on the type of research reviewed; for example, York (UK) and Cochrane (international) focus on reviews of the effectiveness of clinical interventions, whereas Campbell concentrates on reviews of socio-economic interventions. The HDA (England) reviews the effectiveness of, for example lifestyle and regeneration interventions on public health and health inequalities.

Cochrane Centre http://www.cochrane.org/index0.htm

Campbell Collaboration http://www.campbellcollaboration.org/

Health Development Agency (HDA)
http://www.hda-online.org.uk/html/research/evidencebase.html

Health Evidence Network http://www.euro.who.int/HEN

Medical Research Council www.msoc-mrc.gla.ac.uk

University of York - Centre for Reviews and Dissemination http://www.york.ac.uk/inst/crd/

WHO http://www.who.int/en/ WHO Europe http://www.who.dk/

If systematic reviews are not available, literature reviews could be undertaken on relevant studies collected from a comprehensive search (eg a computer search from appropriate databases). Literature reviews involve the critical analysis of the studies against specific criteria to establish the rigour of the research, for example:

Was the research design clearly defined? Were ethical considerations presented, including conflicts of interests of researchers? Were the methods and tools used appropriate? Was the sample group and size appropriate?

Were the results clear and adequately reported and discussed?
Are the limitations of the study presented? Can the results be generalised? Do the conclusions relate to the findings? Are the implications of the research discussed?

4 EPHIA Procedures and Methods

The purpose of participatory, qualitative approaches is to gather evidence from the experience, knowledge, opinions and perceptions of populations affected by the policy (stakeholders) and people with expert knowledge (key informants).

This evidence:

- provides a more in-depth picture of the range of health determinants affected by the policy;
- provides a detailed understanding of how they think this impacts on health outcomes and why;
- contributes to prioritisation of impacts;
- provides a perspective on health inequalities.

Wherever possible representatives of potentially affected population groups should be involved; this is resource intensive and so is only appropriate for rapid or in-depth EPHIA. Sampling of stakeholders and key informants to incorporate a comprehensive range of perspectives is important; Political Mapping is one method that could be used to identify and categorise the stakeholders and ensure involvement from each category. Box 4.5 describes the methods used to generate the samples in the UK EPHIA pilot, once the stakeholders and key informants were defined (table 4.1).

Box 4.5
Examples of sampling methods used in the UK EPHIA pilot of the European Employment Strategy

'Purposive sampling methods were used to generate the initial organisational stakeholder and key informants groups, followed by snowball sampling.'

Purposive sampling is a non-random sampling method, which aims to sample a group of people with a particular characteristic, for example, people involved in the development and implementation of employment strategy (including the NAP EES Employment Guidelines).

Snowball sampling involves an initial group of respondents (that is the organisational stakeholders and key informants) to identify others they know have a similar characteristic (that is an involvement or interest in employment strategy).

Data collection methods could include focus groups, semi-structured or unstructured interviews (eg, Knodel, 1993). Semi-structured interviews were used in the UK EPHIA pilot on the European Employment Strategy. The tool used for this is in table 4.2.

Table 4.2 Example of a tool

Employment Question Themes	Employment and Health Question Themes
Unemployment trends in the UK, eg • Population sub-groups most affected? Why? How? • Effects on quality of life? Priorities?	Effects of unemployment on health and well being, eg • Physical, psychosocial health/well-being? How (causal relationship)? • Population sub-groups most affected? Why?
Employment trends in the UK, eg • Employment types? • Low pay? • Employee involvement?	Effects of employment on health and well being, eg • Employment types? • Socio-economic work environment - low pay, involvement? • Other working conditions? • Who? How?
Effective interventions to reduce unemployment, eg for • Long-term unemployment? • Economically inactive?	Effects of interventions to reduce unemployment on health and well being, eg • IB claimants' interviews? • Child care provision?
Effective employment interventions, eg to • Increase productivity? • Increase innovation?	Effects of employment interventions on health and well being, eg • Increase flexible working for employee - work life balance? • Increase flexible working for employer - employment status? • Employee involvement?
Potential effects of the Employment Guidelines in the UK, eg • EU EES/Guideline targets? • Other health determinants - average income, educational attainment etc	Potential effects of the Employment Guidelines in the UK, eg • EU EES/Guideline targets, on health and well being?

Other qualitative methods can be used to establish consensus. These are described in box 4.6.

Box 4.6 Examples of qualitative methods to establish consensus

Delphi techniques
This involves a postal questionnaire with open-ended questions to obtain the ideas and attitudes of large numbers of people anonymously on particular topics, but without the need for organising a meeting. It includes cycles of feedback by post rather than face to face. The responses are analysed and fed back as a second questionnaire with a limited number of topics or statements to a panel of experts asking them to rank them. The rankings are then summarised in another questionnaire and circulated to the original participants asking them to rank their level of agreement. These re-rankings are analysed to assess the degree of consensus; if there is a substantial difference a further cycle of feedback is undertaken.

Consensus development panels
These are also called consensus development conferences. They involve organising meetings with panels of experts in a particular field, lay people, or mixed groups to discuss specific topics usually with the aim of improving the understanding or developing a consensus in the area. In addition to face to face meetings they can also be 'virtual', for example through email discussion groups.

Nominal group process
This is also known as the 'expert panel'. Experts are asked to rank their position on particular topics before meeting. The results are summarised and presented to the participants at a subsequent meeting, together with relevant evidence from the literature. At the meeting they discuss the rankings and the differences. They are asked to re-rank the topics in light of the group's discussion.

A number of different quantitative approaches can be used to estimate the changes of health determinants or to quantify the change in health state health outcomes of some population groups in the future due to a policy's development or implementation. Forecasting, scenario building and mathematical modelling are established methods in other fields. Quantitative data can also be generated using participatory approaches, for example, consensus panels. Health economics approaches, such as cost benefit analysis, 'willingness to pay', can also be employed to quantify the impacts on health.

Impact analysis

The purpose of impact analysis is to identify and characterise potential impacts emerging from the previous steps. Impact analysis involves organising evidence of impacts from the different data sources, qualitative and quantitative, and considering:

- Health impacts - the health determinants affected and the subsequent effect on health outcomes;
- Direction of change - indicates a health gain (+) or loss (-)
- Scale - severity of the impact (mortality, morbidity/injury and well being) and the size/proportion of the population affected (high, medium, low)
- Likelihood of impact - definite (retrospective HIA only) , probable, possible or speculative, based on the strength of evidence (eg evidence from systematic reviews or meta analyses) and number of sources (eg literature, stakeholders/key informants, documents)
- Latency - when the impact will occur - immediate, short, medium or long term

Matrices are visual tools for organising and structuring the evidence of potential health impacts. The health impact matrix summarises the key health impacts. An example from a transport project is given in table 4.3.

Table 4.3 An example of a Health Impact Matrix

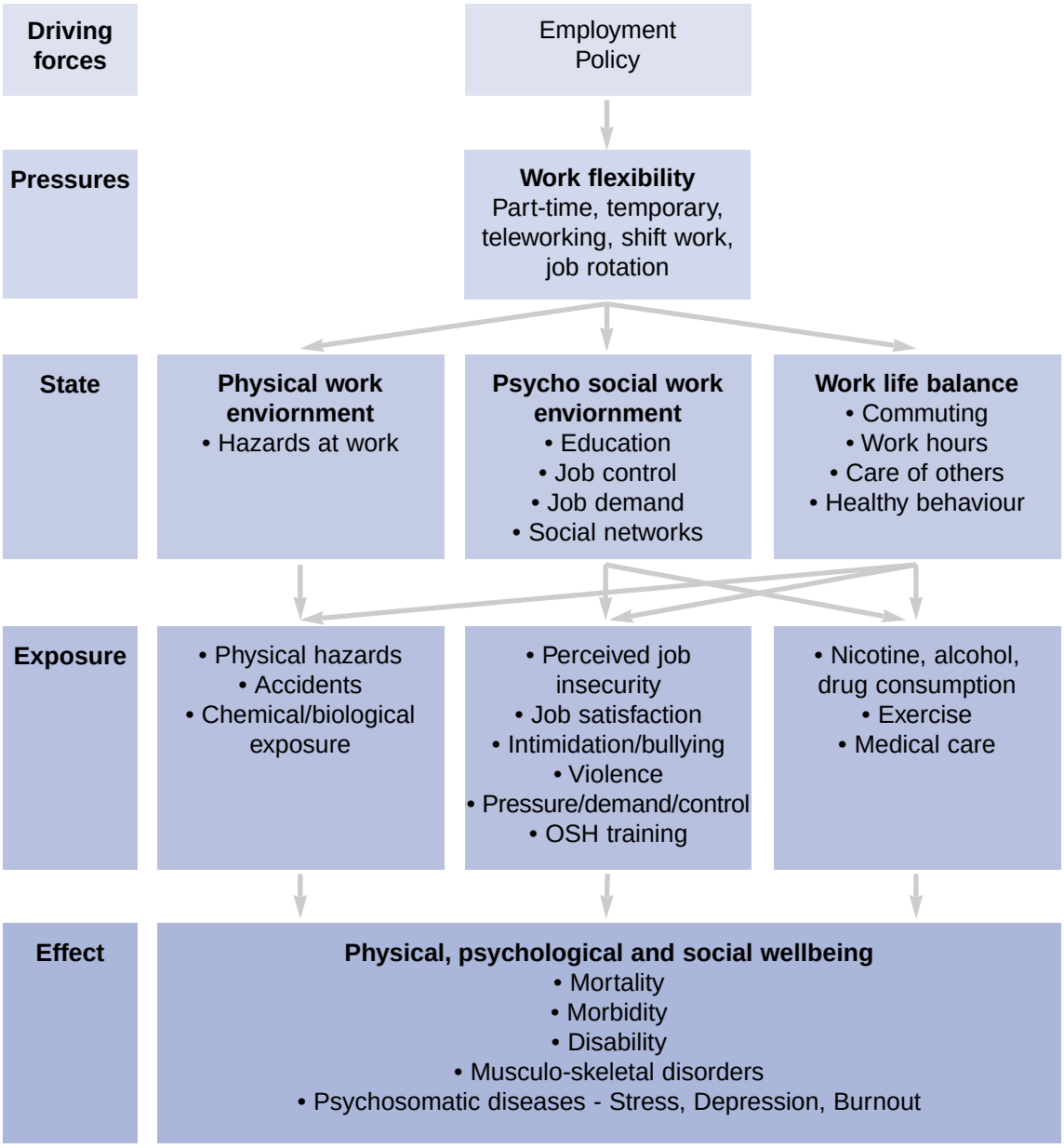
Potential Health Impacts	Direction/ Scale	Likelihood
Population		
• Reductions in rate of road traffic growth and congestion (Tasks 2, 3, 4) Reduction in rate of growth (predicted 1.052 in 2005) and congestion of road traffic by promotion of healthier transport modes, change in travel behaviour, restricted vehicle access, change in traffic flows	++	Probable
• Improvements in Air Quality (Tasks 1-4) Reductions in general road traffic-generated and bus-generated air pollutants (Task 1): NO_x, PMs, CO, VOCs	+++	Probable
Reductions in NO_x to bring within NAQS –> Prevent 'sensitising' asthmatics, people with Chronic Obstructive Pulmonary Disease reducing risks of reduced lung function and morbidity (WHO, 2003)	+++	Probable
Reductions in generation of ground level O_3 (resulting from NO_x photochemical oxidation in the presence of VOCs) –> reductions in risk of deaths brought forward eg asthmatics (+ 0.6% per 10 ug m^{-3} 8-hour mean O_3 concentration (above 100 ug threshold) m^{-3}) (COMEAP, 1998).	+++	Probable
Reductions in PMs –> reductions in risk of deaths brought forward (+ 0.75% for a 10 ug m^{-3} increase in PM concentrations (no threshold) (COMEAP, 1998).	+++	Probable
Reductions in outdoor air pollutants –> prevent long term lung damage.	++	Probable
Health Inequalities CATCH will contribute to reducing the health inequalities experienced in the area due to road-traffic generated air pollution. Groups most vulnerable to poor air quality: Children, pregnant women, people with existing heart or respiratory disease, older people, 'responders' (people who are susceptible to allergic responses from pollutants)	++	Probable

An analysis at population and sub-population levels should be included to consider the implications for health inequalities. To do this, the health experience of the population sub-groups under investigation relative to the population average needs to have been established. The local factors (health determinants) affecting the different health states

of each population sub-group also need to be understood. Finally the effects of the policy on these health determinants needs to be considered.

Causal webs are also a visual way of depicting the multi-causal relationships of health effects. They are more complex than traditional one-cause, one-outcome analysis. Each link between two causes or between causes and a health outcome can be characterised by a function. The combination of these functions may result in a mathematical model. However it may not always be possible to quantify the entire model.

Figure 4.2 Example of a causal web for flexible forms of employment



Impact analysis usually involves a number of stages. For example the qualitative data collected from stakeholders and key informants has to be analysed to identify evidence before it can be incorporated with evidence from other data sources. The UK EPHIA pilot used content analysis - the systematic identification and analysis of key words, phrases and themes in documents, transcripts, fieldnotes and recordings - for this.

Scenarios can be used to forecast possible future changes in health due to the policy proposal. Normally several scenarios will be constructed which can be used to compare the potential health impacts due to different policy implementation options. A minimum of two scenarios will be considered; a basic scenario describing the health situation without policy implementation at a defined future point in time and a second scenario with assumed full implementation of the policy proposal. Alternative scenarios containing alternative policy options can also be developed.

The scenarios could be applied to quantitative models identified in the data collection stage. The modelling will provide an estimation of the magnitude and direction of the potential health impacts. By using alternative scenarios the effect of different policy options can be estimated.

Box 4.7 Quantifying health impacts: an example from the HIA of the European Employment Strategy in Germany

Scenarios were developed and mathematical modelling was used to predict the magnitude of potential health impacts of fixed term employment on health. An odds ratio reported in literature was applied to the present situation in Germany and 3 future scenarios. The scenarios consisted of a shift in employment of 5, 10 and 15% from permanent to fixed term contracts. The modelling illustrated that a shift towards more people working in fixed term employment could lead to an additional one to four hundred thousand people with poor health status per year

Table 4.4 Changes in reported health status due to shift from permanent full-time contracts to fixed term full-time contracts in Germany

shift from permanent to fixed term contracts	# permanent workers reporting poor health (millions)	# fixed term contract workers reporting poor health (millions)	Attributable cases due to shift towards fixed term contracts (millions)
Baseline	**5,6**	**1,1**	**0**
5%	**5,3**	**1,5**	**0,1 (99% CI 0.04 –0.22)**
10%	**5,0**	**1,9**	**0,2 (99% CI 0.07-0.44)**
15%	**4,7**	**2,3**	**0,4 (99% CI 0.11-0.66)**

Prioritising impacts

Prioritisation involves determining the most important potential health impacts. This can be achieved by using a ranking process. The following criteria may be used for ranking the impacts:

- Strength of evidence - considers data sources/types - for example, if there is a convergence of evidence from different sources, higher priority.
- Likelihood of impact - for example, if it is highly probable, higher priority
- Scale of health impacts - for example, the larger the population affected or more severe the effect, higher priority (shaded area in table)

Severity/population proportion affected	High	Medium	Low
Death	---- or ++++	--- or +++	-- or ++
Illness/injury	--- or +++	-- or ++	- or +
Well being	-- or ++	- or +	negligible

- Contribution to reducing/increasing health inequalities - for example if it widens inequalities, higher priority
- Relevance to existing health priorities and targets

It needs to be stressed that 'strong' qualitative evidence is as important as 'strong' quantitative evidence. Key informant and stakeholders could be involved in the prioritisation process, eg using the consensus building approaches in box 4.6.

In the absence of a conclusive evidence base, that is where a causal link between health determinants and health outcomes has not been fully proved, but where there is considerable consensus, action to address potential harmful effects should not be delayed.

Recommendations developed

The prioritisation process allows recommendations to be developed for the highest priority impacts. The recommendations are proposals for alternative and/or additional action for the policy in order to maximise health gain and to mitigate against adverse health effects. These recommendations should be practicable, achievable and where possible there should be an evidence-base of effectiveness. It may not be necessary to develop recommendations for all the impacts identified.

The development of recommendations is as important as the identification of the impacts and should be allocated appropriate resources. It should be noted that impacts are not necessarily reversible, that is removing a negative impact will not necessarily produce a positive health effect; examples of this have been found from systematic reviews on the effects of housing improvements on health gain (Thomson et al, 2002).

It may be appropriate to offer different options, an example is given in box 4.8:

Box 4.8 Example of alternative options for a recommendation

Reduce the adverse health effects of road traffic generated air pollution:
- Reduce road traffic - introduce traffic-restricted zones
- Reduce emissions from road vehicles - promote hybrid and electric vehicles
- Increase healthier travel modes - walking and cycling
- Develop local air pollutant 'alert' systems

Process evaluation

The process evaluation aims to identify lessons learnt from the HIA process to help with future HIAs. Ideally an evaluation plan is agreed at the outset of the HIA. An example of an evaluation tool that was applied to the EPHIA methodology based on its use in five pilots is provided in box 4.9.

Box 4.9 HIA process evaluation tool

Evaluation criteria - definitions and questions

Effective criterion: planned outputs (as described in the HIA terms of reference) compared with actual outputs

To what extent was the delivery of inputs consistent with what was originally planned? Why?
To what extent were the planned HIA outputs achieved? Why?

Efficient criterion: costs (financial, time, human) associated with actual inputs and outputs

How much time was spent on HIA and by whom (not just assessors)? What were the associated financial costs (salaries, travel, expenses etc)?

Equity criterion: emphasis on reducing health inequalities

Were vulnerable groups or their representatives involved in the HIA? Was routine data on vulnerable groups readily available and accessible? Did the impacts identify the differential distribution across different population groups, not just impact on vulnerable groups? Did the recommendations include action to address any differential distribution of impacts?

4.4 Report on health impacts and policy options

Once the assessment is complete, impacts have been identified and recommendations for policy revision developed, a first draft report describing the process, findings and policy revision options would be presented to the HIA steering group or HIA commissioner, and to stakeholders and key informants involved in the HIA. At this stage, a second draft report should be independently appraised for, eg rigour of the methods used, agreement of the impacts identified and recommendations defined. A final draft would then be submitted to the policy decision-makers in order to negotiate amendments to the policy.

This is a very important stage of the HIA as it is the mechanism by which recommendations are presented and negotiated. The presentation and tone of the report is very important, as is the engagement of policy proponents. The political and policy context as well as the group dynamics and values need to be considered. The iterative nature of the negotiations needs to be built into the overall HIA process.

4.5 Monitoring

Monitoring refers to the monitoring of the policy and the actions agreed from the HIA.

4.6 Impact and Outcome evaluation

Finally in addition to the process evaluation of EPHIA, the potential outcomes of a completed assessment should also be evaluated and monitored. This includes:

- Impact evaluation - the influence that the assessment had on decision-making (box 4.10),
- Outcome evaluation - evaluating the predicted impacts.

The latter is difficult to do because of the complex, multi-causal pathways; however monitoring programmes can be designed to include an evaluation of public health outcomes and the assumptions and predictions from the HIA.

Box 4.10 Impact evaluation tool: an example

How was the HIA used in the policy development process?
How was the policy proposal changed as a result of the HIA?
Were the recommendations accepted and implemented? If so how and when, if not why?
What, if any, were the unintended impacts of the HIA? For example, partnership working, raising the profile of health in non-health settings?

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Rapid EPHIA

An EPHIA can be performed in a 'rapid' way, enabling the assessor to quickly report on expected health impacts of a proposed policy. The EPHIA methodology provides the basis for these steps. During a rapid HIA some steps in the EPHIA methodology may be carried out in less detail than in an in-depth HIA or may be even omitted.

One person can perform all tasks. However, a co-operation between a health expert and the policy proponent is a preferred starting point for intersectoral co-operation. A rapid EPHIA requires an input of approximately 120 hours by the assessor/s and of 2 hours by the key informants. Since it takes time to contact key informants, waiting for ordered literature etc. the whole exercise may take up to a maximum of 12 weeks.

After **screening** has been used to select a policy for HIA, **scoping** is carried out. Alongside planning the HIA, scoping may include setting up a steering group making use of already existing groups and/or easily accessible stakeholders and key informants.

When **conducting the assessment** the first three steps will be a carried out in less detail than in an in-depth HIA.

Policy analysis: Read the proposed policy and supporting documents.
The following questions can be used to analyse the policy:
- What is the aim of the policy?
- What are the most important policy measures (targets, interventions) proposed?
- Who are the most important stakeholders?
- What are the key challenges or opportunities to the policy's implementation?
- What health effects of the proposed policy may be expected?
- Have the health effects of the proposed policy been considered in the planning process?

Profiling: This is limited to easily available data resources such as web-based sources. For example:
EU Statistics - Eurostat:
http://europa.eu.int/comm/eurostat/Public/datashop/printcatalogue/EN?catalogue=Eurostat
Organisation of Economic Co-operation and Development statistics- OECD Statistics Portal:
http://www.oecd.org/statsportal/0,2639,en_2825_293564_1_1_1_1_1,00.html
WHO Statistical Information System (WHOSIS):
http://www3.who.int/whosis/menu.cfm
National level statistics – United Nations Statistics Division
http://unstats.un.org/unsd/methods/inter-natlinks/sd_natstat.htm

Qualitative and quantitative data collection: The main part of data collection in a rapid EPHIA will be a literature search and analysis focussing particularly on review articles. Web-based sources include:
PubMed http://www.ncbi.nlm.nih.gov/PubMed/
WHO library database WHOLIS http://www.who.int/library/database/index.en.shtml
WHO Regional Office for Europe, Health Evidence Network
http://www.euro.who.int/HEN

Key informants can provide a good way of gaining information about possible health

impacts and they may be able to direct you to good sources of information. Key informants are people who represent, or have expert knowledge about, stakeholders and affected groups. Key informant consultation may be done in different ways. An e-mail questionnaire (no more than 5 questions) is the most rapid way.

Examples of questions might include:
- What are the likely effects of the policy measures on health and well being?
- What is the likely scale (severity of health impact and size of population affected) of these effects?
- Which population groups are most likely to be affected?
- What are the most important health impacts to address?
- How would you change the policy to address these impacts?

A meeting or (phone) interviews may provide more in-depth information, but are time-consuming.

Existing mathematical models may be used in order to generate quantitative impact data but no new models will be created. Input data should be located from readily available sources such as data sources already accessed during profiling and the literature search.

Impact analysis: Using all the information gathered, analyse the expected health impacts. One way of documenting the results is by using a matrix. Note that this includes prioritisation.

Table 1 Example of a health impact matrix

Policy measure	Describe policy or priority, as put down in the policy paper
Determinant	Identify the health determinant affected
Affected group/s	Identify target groups of the policy and other affected groups
Health effect	Briefly describe health effect and determine whether it is a positive or negative effect
Importance of the effect	• Strength of evidence • Likelihood of impact • Severity and scale of health impacts • Contribution to reducing/increasing health inequalities • Relevance to existing health priorities and targets
Knowledge base	On what knowledge source is the expectation of the health effect based?

Following **impact analysis** prepare a draft HIA report, presenting the results of each step taken, followed by conclusions/**recommendations**. Prepare policy recommendations or policy options. Important questions are:
- *What* needs to be done?
- *Who* should do it?
- *How* should it be done?
- *When* should it be done by?

Circulate this to key informants and stakeholders, asking for comments (optional). Then prepare a **final report**.

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