

## **Health Impact Assessment: An overview and examples**

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### **1. What is Health Impact Assessment?**

Health impact assessment (HIA) is “*the estimation of the effects of a specified action on the health of a defined population*”. Projects, programs or policies impact on health by producing changes in the wider determinants of health for an individual or group.

Health impacts may be defined as changes in the determinants of health among a specified community, and which are reasonably attributed to the project. A health impact can be negative (a health risk) or positive (health gain). HIA is concerned with minimizing health risks and maximizing health gains from a particular action.

HIA is a relatively new methodology, but builds on recognized scientific methods of qualitative and quantitative research. The first HIA in the UK was produced in 1994 for Manchester Airport’s proposed second runway, and is now being used widely. “*Local decision-makers must think about the effect which their policies may have on health. [e.g.] when planning investment in amenities, buildings or local communities and in the location of services*”, Dept of Health, London, 1999.

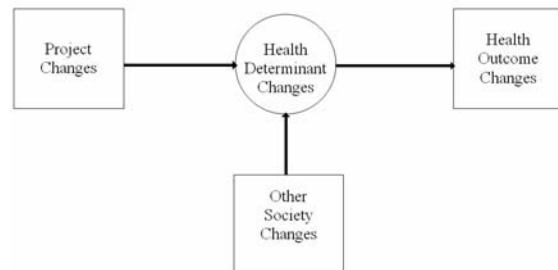
Numerous HIAs have been undertaken in developing countries. Most of these were commissioned and carried out by international donor agencies. The starting point was often an environmental impact assessment where the scope was expanded to include human health.

### **2. Concept of health and health impacts:**

The concept of health in HIA is based on the World Health Organisation definition of health: “*complete physical, mental and social well-being and not merely the absence of disease or infirmity*”, WHO,

1946. Any change to the wider determinants of health is a potential health impact. This includes changes to policy and decision-making processes.

**Figure 1: How health impacts occur**



Source: Teaching material, International Health module, University of Liverpool

### **3. Why do an HIA?**

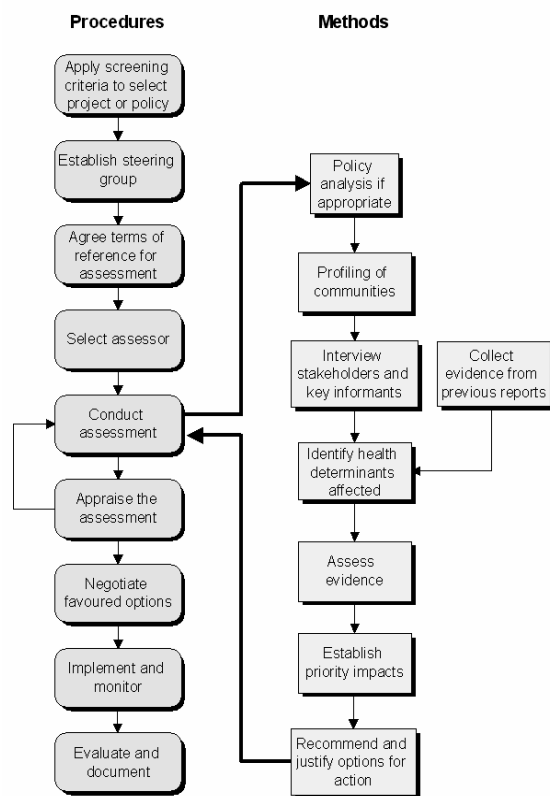
The objectives of HIA are usually to:

1. Provide planners with information on positive and negative impacts of the proposed projects/policies on the health of local populations.
2. Make recommendations to maximize health gains and minimize health risks.
3. Decide whether projects/proposals should go ahead, and which modifications or changes to plans may be needed.

### **4. What does an HIA involve?**

By far, the most frequent model used [in the UK] is the Merseyside guidelines for HIA. This model distinguishes between procedures and methods. Procedures are frameworks for commissioning and implementing HIAs; methods are the activities for carrying them out (Figure 2).

**Figure 2: The HIA process according to the Merseyside Guidelines for HIA.**



## 5. Variations on the generic approach:

1. HIAs can be conducted **prospectively, concurrently or retrospectively** with a project or development. Prospective HIAs allow the plans to be modified. However, concurrent and retrospective HIAs are useful because they can be used to modify concurrent practice – mitigating and monitoring changes in health status, and generate data to plan future developments. Retrospective HIAs are similar to evaluations.
2. The intensity of an HIA ranges from a **health impact audit** (conducted by one person using a checklist), through **rapid appraisal** (a short process of brainstorming by stakeholders) to a **comprehensive HIA** (an in-depth appraisal which may take months).
3. Rapid appraisal techniques **selectively apply some of the activities** according to the scope of assessment and resources. Rapid appraisal models are generally designed for HIAs of

policies. Some models suggest that the initial screening process is itself a rapid appraisal HIA, and in many cases it would not be appropriate to proceed further. Other models consider the initial screening process to be an audit which can be conducted by one person, and not a rapid appraisal.

4. HIA could be combined with the Environmental Impact Assessment approach – the **Environmental HIA model**. This has been most frequently used with respect to development projects in developing countries. An integrated assessment of the environmental effects and health effects facilitates early project modification at less cost, minimizing duplication and promoting sustainable development. Moreover, a HIA should always consider the environmental determinants on health
5. A **wide range of techniques** can be used during the HIA. These include:

Literature review	Comparing scenarios
Routine data review	Group brainstorming sessions
Community health profiles	Group consensus
Local community surveys	Delphi exercise
Document analysis	Option appraisal
Key informant interviews	Priority setting
Focus groups	

## 6. Tips on the HIA process

### 6.1. Focus on screening

Activities are designed to inform decision-making, so an HIA on any scale will ensure that health is considered in a transparent manner. Even an imprecise HIA is valuable to decision-making, because the alternative is a decision which does not consider health: *“Far better an approximate answer to the right question, which is often vague, than the exact answer to the wrong question, which can always be made precise”*, Tukey J, 1962.

### ***Screening for an HIA***

Candidate projects, programs or policies should be rapidly assessed with regard to their likely performance in relation to certain criteria.

- Policies more than projects
- Magnitude of project (e.g. scale of investment)
- Scale of impact
- Scope of impact (geography and time)
- Polluting potential
- Public opinion/controversy
- Modifiability

### **6.2. Focus on rapid appraisal**

A comprehensive HIA is a resource-intensive task which may not be warranted for the vast majority of policies or projects. A comprehensive HIA is the 'gold standard', elements of which may be used for a rapid appraisal (e.g. the policy appraisal or screening elements).

#### ***Comprehensive versus rapid HIA***

Rapid appraisal HIA: Along the same lines as a comprehensive HIA but

- More rapid.
- Each of the five HIA activities could be implemented to varying extents depending on time and resources available.
- The process is based on brainstorming sessions and stakeholder events or workshops.
- Usually based around a grid format

### **6.3. Focus on outputs:**

Outputs are the immediate results of the HIA process (to distinguish from outcomes which are the estimated impacts on population health). HIA is a process of joint working, public consultation and gaining consensus for evidence-based decision-making.

It is not an exact science. In the early stages of a project, many of the details will not be agreed, so the HIA process should develop simultaneously with planning; requiring support by planners and developers. The process should be flexible to

accommodate changes in plans, timescales, guidelines, local politics, questioning assumptions and new knowledge as details are firmed up.

### ***HIA Outputs***

- Identifies negative and positive impacts on health.
- Informs decision-makers on implications of decisions.
- HIA recommendations could be built into decisions to mitigate negative and maximise positive effects in an informed, transparent manner.

#### ***Other positive outputs:***

- To provide learning/evaluation for future or other projects
- To improve policy makers awareness of healthy decision making and the impacts of the wider determinants on health

## **7. Case Study: Finningley Airport HIA**

### **7.1. Context**

A planning application was submitted to Doncaster Metropolitan Borough Council to develop the former Finningley Royal Air Force base into a large commercial airport, with over 2 million passengers and 62,000 tonnes of freight annually by 2014. The Director of Public Health suggested the need for an HIA which would provide planners with information on positive and negative impacts of the proposed airport on health in Doncaster. This was the first time in the UK for an HIA to be undertaken at the initial stage of a planning application for an airport. The decision on the airport was deferred until the HIA was complete.

### **7.2. Methods of the HIA**

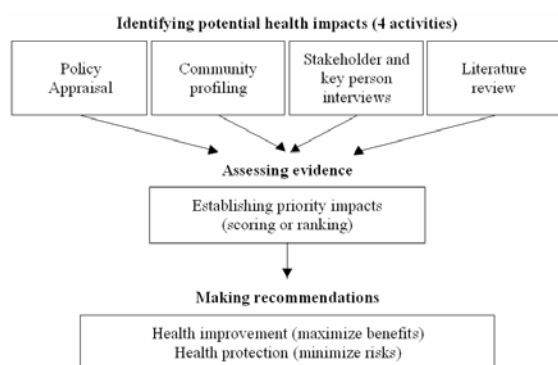
The HIA was based on 4 activities undertaken in parallel (Table 1 and Figure 3).

**Table 1: Determinants of health and potential health impacts associated with airports.**

Determinants	Source(s)	Potential health impacts
<b>Air Pollution</b>	Aircraft Road & rail traffic Fuel handling Combustion Demolition Construction	Cancer Cardiovascular disease Respiratory disease Allergies Annoyance
<b>Land and Water Pollution</b>	Airport construction Fuel handling Fuel dumping Contaminated land De-icing/washing	(as Above)
<b>Noise</b>	Road traffic Aircraft Rail Ground operation Construction	Annoyance Anxiety and stress Sleep disturbance Hearing loss Low birth weight Disturbed cognition, communication and motivation
<b>Vibration</b>	Road traffic Aircraft	Sleep disturbance Annoyance Occupational health
<b>Odour</b>	Fuel Combustion Sewage	Annoyance Anxiety and stress Reduced quality of life
<b>Accident/Fire/Explosion Risk</b>	Aircraft crashes Fuel handling Traffic accidents Aircraft vortex	Injury Death Risk perception Emergency services(demand)
<b>Communicable Disease</b>	International travel	Imported diseases Travel health
<b>Policing and Crime</b>	International travel Terrorism	International crime Smuggling / drugs Terrorist incidents
<b>Road Traffic (Road Network)</b>	Volume of traffic Congestion	Anxiety and stress Access to the area
<b>Public Transport</b>	Change of routes Cycle lanes	Annoyance Increased fitness
<b>Employment</b>	Direct airport-related Construction Local businesses Job displacement	Creation of jobs Economic regeneration Social inclusion Reduce job opportunities
<b>Tourism and Travel</b>	Air travel Transport links	Employment Economic regeneration

Source: Literature review activity of Finningley HIA

**Figure 3: Methods of the Finningley HIA (adapted from the Merseyside model).**



### 7.3. Conclusions of the HIA

“Employment and regeneration opportunities are the main positive impacts that could lead to improvements in the health of the Doncaster population. The main negative impacts are from

noise and pollution affecting local residents. The balance of effects will be a positive benefit to the health of Doncaster through the creation of jobs and regeneration of the area, provided effective amelioration measures are implemented to minimize negative impacts”. The proviso in the conclusion enabled the Steering Group to make an overall judgment of relative weights of positive and negative impacts without ranking; as noise and air pollution would be minimized below statutory levels.

### 7.4. Outputs of the HIA:

#### 7.4.1. Approval of the airport

The HIA was instrumental in getting the airport approved, The airport is now fully operational

under the name of Robin Hood Airport. Information from the Finningley HIA was used effectively to influence the legal Section 106 agreement between planners and developers, present evidence to Public Inquiry, and consider health service implications.

#### 7.4.2. Value added to the planning process

1. *Making health-based decisions whether to support the application.* The HIA played an important role in supporting the airport, so that Doncaster and the whole of the region should benefit from the employment and regeneration predicted.
2. *Translating environmental impacts into health terms.* Without an HIA, planners could not fully judge from the statutory environmental assessments what the effects on people in Doncaster would be.
3. *A systematic approach to involving communities,* championing their views in the planning process by including their recommendations in the HIA recommendations.
4. *Inputs into the legal S106 agreement.* This was the first time for health advocates to contribute to discussions of the S106 agreement. The S106 agreement is the legal framework that governs all airport operations.
5. *Building capacity to conduct HIA in the district.*

#### 8. Test yourself!

You are a Public Health specialist faced with the following scenarios. Would you undertake an HIA? How would you tackle the issues? Who would you involve?

Please note these are real-life examples where HIAs have been conducted.

- A. A hydro-power dam was built three years ago on a river, only 5.5 kms. before reaching the main river in your country. It inevitably obstructed the natural fish migration upstream. Therefore, the fishery resources were degraded, leading to a sharp reduction of income for local

households dependent on this resource. After long negotiation, the local people succeeded in pressuring the new government to open the dam's gates for a year, in order to recover the river and their ways of living. As a member of a local voluntary pressure group, you are keen to advocate for healthy public policy in managing the dam.

- ❖ Sukkumnoed D, Srangsook S, Nunthaworakarn S. Integrated impact assessment of managing Pak Mun Hydropower Dam: The future of the Mun river and the health of its people.
  - ❖ <http://www.who.int/hia/examples/development/whohia205/en/index.html>
- B. A number of concerns have been raised by residents near a large landfill site over the past year. The majority of complaints have related to odour, but recently, residents have voiced their concerns that the site may be putting their health at risk. A number of public meetings have been held by the local council. Residents and lobby groups have written to your department about their concerns.
- ❖ North Sheffield Primary Care Trust. Parkwood Landfill Site, Sheffield: Health impact assessment study, 2005.
  - ❖ <http://www.sheffield.nhs.uk/healthdata/4-2-2.php>
- C. A planning application has been submitted to the local authority to develop a former military base into a large rail and air freight distribution centre (the air freight proposal was later dropped). Following local opposition, a Public Inquiry has been announced. Your organization will be required to submit evidence on possible health effects.
- ❖ Jewell T. Alconbury Health Impact Assessment Report. Cambridgeshire Health Authority, 2000.
  - ❖ [http://www.phel.gov.uk/hiadocs/alconbury\\_final\\_summary\\_report\\_February02.pdf](http://www.phel.gov.uk/hiadocs/alconbury_final_summary_report_February02.pdf)

D. Your local Council is reviewing its Housing Strategy to improve the quality of housing and its environment and provide housing opportunities which will meet current and future need. The area has a total population of 16,330. You have been asked to provide the public health input to the revised strategy.

❖ Liverpool City Council and PCTs. Health Impact Assessment of Liverpool City Council's Housing Strategy Statement, 2003.

❖ [http://www.publichealth.nice.org.uk/media/hiadocs/HIA\\_LiverpoolCC\\_Housing\\_Strategy.pdf](http://www.publichealth.nice.org.uk/media/hiadocs/HIA_LiverpoolCC_Housing_Strategy.pdf)

### 9. Where to get further information:

The WHO HIA pages

- <http://www.who.int/hia/en/>

Merseyside Guidelines for HIA

- [http://www.publichealth.nice.org.uk/media/hiadocs/172\\_The\\_Merseyside\\_guidelines\\_for\\_health\\_impact\\_assessment.pdf](http://www.publichealth.nice.org.uk/media/hiadocs/172_The_Merseyside_guidelines_for_health_impact_assessment.pdf)

The Finningley HIA report

- <http://www.doncasterpct.nhs.uk/publichealth.asp?ArticleID=100060>
- [http://www.hiaconnect.edu.au/finningley\\_airport\\_hia.htm](http://www.hiaconnect.edu.au/finningley_airport_hia.htm)

Deciding if an HIA is needed (screening for HIA)

- [http://www.publichealth.nice.org.uk/hia\\_viewrecord2.aspx?o=501828&resourceid=525480](http://www.publichealth.nice.org.uk/hia_viewrecord2.aspx?o=501828&resourceid=525480)

Conducting a Comprehensive HIA

- [http://www.phel.gov.uk/hiadocs/150\\_Conducting%20a%20Comprehensive.pdf](http://www.phel.gov.uk/hiadocs/150_Conducting%20a%20Comprehensive.pdf)

Integrated Impact Assessment

- <http://www.publichealth.nice.org.uk/page.aspx?o=Integration>