



## Investigating underlying principles to guide health impact assessment

Ali Fakhri<sup>1</sup>, Mohammadreza Maleki<sup>1\*</sup>, Mahmoodreza Gohari<sup>2</sup>, Patrick Harris<sup>3</sup>

### Abstract

**Background:** Many countries conduct Health Impact Assessment (HIA) of their projects and policies to predict their positive and negative health impacts. In recent years many guides have been developed to inform HIA practice, largely reflecting local developments in HIA. These guides have often been designed for specific contexts and specific need, making the choice between guides difficult. The objective of the current study is to identify underlying principles in order to guide HIA practice in Iran.

**Methods:** This study was conducted in three stages: 1) Studies comparing HIA guidelines were reviewed to identify criteria used for comparison seeking emphasized principles. 2) The HIA characteristics extracted from published papers were categorized in order to determine the principles that could guide HIA practice. 3) Finally, these principles were agreed by experts using nominal group technique.

**Results:** The review of the studies comparing HIA guides demonstrated there are no clear comparison criteria for reviewing HIA guides and no study mentioned HIA principles. Investigating the HIA principles from peer-reviewed papers, we found 14 issues. These were, considering of general features in planning and conducting HIAs such as HIA stream, level, timing and type, considering of the wider socio-political and economic context, considering of economic, technical and legal aspects of HIA and capacities for HIA, rationality and comprehensiveness, using appropriate evidence, elaborating on HIA relation to other forms of Impact Assessment, considering of equity, and encouraging intersectoral and interdisciplinary cooperation, involvement of stakeholders and transparency as underlying principles to guide HIA practice. The results emphasize how critical these technical as well as tactical considerations are in the early scoping step of an HIA which plans the conduct of the HIA in response to local contextual issues.

**Conclusion:** Determining the principles of HIA from peer-reviewed papers provides an opportunity for guiding HIA practice comprehensively. It seems to be feasible to develop a universal guide that covers all principles required.

**Keywords:** Health Impact Assessment (HIA), Health Policy, Healthy Public Policy

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### \*Correspondence to:

Mohammadreza Maleki

Email: maleki@iums.ac.ir

### Introduction

Health Impact Assessment (HIA) is a decision support tool used in many countries to predict positive and negative health impacts of proposed policies, programs and projects (1–3). The World Health Organization (WHO) defines HIA 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” (4). HIA is a structured stepwise process with clearly defined phases: (i) screening the projects and policies suitable for assessment; (ii) scoping the assessment; (iii) assessing the impacts; (iv) making recommendations; (v) reporting; and (vi) monitoring and evaluation (1,5). Recent research has demonstrated HIAs effectiveness in influencing decisions (6).

HIA has several origins (7–9). One is connected strongly with Environmental Impact Assessment (EIA) and largely focuses on including human health impacts in EIA as part of major development projects. Another focuses on HIA as addressing the social determinants of health to create healthy public policy by assessing impacts of the non-health sectors policies on the health. These disparate histories of HIA, however,

bring with them different approaches toward HIA which can result in confusion for those wishing to develop HIA practice or undertake or commission HIAs (10,11). In the early days of HIAs development a set of core values for practice was laid down for practice through the ‘Gothenburg’ consensus (4). Since that time, the rapid global increase in HIA practice (8), albeit largely in Western contexts (3), has been accompanied by many and varied guides and guidance designed for specific contexts and specific need (12–14). With the recent push for HIA development in Iran as part of the Fifth Economic, Social and Cultural Development Plan (15), it is therefore timely to review the literature to ascertain, within the Iranian context, what principles should be considered. Globally, identifying and confirming these principles could standardize the field making it easier for practitioners to carry out HIA, researchers to provide scientific evidence and evaluators to compare the impact and growth of the HIA practice, whilst also facilitating locally-developed guides to better address local needs (16).

### Methods

This study was conducted in three stages. In a first step, we identified papers that had compared HIA guides and

highlighted the criteria used for comparison of HIA guides in these papers seeking emphasized principles. In a second step, we extracted HIA principles from a structured review of the HIA literature to complete our finding from the first step. Finally, identified principles were confirmed by experts.

#### *Identifying the studies comparing HIA guides*

The search strategy was to search the term “health impact assessment” AND terms of “guide” OR “guideline” OR “guidance” AND “comparison” OR “review”. We searched Pubmed (n= 29) and Scopus databases (n= 84) to find papers published from 1995 to 2012 on April 2012. The search to find the studies comparing HIA guides was continued based on references mentioned in some papers and also in WHO and HIA gateway websites. Irrelevant sources such as case studies, HIA reports, and those comparing methods and models of HIA were excluded.

#### *Identifying the HIA principles*

HIA principles were extracted and adapted from the PhD thesis of the first author (17) which aimed at identifying the HIA characteristics through content analysis, in order to develop a conceptual framework for HIA in Iran. The strategy was to search the phrase “Health Impact Assessment” in Pubmed (n= 322) and Scopus databases (n= 660) to find published papers from 1995 to 2012 on April 2012. Then by reviewing titles and abstracts, the studies dealing with the HIA background information were selected. Non-peer reviewed government documents, reports and books and also HIA guides were excluded. Considering our aim in this study for identifying the underlying principles to guide HIA, we categorized and rephrased core HIA characteristics.

#### *Confirming the categorization*

In the last stage, a list of above-mentioned HIA characteristics terms extracted from the papers without any editing by the authors (see [additional file](#)) were presented to a group of experts made of five Academics who were experienced in conducting and training of Environmental Health Impact Assessment (EHIA) and HIA in Iran. Each agreed to participate in this study to reach a consensus about categorizing HIA principles. Our approach was to use Nominal Group Technique (NGT) for considering uniformity that is one of three main approaches for consensus development used in the health field. The aim of NGT is to structure interaction within a group where participants record their ideas independently and privately (18). After recording experts’ ideas about categories and subcategories, each was asked to score 1–9 to each category according to their agreement. 80% agreement and above suggests consensus.

## **Results**

#### *Identifying HIA principles among the studies comparing HIA guides*

Searching the databases i.e. Pubmed and Scopus, three peer-reviewed papers comparing HIA guides were identified (16,19,20). From the references in these papers and investigating WHO and HIA gateway websites, four additional sources were identified, including two reports (5,21), one guide (22), and one poster presented at a congress (23).

Reviewing 12 guides and handbooks issued in 1991–9, Birley selected HIA level (as project, program or policy) and economy of the country (developed or developing economies) as the two criteria for comparison of guides. The difference in burdens of diseases between developed and developing countries was mentioned as justification to put the later as a criterion for the comparison (19).

Mindell *et al.* systematically compared ‘HIA frameworks’, which they defined as a ‘how-to’ guides to conducting an HIA in the review. According to the table in the appendix of the paper, 13 criteria were considered for comparing guides (20) (Table 1).

Hebert *et al.* reviewed 45 HIA guides in order to define common characteristics in order to produce a universal widely acceptable guide. According to the supplementary file of their paper, in addition to “basic information”, 14 comparison criteria classified in three groups: “primary characteristics”, “specific features”, and “steps followed”. The criteria were selected according to authors’ professional judgments (16).

Results from additional sources included in our review are as follows. A report prepared in Canada compared 21 HIA guides in terms of “defining HIA”, “introducing the procedures and methods”, “presenting the tools”, “presenting case studies or examples”, “referring to the resources and characteristics” and “distinctive features”. This report draws the attention to the guides which scored the best to help users make an informed choice (21).

To compare the HIA guides, McCormick considered 22 HIA characteristics in addition to “basic information” as the comparison criteria. The criteria was classified into three groups as “special features”, “guidance on undertaking HIA process” and “guidance on gathering data and using evidence” (22).

Presenting a poster at the congress of “epidemiology and personal diseases prevention” held in Berlin in 2010, Nowacki *et al.* compared 25 HIA guides. They considered criteria such as “focus of HIA” (process, stakeholders participation and presentation of the results), “HIA level” (project, program or policy), “linkage with quantification”, and “linkage to other impact assessment” (23).

The Committee on Health Impact Assessment of the National Research Council in the US compared the stages of HIA process among 12 guides in the appendix of their report; “The role of HIA in improving US health status” issued in 2011. This report had limited scope of comparison to assess how HIA guides conceptualize the stages of an HIA (5).

These studies have used different criteria with different categorization for comparing HIA guides but these criteria are common; “Focus of HIA”, “Health determinants”, “Equity”, “Community engagement” and “HIA process steps”. None of these reviewed sources mentioned an explicit method to select the comparison criteria. Criteria used in the studies are summarized in Table 1.

#### *The HIA principles*

Data extracted from the above-mentioned thesis (17) resulted in 122 HIA characteristics which categorized based on their similarities and meanings in order to identify HIA principles. Above-mentioned characteristics and their source are provided in an [additional file](#). The categorization was finalized

**Table 1.** The baseline criteria for comparison in the studies comparing HIA guides

<b>Birley (19)</b>	<ul style="list-style-type: none"> <li>- Level</li> <li>- Economic development</li> </ul>	
<b>Mindell <i>et al.</i> (20)</b>	<ul style="list-style-type: none"> <li>- Base</li> <li>- Main areas</li> <li>- Model of health</li> <li>- Focus of the HIA</li> <li>- Categories of potential impacts</li> <li>- Methods of Identifying health impacts</li> <li>- Quantification of health impacts</li> </ul>	<ul style="list-style-type: none"> <li>- Specific advice about uncertainty</li> <li>- Equity focus</li> <li>- Community involvement</li> <li>- Level of detail of the framework</li> <li>- Key steps</li> <li>- Area-specific</li> </ul>
<b>Hebert <i>et al.</i> (16)</b>	<p><b>Primary characteristics</b></p> <ul style="list-style-type: none"> <li>- Focus of HIA</li> <li>- Levels of HIA</li> <li>- Type of HIA</li> <li>- Integration with other IA</li> <li>- Support by policy, regulation,</li> </ul> <p><b>Specific features</b></p> <ul style="list-style-type: none"> <li>- Introduction to HIA</li> </ul>	<ul style="list-style-type: none"> <li>- Principles or values</li> <li>- Equity and equalities</li> <li>- Community engagement</li> <li>- Steering group</li> <li>- Community profile</li> <li>- Health determinants</li> <li>- Examples, case study, resources, or tools</li> </ul> <p><b>Steps Followed</b></p>
<b>Lauzière (21)</b>	<ul style="list-style-type: none"> <li>- Definition of HIA</li> <li>- Procedures and method</li> <li>- Tool</li> </ul>	<ul style="list-style-type: none"> <li>- Case studies or example</li> <li>- Resources</li> <li>- Characteristics and distinctive features</li> </ul>
<b>McCormack (22)</b>	<p><b>Basic information</b></p> <ul style="list-style-type: none"> <li>- Focus of HIA</li> <li>- Type of HIA (time)</li> <li>- Level of HIA (depth)</li> <li>- Level of complexity</li> </ul> <p><b>Special features</b></p> <ul style="list-style-type: none"> <li>- Brief overview of HIA</li> <li>- Principles and values</li> <li>- Process steps</li> <li>- Equity or inequalities</li> <li>- Steering group</li> <li>- Factors that impact on health</li> <li>- Examples</li> </ul>	<ul style="list-style-type: none"> <li>- How to identify assumption</li> <li>- Links to additional materials</li> </ul> <p><b>Guidance on undertaking process</b></p> <ul style="list-style-type: none"> <li>- Contains templates for components of HIA</li> </ul> <p><b>Guidance on data gathering and evidence use</b></p> <ul style="list-style-type: none"> <li>- Community profile</li> <li>- Gather or manage qualitative evidence</li> <li>- Gather or manage quantitative evidence</li> <li>- Rapid workshop</li> <li>- Gather and manage quantitative data</li> <li>- Assess the evidence</li> <li>- Impacts on different group</li> <li>- Deal with conflicting evidence</li> </ul>
<b>Nowacki <i>et al.</i> (23)</b>	<ul style="list-style-type: none"> <li>- Levels of HIA</li> <li>- Linkages to other IA</li> </ul>	<ul style="list-style-type: none"> <li>- Focus on procedure</li> <li>- Linkages to quantification</li> </ul>

and confirmed by five experts using NGT for developing HIA in Iran. Table 2 shows 14 categories and 38 subcategories of underlying principles extracted from this stage.

## Discussion

This study was carried out to review studies of HIA guides and the broader HIA literature to identify underlying universal principles to guide HIA practice. These principles were then agreed by Iranian experts and are therefore likely to be important for the development of HIA and HIA guidance in Iran.

Minimum elements and practice standards for HIA practice have been suggested (24). Some criteria for HIA evaluation (25–27), and some criteria for reporting HIA have also been introduced (28). Reviewing the empirical studies comparing HIA guides (16,19,20) demonstrates various justifications for comparison given by each study. However across these studies there are no uniform comparison criteria which suggests these studies are not sufficient to fully develop HIA principles. So this study has comprehensively reviewed the HIA literature for core criteria for HIA practice which subsequently can be used as guiding universal principles and as principles for Iranian HIA practice.

Identifying these broad universal principles also supports the recent recognition of the need to focus in on the technical aspects of doing HIAs while paying attention to the tactical

conditions within which policy and project decision making occurs and which HIAs intend to influence (29). This analysis emphasizes how critical these technical as well as tactical considerations are in the early scoping step of an HIA which plans the conduct of the HIA in response to local contextual issues.

Some HIA publications emphasize technical steps of the HIA process or the activities that should be conducted at these steps as HIA principles (30,31). In this study, the process steps were placed under the general title of ‘structured stepwise process’ because consideration of other principles indeed occurs during the HIA process steps. Also technically, we found that use of best available evidence is also central to HIA practice. These technical issues within each step are important to retain as the central focus of HIA practice to ensure quality (24).

Two other important technical elements in HIA practice are: *rationality* i.e., having conceptual framework, explicit health model and structured and stepwise process, and *comprehensiveness* i.e., considering all impacts on all determinants of health and all health dimensions. Again this should take place early in the process during scoping the HIA process. Comprehensiveness, also at the scoping stage, permits flexibility to undertake the HIA based on available time, resource and other capacities. This aspect was mentioned in the guides developed by Bhatia *et al.* as the continuum of HIA practice (32–34).

**Table 2.** The underlying principles of HIA practice

The underlying principles of HIA practice
<b>Considering general features i.e.</b>
<ul style="list-style-type: none"> <li>– To introduce original stream</li> <li>– To determine focus of HIA (Project, program, policy)</li> <li>– To determine level of HIA (rapid, intermediate, comprehensive)</li> <li>– To conduct at appropriate time before decision making</li> <li>– To determine level and sector of intervention</li> <li>– Set up a steering group</li> <li>– Set up an HIA team</li> </ul>
<b>Considering wider socio-political contexts and economic conditions i.e.</b>
<ul style="list-style-type: none"> <li>– To identify socio-political context</li> <li>– To identify policy and decision making process</li> <li>– To analyze stakeholders' attitude and position</li> <li>– To identify economic conditions</li> </ul>
<b>Considering economic aspects i.e.</b>
<ul style="list-style-type: none"> <li>– To design it cost-effective</li> </ul>
<b>Considering technical aspects</b>
<ul style="list-style-type: none"> <li>– To identify HIA methods</li> <li>– To identify HIA tools</li> </ul>
<b>Considering legal aspects</b>
<ul style="list-style-type: none"> <li>– To identify statutory requirements</li> </ul>
<b>Considering the capacities</b>
<ul style="list-style-type: none"> <li>– To identify Organizational capacity</li> <li>– To identify Human capacity</li> <li>– To identify financial resources</li> </ul>
<b>Rational approach using</b>
<ul style="list-style-type: none"> <li>– Identified conceptual framework</li> <li>– Explicit health model</li> <li>– Structured and stepwise process</li> </ul>
<b>Comprehensive by considering of</b>
<ul style="list-style-type: none"> <li>– All health impacts</li> <li>– All health dimensions</li> <li>– All health determinants</li> </ul>
<b>Considering appropriate evidence using</b>
<ul style="list-style-type: none"> <li>– Appropriate and robust data and evidence</li> <li>– Local evidence</li> <li>– Quantification</li> </ul>
<b>Elaboration on HIA relation to other forms of IA</b>
<ul style="list-style-type: none"> <li>– Relation to other forms of IA</li> <li>– Integration with other forms of IA</li> </ul>
<b>Encouraging intersectoral &amp; interdisciplinary cooperation in</b>
<ul style="list-style-type: none"> <li>– Steering group</li> <li>– HIA team</li> </ul>
<b>Considering equity in</b>
<ul style="list-style-type: none"> <li>– Health determinants</li> <li>– Health impacts</li> <li>– Participation</li> </ul>
<b>Encouraging involvement of</b>
<ul style="list-style-type: none"> <li>– Impacted communities</li> <li>– Key informants</li> <li>– Project stakeholders</li> <li>– Decision makers</li> </ul>
<b>Encouraging transparency</b>

Some principles mentioned in the analyzed sources refer to a wide range of tactical elements which have an influence on the decisions HIA is trying to influence, and through HIA practice itself. Establishing links with other impact assessments can exert an influence on the HIA content technically and administratively. Although the HIA is viewed as a key mechanism for intersectoral health (35), interdisciplinary and intersectoral cooperation are conditions for an effective HIA too.

Elements such as economic and socio-political context play an essential role in HIA effectiveness, they must thus be taken into consideration and analyzed in an HIA (36). In addition to the wider socio-political and economic context, HIA capacities and technical aspects of HIA are elements having significant influence on HIA. Since they play a key role in deciding whether or not to conduct an HIA or in defining the HIA scope, they should be considered in the initial stages of the HIA process: emphasising the critical role of scoping in the HIA process (29,37). One of the earliest HIA guides, The Merseyside Guideline for Health Impact Assessment emphasizes this type of analysis (38). Economic and socio-political contexts influence the main values and determine how and how much democracy, equity and transparency could be considered in HIA. Considering these factors allows more flexibility in conducting HIAs in diverse settings such as Iran. However, this study suggests more detailed principles are also required to be considered for HIA guidance and practice in the Iranian context.

### Conclusion

HIAs are conducted in a defined stepwise process on projects, programs and policies in order to inform decision making which will increase the positive effects on health status and decrease the negative ones. This common aim and process of HIAs allow to have a set of common principles and guidance on how to undertake HIAs. The principles of HIA which have been emphasized in the literature and drawn out here are the requirements which a universal HIA guide could consider. These principles were also confirmed to be relevant to the Iranian context, which suggests these have important implications for the development of local guides, importantly in non-western as well as western contexts as HIA practice spreads more widely (3). Although local conditions and needs can exert influence on the way the guides are applied and contextually relevant, having a framework with reliable core principles can ensure an effective HIA through the use of these guides.

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### Ethical issues

Not applicable.

### Competing interests

The authors declare that they have no competing interests.

### Authors' contributions

AF and MM designed the study. AF collected the data and conducted the analysis. MM supervised the study. MG was statistic consultant from the school. PH re-drafted the paper for an English speaking audience.

### Authors' affiliations

<sup>1</sup>Department of Health Service Management, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran.

<sup>2</sup>Department of Statistics and Mathematics, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran.

<sup>3</sup>Centre for Health Equity Training, Research and Evaluation, Part of the Centre for Primary Health Care and Equity, University of New South Wales, Sydney, Australia.

### Additional file

Additional file contains the appendix 1.

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## Key Messages

### Implications for policy makers

- Health Impact Assessment (HIA) practice includes paying attention to technical details in each of the structured steps as well as the tactical conditions within which policy and project decision making is made. This emphasises the importance of the scoping step in HIA.
- Comprehensiveness of HIA guides permits flexibility of HIA at the scoping stage based on available time, resources and other capacities.

### Implications for public

Health Impact Assessment (HIA) predicts impacts of projects, programs and policies of non-health sectors on the health to inform decision and policy makers. It necessitates having a set of principles and guidance on how to undertake HIA. Although contextual and regional factors can exert influence on the way the HIA is conducted, using a framework with reliable principles can ensure an effective HIA.