HIA forecast: cloudy with sunny spells later?

Introduction

The last few years of the 20th century may be regarded as the coming of age for Health Impact Assessment (HIA). The WHO Gothenburg consensus paper published in 1999 outlined the concept of and a suggested approach for HIA. HIA was of great interest to the public health and policy making community not only because it appeared to provide a structured mechanism to promote healthy public policy, but also because it fitted with the moves towards concepts of joined-up policy.

I searched Medline for articles with the term ‘health impact assessment’ in the abstract to get an indication of the level and nature of interest in HIA over the past decade. Between the years 1998 and 2002 Medline returned 24 hits, while in the second half of the decade (2002 to March 2008) there were 86 hits. This suggests that, within the health literature at least, there is a continued and even growing interest in HIA.

From a scan of the abstracts from this, albeit rudimentary, search it emerges that much of the published literature on HIA is characterized by discussion around what HIA is, and what HIA might contribute. Less than half of the papers report the findings of an HIA and far fewer report the subsequent effects of the HIA. Reports of small-scale, local HIA exercises may not hold much interest for the wider academic community, however, the continued discussion around the nature and value of HIA suggests a lingering uncertainty and even unease over what HIA can offer.

Over-optimistic view of potential influence

The WHO has expressed their support for HIA as tool to improve health. On their HIA web page the WHO states, ‘HIA provides decision-makers with information about how any policy, programme or project may affect the health of people. HIA seeks to influence decision-makers to improve consideration of health outcomes. In addition to providing information on possible health impacts, they point to the potential for awareness raising among decision makers about the links between socio-economic factors and subsequent health outcomes.3

The use of public policies, other than health policies, to promote health has a broad appeal to both the public health community and to policy makers. The possibility that HIA can provide the leverage to promote healthy public policy through awareness raising and identification of impacts appears logical and intuitive. However, the interests influencing policy decisions are known to be multiple, competing and not always altruistic. The hope, therefore, that HIA can have such influence is ambitious. Moreover, HIA, by definition, aims to influence decisions around policies or interventions whose primary aim is an outcome other than health, and where the health impacts are secondary or unintended. For example, health impacts are unlikely to be a key consideration for a policy maker considering new road investment; rather they are more likely to prioritise local and regional economic impacts. Being relegated to the lower ranks in terms of priority, the potential for predictions about uncertain impacts exerting sufficient influence to effect change seems remote.

Have HIAs influenced decision makers?

Regardless of scepticism, the potential for influence may be assessed from what successful HIAs have achieved. On their HIA website, the WHO has drawn attention to three HIAs as ‘evidence that HIA works’. Each of the HIAs is from the UK and included an HIA on: the London Mayoral Strategies; conversion of a small Finningley RAF airbase into a large commercial airport; and conversion of Alconbury airfield to a large rail and freight distribution centre. The HIAs used a range of information sources including qualitative interviews with stakeholders, and documentary analysis of meeting minutes. This presumably provided the HIA with detailed information about what the proposed interventions would involve, and key stakeholder’s perceptions about the possible impacts, including health impacts. But there is little reference to whether or how the HIA fed back to the process of decision making and awareness raising, or whether the HIA did influence decisions in relation to the health impacts of the proposal. Rather the HIAs were deemed to be successful because the process of HIA was possible and acceptable to the stakeholders. While awareness raising may lead to an attitudinal shift in the long-term, lessons from both the policy arena and promoting healthy behaviours serve as perennial reminders that knowledge or awareness do not equal action.

Use of evidence

A second important issue is illustrated in the above examples of ‘successful’ HIAs; that is the use of previous research evidence. Consideration of existing evidence is an important step in HIA, and the validity of HIA depends ultimately on whether or not the predicted health impacts can be supported by previous empirical data. However, reference to previous research does not appear to be a priority in HIA activity. In their review, Davenport et al. report that only 16% (14/88) of HIAs had included a consideration of published literature.4

In the absence of reference to previous research, the predictions made within many HIAs must have been largely based on assumption and perceptions of key stakeholders. HIA practitioners may be experienced and well versed in public health, but it is a misguided conceit to predict the nature and extent of a health impact without substantiating this by reference to empirical data. It is not uncommon for assumptions about the impacts of interventions, and the nature and direction of associations to become so familiar that they are not questioned, yet the empirical basis remains elusive. Such assumptions may be wrong, perpetuate bias, and may often over-simplify the mechanisms for and range of differential health impacts. For example, the prediction of adverse health impacts due to community severance following construction of a new road. This prediction assumes not only the immediate impacts of the new road—that the new road will sever existing social networks, but using
social networks as a proxy health outcome also assumes that research evidence supports links between social networks and health. The link between social networks and health is not well established or well understood; weak or loose social networks are more likely to be linked to health benefits than dense networks and the direction of effect is not known.

Previous research evidence is not the only type of evidence used by HIAs. Consultation is an important feature of HIA to assess the views and predictions of key stakeholders and those likely to be affected by the proposal. Such data are helpful and may point to unforeseen impacts and concerns, but these prospective perceptions and predictions are not a proxy for assessing the actual impacts. Some HIAs may go on to validate the predictions by collecting relevant data following the implementation of the proposal but in most cases this is beyond the scope of an HIA. This further underlines the need for HIA to draw on previous research to inform their predictions.

What can previous research contribute to HIA?

It is reasonable to ask what previous research can usefully contribute to HIA. In some HIAs prior knowledge about similar types of intervention, the direct impacts and subsequent health impacts, have been used to provide quantified estimates of the impacts on health outcomes such as accidents, injury, cancer, deaths and infectious disease. The reliability of estimates will depend on the strength of exposure-effect relationship and on availability of relevant data for a specific HIA. For many interventions such prior knowledge and data are not available and quantified estimates of health impacts have been largely confined to the field of environmental and air pollution impacts on health and transport-related injury.

Over the past decade there has been a good deal of research activity assessing the health impacts of interventions typically subject to an HIA, for example housing and transport interventions. This has included systematic reviews synthesizing qualitative and quantitative evidence from previous research as well as development of new studies. In some areas the findings of this work can provide valuable support to HIA; however this is not always the case. Rather than presenting conclusive evidence outlining the nature and extent of health impacts following specific interventions, much of this work has only served to establish the uncertainty around HIA type predictions of health impacts. Inevitably it is frustrating for HIA practitioners to be directed to research as a source of support for HIA, when in many cases the ‘support’ comes in the form of inconclusive findings and uncertainty. Nevertheless, acknowledgement of uncertainty in HIA must be preferable to wrong and uninformed assumptions.

Improving the utility of HIA

It would appear, therefore, that even when, indeed in some cases especially when, an HIA is carefully informed by previous research the predictions will be characterized by extreme uncertainty. It is difficult to see how such an endeavour can be a constructive contribution to the promotion of healthy public policy. If HIA is to be developed as a useful tool, the public health community need to seriously consider how the utility of HIA can be improved. Despite the uncertainties within much of the available evidence, it remains the case that the value of an HIA depends on empirical support. Aside from considering how an HIA might be used to influence decision making, the persistent issue of validity and empirical support need to be grappled with.

Some of the large gaps in available evidence may be filled by ongoing and future research. The increased quantity and improved rigour of intervention research within this field is welcome and will improve our currently limited knowledge in this area. However, it is unlikely that future research, regardless of internal validity, will provide unequivocal and generalizable impact data, moreover, these data take time to emerge. In the meantime, we need to be more innovative in our use of existing evidence and in our thinking about pathways to health impacts.

As mentioned above, many of the impacts included in HIA should be regarded as indirect health impacts, having only distal links to specific health impacts, and which may be mediated by multiple additional influences. HIA needs to map explicit pathways to specific health impacts, and each individual step within the pathway. Mapping out the multiple steps to predicted health impacts, along with an indication of the major mediating factors at each step, could help HIA practitioners think more carefully about the inherent assumptions within ad hoc predictions, and may also illustrate the multiple uncertainties that prevent more reliable predictions. The pathway could also be used to point to where research evidence is needed. An objective assessment of available research evidence would be required to assess to what extent each step in the pathway could be empirically supported. For example, there are a number of steps on the hypothetical pathway between improved public transport provision and increased physical activity. The main steps are: increased public transport provision leads to modal shift from private car to public transport use; public transport use requires more physical activity than private car use; increases in physical activity due to public transport use are not counteracted by decreases in other forms of physical activity e.g. trips to the gym.

In addition to using data from intervention studies, available epidemiological data could be exploited to produce syntheses of the strength and direction of effect, and mediating influences between the individual steps in the pathways. Where appropriate, these data could then be used to provide quantified estimates of distal or proximal health impacts. The type and volume of work involved in this is likely to be beyond the scope of most HIAs but academics, in collaboration with HIA practitioners, could produce research synthesis reflecting some of the common pathways of interest in HIA. There is the further issue of providing evidence that is accessible and usable. Publishing in academic journals is not an effective means of communicating to policy makers and practitioners. Syntheses of best available evidence need to be tailored and clearly applied to the specific questions of the target audience (see example of evidence synthesis on transport6). This requires collaboration between academics and potential evidence users.

Long-term forecast for HIA: cloudy with possibility of sunny spells

The notion that HIA provides a structured mechanism to promote healthy public policy is undeniably attractive, and interest in HIA continues to grow. However, the central issue of validity and lack of empirical support for many HIA predictions remains a serious threat to the integrity of HIA. In its current state it is difficult to see how HIA can or should have any influence on decision making.

Despite this gloomy forecast, more innovative use of available evidence and
clearer thinking about the pathways to health impacts may provide a way forward for HIA. Strong collaborative links between academics and potential evidence users in HIA are essential to ensure that syntheses of research evidence, which are relevant, accessible and usable can strengthen the validity of HIA and the promotion of healthy public policy.

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Comments on HIA forecast: cloudy with sunny spells

In her forecast, Thomson makes three criticisms of current Health Impact Assessment (HIA) practice. That it is unreasonable to expect decision makers to be influenced by HIA; that HIA fails to acknowledge the uncertainty attached to its predictions; and that the predictions in HIA are inadequately based on evidence. Each of these criticisms deserves consideration.

Influence
The purpose of HIA is to assist decision makers and Thomson is right to focus attention on the relation between decision maker and health impact assessor. It is unreasonable to expect that health considerations will always outweigh non-health considerations, since the aim of HIA is to ensure that health considerations are not overlooked rather than to ensure that they always take precedence over all others. Where HIA is part of certain statutory processes (which in UK include planning applications and operating license applications for certain industrial processes) one can be confident that the HIA will be taken into account. In other situations increasing the chances that it will be considered by the decision makers is an essential element in design and planning of the HIA. The proponents of the proposal being considered in the HIA must be aware of and given opportunity to contribute to the HIA. Preferably the HIA process should start early before the proposals are finalized so that they can readily be modified. It is still easy to find examples of HIA, which have been done in such a way that they had no prospect of influencing decision makers, but the problem has received much more thought than Thomson suggests.

Admitting uncertainty
Thomson is right to highlight the uncertainty, which attaches to predictions in HIA or any other field, and it is indeed a ‘misguided conceit’ to pretend otherwise. However, any competent HIA report will make clear that it offers a judgement (with luck a best judgement) of likely consequences rather than a statement of certainty. However, it is not reasonable to suggest that uncertainty should prevent HIA from making any predictions. Certainty or even very high probability are luxuries, which HIA practitioners along with others concerned with public health do not enjoy. It is little help to a decision maker to suggest that they should wait 5 years while academics research the question (and all too probably come back with the conclusion that more research is needed). Usually the decision has to be made in the near future and unless an HIA is prepared to offer its best judgement, which may well be wrong, it is no use. Statistics typically aim to reduce the chance of error to 1 in 20 ($P < 0.05$). Most decision makers have to be content with a much higher error rate.

Evidence for predictions
As Thomson suggests the starting point for prediction should be a causal pathway diagram so that the assessor can attempt to investigate the importance of each causal link using such evidence as is available. Thomson criticises predictions based on the assumption that community severance produces negative impacts. While conceding that the effect of social networks on health are complex and poorly understood it is surely unreasonable to go on to suggest that no prediction can be made of how community severance will effect health. Similar arguments could be applied to transport policies, which rely on use of private vehicles or policies which tolerate bad housing. One can readily agree that evidence derived from research studies and synthesized in systematic reviews are needed for HIA and that HIA will get better as more of these become available. It is unrealistic, however, to think that research could ever provide a library of health consequences of changes or a ‘list of interventions that work’, since there will always be questions as to whether they are relevant to a particular context.

Conclusion
Thomson’s conclusion that ‘it is difficult to see how HIA can or should have any influence on decision making’ is far too sweeping. Unfortunately, her article was based on a totally misdirected search strategy, which looked for HIA reports in academic journals. A few minutes on Google would have found far more than the 50 or so HIA reports found by Thomson. A visit to the HIA gateway (www.HIAgateway.org.uk) a year ago