

ISSUE PAPER

IMPACT ASSESSMENT

Prepared by Ben Harris-Roxas, Sarah Simpson & Elizabeth Harris, Centre for Health Equity Training, Research & Evaluation (CHETRE), University of New South Wales

1. Introduction

The pressures on the NSW Health system are likely to increase significantly over coming years as new technologies, equipment, drugs and procedures are developed at the same time as expectations of health care grow across an increasingly ageing society (IPART 2003). This pressure is increasing despite health expenditure constituting 28.7% of the total NSW state budget for 2004-5 (NSW Treasury 2004)¹, a proportional increase of 1.1% on the year before². These increases are substantial but the demands on the NSW health system are increasing at an even faster rate, particularly in relation to direct service delivery.

As these pressures on the health care system increase it will be important for NSW Health to ensure that it maximises health from health care spending and therefore planning and policy development tools such as impact assessment should become more important.

Impact assessment offers avenues by which issues such as the costs of new technology and maximising health gain for all population groups from a new initiative can be addressed by decision-makers prior to the implementation or adoption of new initiatives. Impact assessment is:

...is a process whereby predictions are made about the future consequences or impacts of changes being made or considered. The concept is general, ... Within a specific context, such as health effects, there may be a wide range of outcomes for which impacts could be assessed, such as death ... GP visits, ...absence from work ... Different contexts may emphasise different outcome measures, but the constant theme is future prediction, and in particular prediction of differences in outcomes under different scenarios of change against the status quo.

(Miller & Hurley 2003)

2. Major trends, challenges and future shaping forces

The field of impact assessment is developing rapidly, with impact assessment methodologies being adapted to new fields beyond the environmental and social impacts conventionally considered (Ahmad 2004). Interest in assessing future impacts on health is a key driver for this development.

Four approaches to assessing the possible health impacts of actions prior to implementation are currently being utilised in different areas of the NSW health system:

- Health risk assessment (enHealth 2002);
- The Aboriginal Health Impact Statement (NSW Health 2003);
- Health impact assessment (CHETRE 2005), and
- Health technology assessment (NSW Health 2004).

NSW Health, in particular the Environmental Health Branch, has developed considerable expertise in **health risk assessment**. The NSW health system also actively participates in planning by commenting on the health risks of major proposals at both Area Health Service and Departmental levels. The avenues for undertaking health risk assessments or commenting on health risks are well established however the pressure on existing resources and capacity has become strained with the growing number and scale of development proposals (eg. M4 East extension, M5 East tunnel and proposed urban development in greater western Sydney) over recent years. In addition Areas are often asked to provide health input to the **social impact assessment** of developments such as a new club which will have pokey machines.

The **Aboriginal Health Impact Statement** (AHIS) was released in 2003 and is designed as a tool to better incorporate the health needs of Aboriginal people in the development of new health policies and programs (NSW Health 2003). A completed AHIS should be submitted with all new health policy, strategy and major program proposals.

NSW Health is also undertaking a major project to develop capacity around health impact assessment (CHETRE 2005). **Health impact assessment** (HIA) assists decision-making by providing a structured process for identification and assessment of the potential health impacts of a proposal (Harris-Roxas et al. 2004). This allows decision-makers to use this information to improve the proposal by maximising potentially positive health impacts and minimising potentially negative impacts.

Health technology assessment (HTA) involves considering the impacts of health technology in its broadest sense, including procedures, pharmaceuticals, practices, knowledge and equipment. These approaches collectively offer structured mechanisms to minimise the negative impacts of new health technology and to maximise positive returns on investment. NSW Health currently views HTA as primarily having a role at the Commonwealth level and little work has been done to utilise it within the NSW context (NSW Health 2004).

This paper focuses on the two emerging forms of impact assessment within NSW:

1. Health Impact Assessment
2. Health Technology Assessment

These two forms of impact assessment have been selected as the focus of this Issue Paper because both have been identified within the NSW health system and by international independent inquiries as increasingly important for the improved functioning of health systems in coming years (Acheson 1998, Wanless 2002, Romanow 2002).

2.1 Health Impact Assessment

Health Impact Assessment is concerned with:

- Assessing proposals before implementation.
- Predicting health impacts, including:
 - assessing the severity and likelihood of the projected positive and negative impacts;
 - determining whether these are direct or indirect impacts, and
 - assessing the distribution of impacts.
- Recommending mitigation measures:
 - to maximise positive impacts and minimise negatives ones; and
 - engaging decision makers around the consideration of health impacts and the determinants of health (Mahoney 2002).

2.1.1 What is Health Impact Assessment?

Health impact assessment is a structured process for considering the health impacts of a policy, program or project and is defined as:

A combination of procedures, methods and tools by which a policy, program or project may be assessed and judged for its potential, and often unanticipated, effects on the health of the population and the distribution of these impacts within the population.

(EHP 1999, adapted by Mahoney & Morgan 2001)

Health impact assessments generally follow a similar series of steps and have the following characteristics:

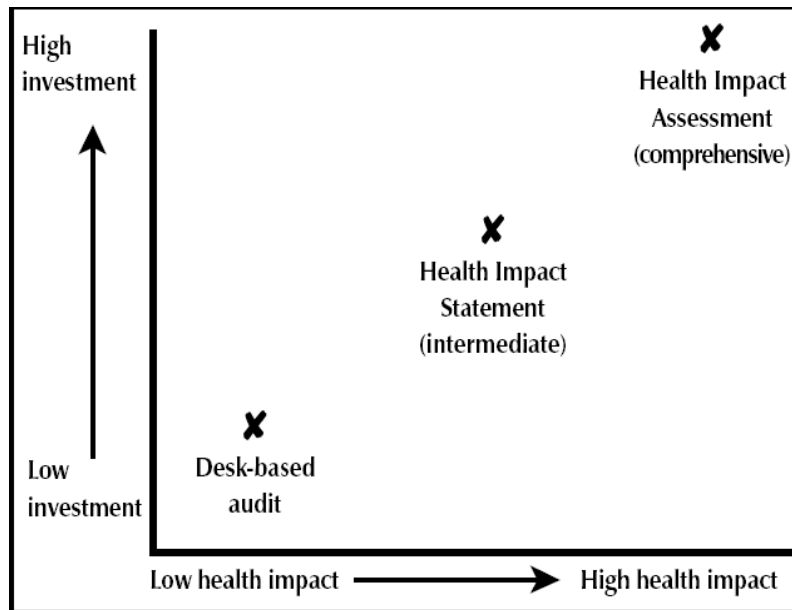
- Assessing the health impacts of policies, programs and/or projects (hereafter referred to as proposals), for example:
 - Policy – the potential impact of changes to the taxation system on health outcomes.
 - Programs – the potential impact of a chronic disease management program on health outcomes.
 - Projects – the potential impact of a new housing development on health outcomes.
- Are undertaken at the point in the planning, program or policy development cycle when there is a clear proposal to consider. HIA is distinct from other methods that may be used to consider health impacts, such as needs assessment, planning and evaluation.
- Assessing the potential positive and negative impacts on health and the distribution of these impacts across different population groups.
- Assessing the health impacts (which will vary according to the type and topic of the proposal) on populations directly and indirectly affected. (Harris & Simpson 2003)

Health impact assessment also provides a structured process for engaging key stakeholders in identifying how to improve a proposal by developing recommendations (based on the findings from the HIA) that are solution-focused. This means identifying ways of both mitigating/minimising the potentially negative health impacts and maximising the potentially positive health impacts. There are times however when the potential negative health impacts are so severe that a proposal will need to be opposed rather than modified (Simpson et al, 2004).

There are three levels at which HIA can be undertaken

- desk-based audit taking one person 2-6 weeks;
- intermediate Health Impact Statement taking one person approximately 12 weeks;
- comprehensive Health Impact Assessment taking one person approximately 6 months (European Commission 2004).

As outlined in Figure 1, the level of a HIA is usually related to the level of investment, the time and resources available, and the scale of the potential health impacts. The higher the level of investment or potential health impacts, the greater the need for a comprehensive HIA.

Figure 1. The Different Types of HIA (Source: Simpson, Harris et al. 2004)

2.1.2 The Origins of HIA

Health impact assessment has its origins in environmental impact assessment processes where it is used to identify the potential health impacts of proposed developments on the health of the people who may be affected (Mahoney & Durham 2002). HIA has been on the public health agenda in Australia for more than a decade (NHMRC 1994) but the extent to which it has developed as a tool to assist decision-makers in health policy and program areas has been limited. This is changing with a recent Consultation Paper by the National Public Health Partnership on *Health Impact Assessment: Legislative and Administrative Frameworks* (2004) and activity on HIA development in all states (Simpson, Mahoney et al. 2004).

Over the past decade HIA has been developed as a tool for assessing impacts of policies, programs and projects on health and health inequalities (Acheson 2000, Douglas & Scott-Samuel 2001). There is now a general acceptance that government needs to find ways of assessing the impact of policies programs and projects undertaken by both the public and private sector on the health and wellbeing of the population. It is also recognised that these impacts can be intended or unintended and may have direct and indirect impacts on populations immediately and indirectly affected.

2.1.3 Purpose and Uses of HIA

The growth in interest and experience comes from two main sources, HIA from a:

- a. a regulatory perspective, which often adopts health risk assessment approaches, and
- b. a developmental perspective, which often adopt a public or social health perspective.

These perspectives affect how the purpose and scope of HIA is determined. Developing a consensus across these perspectives will be important in developing an agreed approach to HIA in the planning, policy and program development cycle within NSW Health.

Health impact assessment has historically been undertaken from a health protection perspective closely linked to health risk assessment (NHMRC 1994). This aspect of HIA seeks to identify hazards to health arising from proposals and then to reduce or eliminate them. This approach

has a strong emphasis on the generation of technical information and often uses models derived from toxicological and epidemiological data. Its overarching aim is to minimise harm in relation to specific health risks (Martuzzi & Bertollini 2005).

Example: Sydney Motorway Tunnels

The M5 East Motorway connecting Sydney Airport with Sydney's south west was completed in December 2001. The Motorway includes a 4km tunnel that is ventilated by a single stack close to residential areas. In response to considerable community concern and three Parliamentary Inquiries about the health effects of the ventilation stack NSW Health conducted a health investigation, which included in-tunnel monitoring.

The health investigation found that the tunnel is carrying daily traffic loads in excess of what was originally forecast and that there has been significant reductions in the level of patronage for the train line servicing the route. A number of potentially beneficial impacts were also identified, including reduced noise and air pollution along many surface roads and improved pedestrian safety and amenity.

This example illustrates the importance of considering health impacts at the early stages of planning for major projects. As a result of NSW Health taking the lead in investigating community health concerns about the M5 the health system has now been involved earlier in the planning process on subsequent motorway proposals (Sheppeard 2004). This example also highlights the considerable amount of information on potential health impacts and community concerns that a comprehensive HIA on the M5 proposal would have generated before the project commenced.

The role of HIA has been expanded in the past ten years to incorporate the promotion of health. This aspect of HIA seeks to identify and strengthen the underlying aspects of a proposal to promote health. This approach also entails addressing the underlying determinants of health associated with a proposal and emphasises the use of HIA as a tool to aid decision-making. It may also involve consideration of the distribution of health impacts associated with a proposal and the extent to which a proposal may reduce health inequities.

2.1.4 Emerging Trends

Health impact assessment is also emerging as an increasingly important mechanism for assessing the impacts of actions by other sectors, including the private sector, on health. By broadening the range of the determinants of health considered in planning, HIA has the potential to put health on the agenda of decision-makers who have traditionally not considered health impacts.

In addition there is increasing interest in integrated impact assessment (Bond et al. 2001), which is being driven by broader planning agendas relating to sustainability. A recent Australian example is the integrated assessment of the environmental, economic and social effects of the Basslink Pty Ltd proposal to connect Tasmania to the national electricity grid (Basslink 2002).

Another emerging direction within HIA in Australasia is equity-focused health impact assessment (EFHIA). The intent of EFHIA is to provide explicit guidance for practitioners on how they can address equity systematically within the existing process of HIA (Mahoney et al. 2004).

Example: HIA of the Proposed NSW Integrated Chronic Disease Prevention Social Marketing Campaign

The NSW Chronic Disease Prevention Strategy seeks to prevent and manage chronic disease by taking an integrated approach to addressing risk factors. A key aspect of the strategy involved piloting an integrated chronic disease prevention social marketing campaign that drew together existing NSW Health programs and activities that deal with tobacco, alcohol, nutrition, physical activity and mental health promotion.

A HIA was undertaken on the proposed social marketing campaign. Some of the key findings included:

- further information should be readily accessible and based on separate message streams for different audiences to ensure equity of outcomes;
- messages should be differentiated for target groups, with a particular emphasis on lower SES audiences due to their higher incidence of chronic disease;
- appropriate referral points should be promoted to maximise partnerships with primary care services;
- messages should not be based on fear but on longer-term positive messages, and
- the sources and symptoms of stress should be a major component of the campaign and be utilised as a lever for change.

The findings enabled the CCDPHA to strengthen the proposal, particularly the equity dimension eg. the potential impacts of the campaign on disadvantaged groups (CCDPHA 2004).

2.2 Health Technology Assessment**Health Technology is concerned with:**

- Considering the broad health and health care impacts of health technology, including:
 - procedures,
 - pharmaceuticals,
 - practices,
 - knowledge, and
 - equipment.
- Offering a structured mechanism to:
 - minimise the negative impacts of new health technology, and to
 - maximise positive returns on investment.

2.2.1 What is Health Technology Assessment?

Health technology assessment is a broad methodology that can be used to examine the impact of new and existing health technologies, knowledge and procedures (van Gool et al. 2004). A wide range of impacts are considered, including economic impacts.

The methods of health technology assessment are generally well established, though controversies endure over specific types of data used. These include economic evaluation methods failing to sufficiently consider variations in cost-effectiveness ratios for sub-populations, for example the difference between people living in rural and remote areas compared to those living in metropolitan areas. The application of HTA, as well as the range of evidence considered, varies considerably from country to country.

2.2.2 The use of HTA in Australia

In Australia, HTA is routinely used at the Commonwealth level by the Medical Services Advisory Committee (MSAC) and the Pharmaceutical Benefits Advisory Committee (PBAC, NSW Health 2004). Their use of HTA is limited to examining new procedures, technology and pharmaceuticals for possible inclusion in the MBS or PBS programs. This use of HTA is largely driven by the introduction of commercial products, with existing technologies not assessed, and therefore many existing technologies often remain unevaluated in Australia.

The current *production* of HTA takes place at a national or nationally coordinated level with some input from the states. The *use* of HTA however, by the decision-makers who read HTA reports and make decisions about the uptake of new technologies, remains very much a state and even local health system issue. As such HTA is of considerable relevance to state health systems.

Example: Hepatitis C (HCV) Viral Load Testing

The Medical Services Advisory Committee (MSAC) undertook a HTA in 2000 to assess whether certain tests for patients with HCV can inform clinical decisions to institute or continue interferon therapy and whether public funding for these should be supported. The assessment found that even though viral load testing and genotyping is expensive it could be cost-effective if it resulted in 15% patients deciding not to proceed with interferon therapy. The HTA recommended the application of a number of criteria for testing to take place to ensure appropriate patient selection (MSAC 2000).

This example indicates the importance of HTA for NSW Health in two ways. The first of these is cost; the introduction of viral load testing has clear cost implications for the NSW Health system. The second is the importance of implementation at state and area levels in determining the overall cost-effectiveness of a new technology. Poor procedures to ensure appropriate patient selection may quickly undermine the cost-effectiveness of new technologies and procedures.

2.2.3 Emerging Trends

There is an increasing recognition that the consideration of the cost-effectiveness of new technologies without examining the broader cost implications for health systems is inadequate. Approaches that may be used to inform decisions regarding overall costs and trade-offs for health systems currently exist (Gezondheidsraad 2003), but are technical and will require extensive adaptation of they are to be applied within the Australian context.

Example: Introduction of Laparoscopic Cholecystectomy in the UK

The National Health Service in the United Kingdom assessed the cost-effectiveness of laparoscopic cholecystectomies prior to their introduction. The assessment showed that the procedure was 25% cheaper than existing open surgical techniques. Following its introduction, however, there was a 40% increase in the number of procedures being undertaken and an overall increase in expenditure of 11% (Wanless 2002). This highlights one of the limitations of HTAs that don't assess the impact(s) of a new procedure for the health system as a whole.

In addition to increases in overall levels of expenditure there are growing concerns about increases in patient and community expectations of health systems (IPART 2003). This

increase has been primarily focused on the range of interventions that are publicly available, and has been linked to improvements in health technology over the past fifteen years (NSW Health 2004).

NSW Health has stated that the role for HTA primarily resides with the Commonwealth (NSW Health 2004). Whilst this is true within current arrangements NSW Health will require HTA-related skills and knowledge in order to interpret HTAs for decision-making and resource allocation purposes. This capacity would also be required in order for NSW Health to have active and meaningful input into national HTA processes.

3. Analysis of options for future directions

As previously stated NSW Health will increasingly need to maximise future returns on investment to ensure that it:

- a. Results in solutions to the challenges being faced by the health system;
- b. Improves the health and quality of life of the people of New South Wales; and
- c. Shares the distribution of these improvements equitably.

There is now broad consensus in NSW that HIA:

- should take a broad social view of health;
- must balance regulatory (health protection) and developmental functions (health promotion);
- will add most value as a decision-making tool placed within existing planning and assessment processes and when undertaken prospectively;
- provides a process for engagement of the community and other sectors that will vary with the scale and focus of the proposal;
- processes need to be built within the health sector and gradually expanded to other government and non-government sectors; and
- is one of a range of processes/options for getting health impacts considered by health and other sectors (Harris & Simpson 2003).

There is also an emerging view that while HTAs will be primarily undertaken by the Commonwealth their findings, and decisions based on them, are highly relevant to New South Wales. This is due to the implications that assessments have for health system resourcing, expenditure (NSW Health 2004), health service development and population health gain.

3.1 Future Directions - HIA

The extent to which HIA is incorporated into NSW Health's core business will be a key determining factor in the future use of HIA in NSW. If existing levels of resourcing (funding and workforce), activity and level of system commitment continue, HIA faces the following risks:

- The potential for HIA to "value-add" to decision making across the public and private sectors in NSW may not be fully realized
- Linked to the above it means policy, program and planning development in NSW is not consistent with better practice, and
- HIA may remain a specialised activity within public health, particularly within health promotion and environmental health.

These risks are being partly addressed by Phase 3 of the NSW HIA Project, a three year project that seeks to further build capacity to undertake HIA and is being funded by NSW Health. A number of hurdles remain to be addressed however, including:

- within the health sector overcoming the perception that health does not have a responsibility to assess the potential health impacts of its own major proposals or look at its own practice
- outside of the health sector overcoming the perception of HIA as solely a health system activity and
- the risk that HIA may become an obsolete process if it fails to be incorporated more broadly into decision-making both within and outside of the health sector.

If HIA and approaches to considering health impacts are more broadly integrated into health and interdepartmental decision-making processes they may result in:

- health impact assessment being utilised to assist decision-making across the NSW health system and not being limited to public health – better practice;
- an outward-looking health system that assumes a leadership role in working with other sectors utilising HIA as a basis for discussion, and
- the routine consideration of health and equity impacts in decision-making, not necessarily as part of a structured HIA process but as a way of thinking about health inequities while planning.

3.2 Future Directions - HTA

As with HIA the extent to which the use of HTA is incorporated into NSW Health's core business will play an important role in determining the extent to which the NSW health system considers the impacts of new technologies in the future. If the current low level of HTA related activity continues within NSW the following risks arise:

- rapidly increasing health system costs;
- poor practices arising from failing to assess existing technologies, practices and procedures, and
- health technology assessment would remain a Commonwealth driven process with NSW having little to no input.

These challenges may be addressed by strategies that seek to engage the Commonwealth around the roles, responsibilities and better use of HTA. This would include building mechanisms to enable greater communication between the developers of emerging technologies and health systems at the earliest stages in the technology's development in order to ensure their relevance to the NSW health system.

Strategies are also required that build NSW Health's capacity not to undertake HTAs but to apply the information generated through HTAs into practice in the NSW health system. This requires expertise in health economics, a capacity to interpret and incorporate the findings of HTAs into decision-making processes.

3.3 Future Directions - Key Challenges

There are two future challenges facing HIA and HTA (see Table 1). The first of these is capacity building. HIA and HTA are related in their ability to inform and improve decision-making but the mechanisms through which capacity can be built are distinct due to their technical differences. The second activity involves using HIA and HTA to better engage other jurisdictions, other departments/agencies and other sectors (public and private) in the applying the information about health and health system impacts for improved planning, policy, program and health system development.

Table 1. Key Challenges

Key Challenge	Health Impact Assessment	Health Technology Assessment
Building Capacity	<ul style="list-style-type: none"> • Developing: <ul style="list-style-type: none"> ▪ general knowledge of HIA; ▪ specific technical skills to undertake HIA. • Building capacity to contribute and comment meaningfully on the potential health impacts of other sectors' proposals. 	<ul style="list-style-type: none"> • Developing the ability to interpret and identify the implications of HTAs through: <ul style="list-style-type: none"> ▪ specific technical skills in the areas of economic modeling and forecasting; ▪ identifying the implications of HTAs for NSW beyond those addressed in the HTA, e.g. unexpected costs.
Health Planning for a Better Future	<ul style="list-style-type: none"> • Engaging other sectors in the consideration of health impacts. 	<ul style="list-style-type: none"> • Engaging the Commonwealth and the private sector to: <ul style="list-style-type: none"> ▪ advocate on the NSW health system implications of new technologies; ▪ enable better planning that incorporates new technologies.

4. Recommendations

4.1 Health Impact Assessment

NSW Health to have mechanisms in place to undertake HIA systematically within the NSW health system by 2008.

4.2 Health Technology Assessment

NSW Health to take a phased approach to building capacity in HTA so that by 2008 the health system is able to better utilize and apply the findings from HTAs to health system planning, policy and program development.

5. Discussion prompts

1. What priority should NSW Health give to building capacity to undertake impact assessment, particularly in relation to HIA and the Aboriginal Health Impact Statement?
2. What steps does NSW Health need to take to built technical expertise, particularly in relation to the economic modeling of health impacts and health economics generally?
3. At what points in policy, planning and practice would NSW Health achieve optimal "value-add" from using HIA and HTA?

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6. References and further reading

6.1. Notes

1. Based on estimated Department of Health expenditure for 2004-5 of \$10,753.8 million out of total estimated government expenditure of \$37,438 billion (NSW Treasury 2004).
2. Based on 2003-4 Department of Health expenditure of \$9,723.9 million out of a total government expenditure of \$35,199 billion, representing 27.6% of the NSW Budget 2003-4 (NSW Treasury 2004).

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