CHERE
CENTRE FOR HEALTH ECONOMICS RESEARCH AND EVALUATION

UNIVERSITY OF TECHNOLOGY SYDNEY

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Reducing the use of ineffective health care interventions

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NSW Treasury

UNIVERSITY OF TECHNOLOGY SYDNEY

About CHERE

CHERE is an independent research unit affiliated with the University of Technology, Sydney. It has been established since 1991, and in that time has developed a strong reputation for excellence in research and teaching in health economics and public health and for providing timely and high quality policy advice and support. Its research program is policy-relevant and concerned with issues at the forefront of the sub-discipline.

CHERE has extensive experience in evaluating health services and programs, and in assessing the effectiveness of policy initiatives. The Centre provides policy support to all levels of the health care system, through both formal and informal involvement in working parties, committees, and by undertaking commissioned projects. For further details on our work, see www.chere.uts.edu.au.

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Glossary of Abbreviations

AHRG	Agency for Health research and Quality
avalia-t	Axencia de Avaliación de Tecnoloxías Sanitarias de Galicia
CHERE	Centre for Health Economics Research and Evaluation
COB	Congressional Budget Office
CER	Comparative Effectiveness Research
COPD	Chronic Obstructive Pulmonary Disease
DACEHTA	Danish Centre for Evaluation and Health Technology Assessment
HTA	Health Technology Assessment
NHS	National Health Service
NICE	National Institute for Health and Clinical Excellence
OSTEBA	Basque Office for Health Technology Assessment
PBAC	Pharmaceutical Benefits Advisory Committee
PBMA	Program Budgeting and Marginal Analysis
POT	Potentially Obsolete Technologies
TGA	Therapeutics Goods Administration

1 Executive Summary

This report covers international and Australian models for reducing the use of ineffective interventions, also described as disinvestment. Disinvestment is a development of Health Technology Assessment (HTA). Conventionally HTA has focussed on the introduction of new technologies. Although medical technology is advancing rapidly, there remain very many technologies in use which have not been subject to formal HTA. This has stimulated a growing interest in disinvestment.

This review identified a number of case studies and pilot projects. There is limited information available on the mechanisms used, and no rigorous evaluations of their impact. The most developed model is that of NICE which has recently embarked on providing guidance for disinvestment. A number of technologies have been reviewed; but there is limited information available on how these were identified, how disinvestment is implemented, or what the effect has been. There is substantial resistance to any active disinvestment. Across the various case studies, appraisal of candidate technologies seems most likely to be triggered by expert opinion.

In Australia, disinvestment is also generally passive. Technologies may be removed from funding or reimbursement if new research demonstrating harms or inefficacy becomes public. More generally, technologies fall into disuse, and are gradually replaced by new or improved technologies. Even when guidelines or funding rules are changed, there is generally continued use of an existing technology.

This review has found that active disinvestment has generally been removal of funding for ineffective and/or unsafe technologies, usually initiated by new evidence of inefficacy or harm. Disinvestment is more likely to be passive, ie driven by changes in medical practice, as a procedure or treatment gradually falls out of use over time. There are very few instances of disinvestment, or appraisal for disinvestment, driven by considerations of cost-effectiveness. There are considerable difficulties implementing disinvestment in ineffective health care practices.

One area of difficulty is an appropriate mechanism for identifying candidate technologies for appraisal. No explicit processes were identified, although there are a number of published criteria for prioritising candidates. The US is embarking on a major new program of HTA, termed Comparative Effectiveness Research. The list of priority topics for appraisal was developed by the Institute of Medicine, using nominations from health professionals, consumer advocates, policy analysts and others. The development of the candidate topics was a major exercise in itself. Studies of medical practice variations can also be used to identify candidate topics for appraisal. To date, there has been relatively little systematic investigation into practice variations in Australia. The availability of rich data sets which allow analysis on the basis of small areas is essential to research in this field, as is the research capacity to allow rigorous analysis. Program Budgeting and Marginal Analysis is a technique which uses HTA methods to drive disinvestment and reinvestment. It is a relatively resource-intensive activity, and requires clinicians to identify activities for disinvestment.

Another area of difficulty arises because there are few or no incentives for clinicians in disinvestment. Thus reinforces the problems of identifying technologies for appraisal. As disinvestment will create losses, to clinicians, to consumers and to providers of the technology, there will be strong resistance to any active withdrawal of funding. At the same time, the additional benefits and/or savings from any disinvestments may not be realised for a considerable period of time and there is a risk that, for some products,

interventions or services, cost savings, in particular, may not be realised. This increases the cost of pursuing disinvestment.

Both HTA and disinvestment can be seen in a much broader context, that is the challenge is to ensure that the additional health spending brings commensurate benefits – ensuring health system efficiency. Although there is considerable interest in disinvestment, there are problems in identifying which technologies should be considered for disinvestment, and strong incentives to retain existing technologies. Disinvestment does occur, but generally as a result of existing treatments or other interventions falling into disfavour. An alternative approach to proactive disinvestment of specific technologies is to encourage more rapid change in medical practice. There are various strategies for health care reform which can be categorised as changing provider information, such as through the use of clinical guidelines, or the results of practice variations studies; changing incentives, though different payments for clinicians and other providers, or specifically targeted incentives; changing consumer behaviour, by providing more information with or without financial incentives; or changing the structures of health service delivery to provide organisational support and incentives for more efficient purchasing of care.

2 Introduction

The NSW Treasury has commissioned, through the Sax Institute, the Centre for Health Economics Research and Evaluation (CHERE), University of Technology, Sydney, to undertake a literature review of Australian and international models for identifying existing health care interventions that are ineffective, and for reducing the use of these interventions. This is generally described as 'disinvestment', and refers to the formal processes and mechanisms which are used to reduce or discontinue the use of selected procedures and treatments.

The notion of disinvestment has its origins in Health Technology Assessment. Many analyses have concluded that the introduction and dissemination of new health technologies are the major driver of increasing health care expenditure. HTA has developed a formal approach to analysis and decision making for the introduction of new technology (see CHERE report to Treasury *Best Practice in Health Technology Assessment at the State Level,* June 2007). The aim and challenge for HTA is to balance the benefits with the risks and costs of new interventions. The CHERE review concluded that best practice HTA would provide appropriate and relevant information and be linked to funding or reimbursement decisions. Under such a model, new technologies would only be disseminated on the basis of sound evidence of their effectiveness and cost effectiveness. In the initial stages of developing HTA, it was argued that as new technologies are accepted for funding, then the armamentarium of funded technologies will increasingly become more cost-effective, thus improving health system efficiency. Now there is substantial experience with HTA over a decade or more in several countries. It is clear that new technologies continue to be, on balance, cost increasing, albeit justified by increased health benefits. 'Old" technologies continue, often in widespread use, without having been subjected to the same evaluation as new technologies. This has stimulated an interest in subjecting existing technologies to the same rigorous level of analysis, and removing support for those shown to ineffective or less cost-effective. Not surprisingly, the approaches to disinvestment in many ways mirror HTA.

The literature review for this project focussed on this brief; and the methods, results and conclusions are presented in section 3. The critical issue for implementing a disinvestment strategy is not the assessment methodology – that has been well established and continues to be refined through conventional HTA – rather it is the identification of the candidate technologies for assessment. In section 4, we consider other approaches which can be used to identify priorities for assessment.

Both HTA and disinvestment can be seen in a much broader context and this is addressed in section 5. While the key concern of the 1970s and 1980s was cost control as governments watched rapid increases in total health care spending, over the 1990s and 2000s this was replaced with concern for value for money. Increasing personal and national wealth, community expectations, longer lifespans and technological advances together mean that higher health spending is inevitable; the challenge is to ensure that the additional spending brings commensurate benefits – ensuring health system efficiency.

3 The literature on disinvestment

3.1 Aims

The aim of this project is to conduct a review of the international and national literature (including grey literature) to identify current practices and describe different approaches (if available) for identifying existing health care interventions that are ineffective, and for reducing the use of these interventions.

The review will address the following questions:

1. What models (formal structures, processes and mechanisms) have been used in Australia and internationally to reduce the use of existing clinical interventions or health programs that are ineffective or ineffective relative to their cost ("ineffective interventions")?

2. For each model:

    a. What type of intervention/s does it focus on?

    b. What methods are used to identify ineffective interventions?

    c. What mechanisms are used to reduce the use of ineffective interventions? (e.g. clinical practice guidelines and policy controls, eligibility criteria for reimbursement payments, funding formulae)

    d. Is there evidence that the model has reduced the use of specific ineffective interventions, with resultant benefits in terms of health outcomes and/or costs?

    e. Is there evidence that the model has resulted in overall benefits in terms of health outcomes and/or costs?

3. What are the common features of successful models, especially in terms of a) - c) above?

4. What challenges would be faced in implementing models that have worked elsewhere in the NSW and Australian setting?

3.2 Method

The literature was searched to identify studies and reports published between January 1990 and Aug 2009. Databases of peer-reviewed literature including CINAHL, EMBASE, Medline, and PubMed were searched. The bibliographies of all retrieved publications were hand searched for any relevant references missing in the database searches. The Centre for Reviews & Dissemination database and the EBM Reviews - Health Technology Assessment were also searched. Health technology assessment (HTA) organisation websites were also consulted (see Appendix 1).

Web-based searches, using the internet search engines 'Google' and 'Google scholar', were conducted to identify national and international reports. Grey literature such as conference abstracts and reports were also included.

3.2.1 Inclusion/selection criteria

The following criteria were used for the review and selection of the studies:

- published 1990 - 2009
- available in English
- specifically focused on disinvestment and ineffective interventions
- articles were selected on relevance to the topic
- hand searching of relevant articles and reports
- relevant Australian and overseas reports/publications known to the researchers

The search history is presented in Appendix 2.

3.3 Results

The search identified 36 original papers[1]. Of these only seven were relevant to the review. These were mainly viewpoints and commentaries on disinvestment. Most of the data presented in this report comes from the grey literature, that is, mainly conference abstracts and presentations. In this situation, the information is limited to what is provided at the meeting (i.e. on the presentation slides). The majority of the presentations are dated 2004-onwards with increasing numbers of abstracts identified in the last two years.

The literature review did not identify any *formal* structures, processes or mechanisms that have been developed and used internationally or nationally to reduce the use of existing technologies, clinical interventions or health programs that have limited or no clinical effectiveness or cost effectiveness. Some HTA agencies and organisations have included in their aims the evaluation of ineffective technologies or the need for disinvestment as an important process. However few describe the actual process of identifying technologies for disinvestment or the guidance to do so. A number of publications provide a statement of the problem and the rationale for disinvestment. Some pilot studies as well as case studies of specific technologies were identified and will be described in this report. All of these were identified in the grey literature, mainly conference abstracts and presentations, some discussion papers, and largely covering pilot projects and small case studies. As such, there was often insufficient information to undertake a formal critical appraisal assessing the quality of these studies.

[1] Articles related to Program Budgeting and Marginal Analysis (PBMA) and Cost Effectiveness Research (CER) were not identified via this literature review. These are background papers.

3.3.1 Definitions

The term disinvestment is used with a range of meanings and there are different ways of examining this concept.

Elshaug et al defined it as “the process of withdrawing (partially or completely) health resources from any existing health care practices, procedures, technologies and pharmaceuticals that are deemed to deliver no or low health gain for their cost and thus [do] not [represent] efficient health resource allocation” (Elshaug, et al., 2007). Disinvestment has also been described as the cessation or restriction of potentially harmful, clinically ineffective or cost inefficient practices (Ibargoyen-Roteta, et al., 2009a). Even though Goodman does not define disinvestment, obsolete/outmoded/abandoned technologies are described as those that have been superseded or demonstrated to be ineffective or harmful (Goodman, 2004).

The disinvestment process could also be described as explicit or implicit. Person et al identified explicit disinvestment as the process of taking resources from one service in order to use them for other purposes (i.e. reallocation of resources) (Pearson and Littlejohns, 2007). “Implicit” disinvestment is best described as replacement/updating of practice and it occurs when a technology or intervention is superseded and therefore falls out of use.

Thus, definitions are diverse and demonstrate that apart from reasons of safety, there are no agreed operational criteria for disinvestment.

3.4 International Experience

A recent report on the future of HTA in Europe concluded that there is no evidence that disinvestment decisions are actively pursued by HTA agencies. The National Institute for Health and Clinical Excellence (NICE) in England and Wales was named as the only agency to explicitly recognise the need for disinvestment to be integrated into its guidance development (Kanavos, et al., 2008). This literature review however identified pilot programs in Denmark and Spain which are discussed below.

3.4.1 England and Wales

In England and Wales, decision making regarding the introduction of new and existing technologies is led by the Health Technology Assessment process and the National Institute for Health and Clinical Excellence (NICE). In 2006 the Department of Health announced a new mandate for NICE “to identify and stop ineffective interventions and make health services more equitable across the country” (Pearson and Littlejohns, 2007). NICE guidance applies to England, Wales and Northern Ireland and this initiative was expected to free up “millions of pounds” from ineffective or obsolete treatments to be reinvested in the NHS (Kmietowicz, 2006).

Some strategies that NICE has used to identify and stop ineffective interventions include: 1) technology appraisals and clinical guidelines aimed at reducing ineffective practice (i.e. antibiotics for viral infections) 2) recommendation reminders, highlighting existing guidance against the use of ineffective (i.e. home versus hospital haemodialysis) 3) commissioning guidelines – effective use of resources/reduce spending on ineffective treatments.

This later initiative was introduced by NICE in 2007. Commissioning guidelines are web based guides designed to set benchmarks to "determine the level of service needed for a particular topic". They also provide advice on issues such as local needs assessment and opportunities for disinvestment (National Institute for Health and Clinical Excellence (NICE), 2007). The first five guides focused on:

- Upper gastrointestinal (GI) endoscopy)
- Anticoagulation in the treatment of atrial fibrillation
- Pulmonary rehabilitation for Chronic Obstructive Pulmonary Disease (COPD)
- Assisted discharge schemes for COPD
- Assessment of the diabetic foot

The guides collect advice on what to do as well as what not to do. The guide covers issues such as:

- Why commission this service?
- What service specification is required to provide an effective service?
- What level of service is needed locally?
- What resources will be required locally?
- What mechanisms are available for target setting, audit, clinical governance, etc?

For example, in relation to the management of COPD the guides state that "the use of prophylactic antibiotics is to be discouraged" due to the lack of "robust evidence demonstrating a benefit of prophylactic antibiotics in patients with COPD". Costing tools are provided enabling local decision makers to calculate the cost of providing care for the predicted number of people with the condition in a local area as well as the cost offsets from saved comparator treatment(s). Benchmarks are available in some of the tools for setting performance targets, enabling the local health authority to judge whether it is under- or over- providing a particular technology or service. An audit commission reports on the progress made towards targets by individual local health authorities. In contrast to many agencies NICE appears to be more focussed on identifying what not to do.

No published data are available to assess the effectiveness or impact of this initiative. Information regarding the methods used to identify ineffective technologies as well as the mechanisms used to reduce their use is limited. A recent conference presentation described some results of the NICE disinvestment pilot project (Garner, 2009). The presentation described the areas of disinvestment that NICE has identified into four categories:

1. Relatively ineffective interventions: dilation and curettage for women aged under 40, grommets, spinal cost stimulation, tonsillectomy.

2. Largely cosmetic interventions.

3. Effective interventions with a close benefit/risk balance in mild cases: female genital prolapse/stress incontinence, hip, knee joint replacement/revision, wisdom tooth extraction.

4. Effective interventions where cost-effective alternatives should be tried first: carpal tunnel, hysterectomy for heavy menstrual bleeding.

Topics that have been the subject of investigation include:

- Bath emollients for atopic eczema –
- Grommets for otitis media
- Corticosteroids for acute head injury
- Lumbar puncture (indication not provided)
- Anticoagulants for transient ischaemic attack (TIA)
- Low molecular weight heparin (indication not provided)
- Cervical screening
- Tetracyclines for acne
- Topical antibiotics/steroids for acute superficial inflammatory dermatoses
- Topical antibiotics for suspected acute bacterial conjunctivitis
- Antibiotics for respiratory tract infections (RTIs)

Results from the pilot project showed that there are very few candidates for total disinvestment and that new technologies, interventions and practices implicitly replace outmoded or old ones (Garner, 2009). It is also acknowledged that while identifying topics with disinvestment potential remains a key strand of NICE's mandate, few disinvestment topics are actually referred to NICE, the rationale for referral is not explicitly stated in the guidance remit and there is resistance to withdrawing existing technologies (Chalkidou, 2009). Furthermore it is recommended that NICE should produce more evidence-based disinvestment advice and less budget inflating recommendations.

In a qualitative investigation, members of a group of local formulary committees in England acknowledged that despite being asked to evaluate existing technologies with a view to disinvestment, this was rarely if ever achieved. The stated reasons for this were the difficulty in achieving consensus on what to disinvest in and related political difficulties, and time and capacity constraints leading to a focus on new technologies and as a result the 'margins' of health care expenditure (Williams, et al., 2006).

In terms of technology assessment in general, NICE currently uses two models. The initial approach adopted by NICE was to undertake multi-technology appraisals, for example assessment of a whole class of drugs. The appraisals were based on evidence collated by independent evaluators. More recently, and especially for some technologies that are considered "breakthrough", NICE has adopted a single technology appraisal process, in which a submission by a sponsor (for example, a manufacturer for an individual drug) is evaluated and a recommendation made. The multi-technology appraisal approach lends itself more readily to concomitant decisions about new investment in technologies and disinvestment in other technologies. For example, the process of multi-technology appraisal may identify some technologies which are less cost-effective than others and potentially lead to advice to replace these technologies with others.

3.4.2 Denmark

The Danish Centre for Evaluation and Health Technology Assessment (DACEHTA) initiated a pilot project in 2004 to "assess improper use or potentially obsolete technologies". The main focus was on imaging technologies starting with chest x-ray (Frellsen and Kristensen, 2005). The rationale for choosing imaging technologies is not reported and the information available is limited to a conference abstract where the methods were briefly described. The project involved a literature review on the effectiveness of routinely performed x-rays, and a questionnaire targeting internal medicine units (excluding cardiology and thorax units). The questionnaire asked whether the units performed chest x-rays on all patients on admission. A questionnaire

directed at radiology units asked if they suspected internal medicine units performed routine chest x-rays on all patients at admission. The final outcome was a recommendation that chest x-rays should only be performed if there is a specific reason. No further information is available regarding this project or its outcomes other than that DACEHTA is assessing the use of x-rays of the lower back in younger patients (20-49 years).

3.4.3 Scotland

The aim of a disinvestment project which began in 2004 in Scotland was to stop and/or restrict interventions of low or no health gain. The objectives of the project were to understand which interventions were considered for disinvestment, who initiated the disinvestment process and what evidence base was used in making a decision. Information regarding this project is limited to a conference abstract and no further data are available. The initial phase involved a literature review which identified four sentinel procedures: grommets, varicose veins, tonsillectomy and dilation and curettage. The second step involved reviewing the National Information Services Division (ISD) in relation to the numbers of procedures performed per Health Board, per 100 000 population. There was tenfold variation in intervention rates across 12 Health Board areas for the identified procedures. Over time, the rates were observed to spontaneously trend slowly downwards; limited success was obtained with the introduction of guidelines and variance feedback approaches to accelerating these rates (Scott, 2006).

The authors concluded that “nobody appears to have responsibility for stopping things that do not work or which harm patients (reducing demand)” and that a dedicated resource to facilitate this process is required in Scotland. The next step of the project was to discuss the results with the Scottish directors of Public Health and Medical Directors and set up a Disinvestment Group. However, no further information on the progress of this project was able to be identified.

3.4.4 Spain

In Spain health technology assessment is undertaken at the provincial level. In 2008 two provinces (regions) under the auspices of the Health Institute Carlos III (Spanish Ministry of Health) undertook a project that aimed to identify, prioritise and assess obsolete technologies (Basque Office for HTA, 2008). What follows is the description of the work undertaken in these regions.

3.4.4.1 The Basque Region

The Basque Office for Health Technology Assessment (OSTEBA) defined potentially obsolete technologies (POTs) as *“those healthcare technologies or its applications in a concrete indication whose clinical benefit, safety, or cost effectiveness has been superseded in a significant way by other available alternatives”*. (Ibargoyen-Roteta, et al., 2009b) The initial literature review and consultation process concluded that there is little information about disinvestment strategies and the process for identifying POTs is not systematic. Identification of or disinvestment in POTs still relies on expert opinion. Ibargoyen-Roteta concluded that identification of POTs is difficult and the process is complicated. Health technology evaluation reports and clinical guidelines were

described as fundamental in this process. OSTEBA's work involved four phases (Basque Office for HTA, 2008):

1. Identification process: in this phase obsolete technologies were identified using a pilot questionnaire, followed by a literature review and search of the Euroscan database.
2. Selection of variables for prioritisation and evaluation: this was done in collaboration with the Galician Agency for Health Technology Assessment (avalia-t).
3. Case study to test the evaluation tool.
4. GuNT Guide elaboration: the development of a hospital guide for investment of technologies with proven effectiveness for a determined indication.

So far, progress on three of the four phases is available and summarised below:

1. Technologies identified as worthy of investigation for disinvestment using the pilot questionnaire included[2]:
   - Cobalt bomb vs linear multi-energy accelerators
   - 2D LinAcs planning vs 3D LinAcs planning or IMRT
   - Initial Chemotherapy due to waiting lists in radiotherapy treatment vs Simultaneous Chemotherapy and Radiotherapy
   - Non multilaminar accelerators vs Multilaminar accelerators
   - Patients location only with laser vs Image guided Radiotherapy
   - Radium vs Iridium 198
   - Cartography (ineffective) vs EEG-video or functional MRI
   - Motor rehabilitation techniques using optometric methods

2. Variables identified:
   - General information about the Technology of Interest
   - The context of the technology
   - Why is the technology considered obsolete?
   - Information about costs, effectiveness and safety
   - Possibility of being eliminated or substituted by an alternative

3. Case studies selected to test the evaluation tool included: a diagnostic procedure (x-ray in cranium encephalic trauma, a program, therapeutic technology (cobalt bombs) and a preventative technology

To date the results of this project are yet to be published and information was obtained from a conference presentation. Additional information is required to evaluate the effectiveness and transferability of this methodology to the NSW context.

3.4.4.2 Galicia Region

The main aim of the Galician Agency for Health Technology Assessment (avalia-t - Axencia de Avaliación de Tecnoloxías Sanitarias de Galicia) was to develop a method to guide people and institutions interested in analysing obsolete technologies in their respective health care setting. Avalia-t developed a "prioritisation tool" called PriTec.

[2] No information was provided about the indication or condition the technologies were being considered for

PriTec enables the simultaneous comparison of up to 50 technologies and generates a prioritisation report that includes the main results and figures (2009).

Criteria are scored and grouped in the prioritisation areas (domains) associated with the monitored technology:
a) characteristics of the target population/end-users;
b) risk/benefit; and,
c) costs, organisation and other implications.

No published data are available to assess the effectiveness or impact of this initiative. The tool is freely available on the avalia-t website.

3.4.5 Australia

3.4.5.1 National level

Two advisory bodies at the National level in Australia are responsible for evaluating evidence relating to the safety, effectiveness and cost-effectiveness of new medical technologies. The Pharmaceutical Benefits Advisory Committee (PBAC) has responsibility for assessment of pharmaceutical products and vaccines for inclusion on the National Immunisation Program. The Medical Services Advisory Committee (MSAC) assesses health technologies and medical procedures in the private health sector (Productivity Commission, 2005). Reimbursement approval for new medical technologies, as well as the withdrawal of reimbursement for existing services rests with the Minister for Health, under advice from these bodies.

To date several products have been de-listed from the Pharmaceutical Benefits Scheme (PBS), largely as a result of new information becoming available about effectiveness and safety. Pharmaceutical companies have also voluntarily withdrawn products as a result of a newer, more effective one being listed. Therefore the disinvestment that occurs in medicines in Australia tends to be implicit, resulting from the replacement of current drugs with new, more effective drugs. The 1997-1998 portfolio budget statements included a plan to de-list medicine items for less serious medical conditions from the PBS. These included a number of medicines that were already available over the counter and some others suitable for common ailments such as gastro-intestinal problems, anti-inflammatory liniment for pain relief of sprains and muscle strains, a number of preparations that were previously prepared by pharmacists and two antifungal products (Australian Government Department of Health and Ageing, 1997).

The PBAC has developed explicit criteria for removing a drug from the PBS (Salked, et al., 1999) if:

- More effective or equally effective but less toxic drug becomes available
- Evidence becomes available that the effectiveness of the drug is unsatisfactory
- Evidence becomes available that the toxicity or abuse potential of the drug outweighs its therapeutic value
- The drug has fallen into disuse or is no longer available; or
- Treatment with the drug is no longer deemed cost effective relative to other therapies.

The PBAC has the capacity to review the list of PBS items, including restrictions, maximum quantities and number of repeats. It also provides advice about any other matters relating to the PBS that are referred to it by the Minister (Australian Government Department of Health and Ageing, 2009).

PBAC also has the capacity to implement its own reviews of drugs or classes of drugs, which could result in disinvestment. This review capacity has existed since 2006 but as yet has not been used in such a way as to lead to explicit disinvestment decisions.

MSAC has been established to assess new technologies and has not had the capacity to initiate its own reviews of existing items. There are no formal delisting criteria. To date, delisting has occurred through the Australian Department of Health and Ageing, generally as a result of an existing item falling into disuse, a form of natural attrition. However, those technologies which have been granted interim approval are reconsidered, and the continuation of public funding may not be recommended. However in the minutes of an MSAC meeting held in 2006, it was stated that "withdrawing a service that is already funded would require evidence that the procedure was either unsafe, or not effective (particularly where there are other technologies/procedures that are more effective) or well outside the acceptable level of cost effectiveness" (Australian Government Department of Health and Ageing, 2006).

In 2001 MSAC recommended that "on the strength of evidence relating to Lung Volume Reduction Surgery (LVRS) in advances for advanced emphysema: public funding should not be supported for this procedure pending availability of overseas clinical trial data expected in 2003". However as stated in the report up until then LVRS was claimed under the Medicare Benefits Schedule (MBS) using the item numbers 38456 (intrathoracic operation), 38424 (thoracotomy) and 38440 (wedge resection of the lung) (Department of Health and Ageing, 2001). This could then be interpreted that claiming LVRS on the MBS would no longer be legitimate and therefore a disinvestment example. Medicare data do not show any significant drop in the number of services claimed under item 38424 for the period January 2000 to December 2004. This illustrates how MBS item numbers can be used, so that a similar or closely related service can be included unless a very precise item description is given. This is a problem for both controlling the dissemination of new services as well as removing existing ones.

In the 2009 budget the Australian Government has allocated $9.3 million over two years to put in place a new evidence based framework for reviewing services listed on the Medicare Benefits Schedule (Department of Health and Ageing, 2009). The capacity to undertake these reviews is currently being developed and this may lead to a more proactive approach to disinvestment.

3.4.5.2 State Level (VPACT)

In 2007, the Victorian Department of Human Services and the Victorian Policy Advisory Committee on Clinical Practice and Technology (VPACT) held a workshop on the future directions for health technology uptake, diffusion and disinvestment in Victorian public health services. It was concluded that disinvestment of technologies was of interest but a robust framework was lacking. The consensus seemed to be that a consultation process would be important to progress this topic (Victorian Department of Human Services, 2007). Since then the department has funded a disinvestment initiative by Southern Health.

3.4.5.3 Area Health Service Victoria - Southern Health

Southern Health received funding from the Victorian Department of Human Services to implement the "Sustainability in Healthcare by Allocating Resources Effectively (SHARE) program". One of the aims of this program is to establish an organisation wide evidence based process of decision making and prioritisation for cessation or limitation of harmful, ineffective or inefficient procedures. The project started with the creation of a steering committee (Victorian Health Newsletter, 2009). The disinvestment Subcommittee of the New Technology Committee has the role of advising the CEO through the Executive Quality and Safety Committee about which devices, procedures and medications should not be used or whose utilisation should be changed. Some preliminary work was conducted by Southern Health before funding was provided by the department for the SHARE program to be implemented. This included two phases. The initial phase involved a systematic literature review to identify existing models and seeking information from international and national colleagues which is yet to be published and information is limited to an abstract presentation. The second phase involved the formulation a project framework.

As this report was being prepared, Southern Health in conjunction with the Victorian Department of Human Services was holding a national workshop to discuss decision-making around disinvestment in health services (Victorian Health Newsletter, 2009). A formal workshop report and the workshop presentation slides will be available on the Victorian Department of Human Services website in the future. An informal report on the workshop is provided as Appendix 3 (Section 6.3). In summary, most of the initiatives presented (as well as the references used during the workshop) had already been identified by this project. The workshop highlighted the lack of published data on disinvestment and the growing interest in the topic.

3.4.5.4 Area Health Service New South Wales - Northern Sydney Central Coast Area Health Service (NSCCAHS)

The Northern Sydney Central Coast Area Health Service (NSCCAHS) has instigated the Health Technology Evaluation and Approvals initiative. The aim of the initiative is to ensure that decisions regarding the introduction of new (non pharmaceutical) medical technologies, and cessation of old ineffective technologies, is guided by evidence of effectiveness, safety and cost effectiveness, and a good understanding of the organisational impacts of the technologies. The Area Health Service has established a committee comprised of consumer representatives, a health economist, clinicians and AHS and NSW Health officers. The role of the committee is to make recommendations to the NSCCAHS Executive based on their appraisal of the application and assessment. The NSCCAHS has established a clear and simple application process and provided resources to conduct an assessment of relevant evidence related to each technology under consideration (Gallego, et al., 2009). The way the process has been designed, approval for the use of technologies is initiated by the individual clinician or clinical group that wishes to adopt the technology. There is no requirement to seek approval to cease using an outdated technology and in practice, disinvestment relies on changes in clinical practice rather than an explicit assessment.

3.4.5.5 Other initiatives

The ASTUTE health study (Assessing Service and Technology Use to Enhance Health) which was funded in 2009 by the NHMRC, aims to trial and evaluate a model to

refine the indications for resource allocation to ineffective or inappropriately applied health care practices (Elshaug, 2009). Two case studies have been identified for this purpose:

- Assisted Reproductive Technology (ART) for women over 42 years of age
- Upper airway surgical procedures for adult Obstructive Sleep Apnoea (OSA)

As this study has only just commenced, it is too early for results.

3.4.5.6 Conclusion

There are few formal mechanisms for undertaking explicit disinvestment activities. There are several case studies, and a range of less formal mechanisms, but few health authorities have developed active processes. Active disinvestment has generally been removal of funding for ineffective and/or unsafe technologies, usually initiated by new evidence of inefficacy or harm. Disinvestment is more likely to be passive, ie driven by changes in medical practice, as a procedure or treatment gradually falls out of use over time. There are very few instances of disinvestment, or appraisal for disinvestment, driven by considerations of cost-effectiveness. There are considerable difficulties implementing disinvestment in ineffective health care practices which include lack or resources for research into established technologies, and inadequate resources and lack of political, clinical and administrative will to support the disinvestment process (Elshaug, et al., 2007; Pearson and Littlejohns, 2007).

In the case of new technologies, there is a clear incentive for initiating an appraisal, particularly when the HTA process is linked to funding/reimbursement. For existing technologies, new reports of harm or lack of efficacy can initiate an appraisal. Otherwise, there is an option value for clinicians and patients in having the technology available and funded. It is important to recognise that an active program or strategy of disinvestment will create losses, to clinicians, to consumers and to providers of the technology. At the same time, the additional benefits and/or savings from any disinvestments may not be realised for a considerable period of time and there is a risk that, for some products, interventions or services, cost savings, in particular, may not be realised. Moreover, the gains from disinvestment are likely to be more diffuse and less readily specified than any losses. Hence losers have a stronger incentive to lobby for the continuation of the status quo, than gainers do for effecting the change.

4 Strategies for identifying candidate technologies for disinvestment

There are no clearly defined administrative processes for identifying candidate technologies for disinvestment, other than new evidence of harm or safety concerns, Elshaug et al (2009) suggest criteria by which priorities for disinvestment review might be assessed. The challenge for the policy agency is where to start, given the thousands of separate interventions currently available. That leads to consideration of other means by which appraisal of existing technologies might be triggered. In this section we consider the recent US exercise in comparative effectiveness reviews (CER) and the development of a list of candidate technologies, research into medical practice variations, and PBMA.

4.1.1 Comparative Effectiveness Research

Comparative Effectiveness Research (CER) is the term used to describe the new $1.1 billion initiative funded in the US as part of the American Recovery and Reinvestment Act 2009 (i.e. the fiscal stimulus measures enacted in response to the global financial crisis). It will encompass a number of agencies and programs, including developing the appropriate skills and expertise in the workforce. Comparative Effectiveness is the systematic appraisal of the benefits and risks of alternative treatments and other health care interventions (e.g. screening). The inclusion of costs in the appraisal is not explicit. Although some have argued that it is implicit and will lead to cost driven decision making, others point out that Medicare is prohibited by legislation from considering relative costs in the reimbursement decisions (Congress of the United States Congressional Budget Office, 2007).

One component of the program is the development of a list of priority topics. This has been completed by the Institute of Medicine, and published in June 2009. The list was developed using nominations from health professionals, consumer advocates, policy analysts and others. 1268 topics were reduced to the priority list by considering burden of disease, variability, gaps in knowledge and the likelihood of improving health. In addition to individual interventions, the recommended priority list includes the delivery of services and systems of care (Congress of the United States Congressional Budget Office, 2007). Thus, the development of the candidate topics was a major exercise in itself.

CER is another term for the HTA processes already used in other countries, including Australia, as acknowledged by the Congressional Budget Office (CBO), but relatively unrecognised in most of the literature. Similar evaluations have been conducted in the US by the Agency for Health Research and Quality (AHRQ). There is no proposal to link CER results to funding decisions but rather the provision of this information is expected to change clinician behaviour. The experience of other countries and low rates of success in using information alone to change clinical practice has not been recognised. However, with the additional substantial investment in the US, there will be increasing interest in CER (Congress of the United States Congressional Budget Office, 2007)

As our previous report HTA pointed out (CHERE, 2008), HTA is most effective when linked to funding decisions. The current US situation is particularly volatile; attempts by the Obama administration to introduce universal health cover are delicately balanced between criticisms of the additional cost of providing more cover and of the move to “socialised medicine” where government dictates what treatments doctors may provide.

4.1.2 Research into clinical practice variations

Variations in the use of health services and per capita expenditure have been observed widely, over countries and over time (see CHERE Report to Treasury *Variations in health care costs and utilisation, 2008)*. There is evidence for variations across regions within a country, but also by insurance status, socio-economic status, medical practitioner and delivery organisation (e.g. hospital). Considerable variation in health care use is expected and driven by differences in health status. Further variation in the use of health services may be due to several factors:

- Differences in the costs faced by patients/consumers including travel and time costs as well as non-reimbursed components of health care fees;
- Differences in patient/consumer preferences;
- Differences in the availability of health care resources;
- Differences in provider behaviour.

Differences in per capita expenditure will be driven by differences in use as well as:

- Differences in input costs (e.g. labour costs may vary regionally)
- Differences in efficiency.

Variations are problematic for several reasons. Regional variations may represent widespread inefficiencies in the health care system, due to the over provision of treatment of the provision of ineffective or unnecessary care. There is substantial persistent evidence of medical practice variations which are unexplained by health need.

There is a large literature which is relevant to understanding and exploring this topic, including much clinical and condition specific studies. There is Australian evidence of variations in practice across jurisdictions, across Divisions of General Practice, and across hospitals. Cross-jurisdictional variations may hide substantial intra-jurisdictional variation. However, there has been relatively little systematic investigation into practice variations in Australia. The availability of rich data sets which allow analysis on the basis of small areas is essential to research in this field, as is the research capacity to allow rigorous analysis (Hall, 2008). Systematic investigations of practice variations may identify candidate technologies for disinvestment.

4.1.3 Program Budgeting and Marginal Analysis

Program Budgeting and Marginal Analysis (PBMA) is one of a number of frameworks designed to incorporate an assessment of the costs and benefits of alternatives within a management context of planning and priority setting (other examples are ACE, Health Sector Wide Disease Based Model, Health Benefits Group/Health Resource Group,). PBMA has been used for over 30 years in the health sector. It was first developed in the 1950s and 60s for use in the United States defence force, as a way of tabulating expenditure data in different ways to provide information on what was being spent and in what manner (Mitton, et al., 2003b). PBMA attempts to pragmatically weight research evidence with local data and expert opinion to establish how resources are currently being used and how any changes in resource use can be made, through redistribution, reduction, or expansion of services (Mitton and Donaldson, 2001). It considers both costs and outcomes incurred by alternative uses of limited resources.

PBMA creates a management process into which results from standard economic evaluations and other evidence can be incorporated (Ruta, et al., 2005) by using the best available data to estimate the resource costs and outputs for each program. Outputs are quantified in terms of readily available measures, for example numbers of patients treated or numbers of visits. This step is then carried out across different programs and within each program (Viney, et al., 1995). The information requirements include:

- Activity data which should provide a summary of the services within a given period for the program(s) considered.

- Cost data at the service level is particularly important. This data should discriminate between the fixed and variable costs of providing a given service. This allows the estimation of incremental costs associated with service reductions or developments. Of secondary importance is cost data at the patient level. This data could also be derived from the literature.

Benefits or outcomes from services should ideally be obtained from published literature. This could include economic evaluations, health technology assessments, regional or state policies and guidelines and reports from government health departments. When published evidence is not available PBMA may also use expert opinion (Peacock, 1998). In some instances primary data collection might be needed (Mitton, et al., 2004). Applications of PBMA in health have concentrated on three types of program structure, defined by (Peacock and Edwards, 1997):

- Service group programs (eg women, the elderly). To date these programs have been used in a significant number of PBMA studies. Service or client groups are the main focus of the exercise. This provides a clearer focus on health gain, however, this approach can create problems when allocating costs from different treatment areas.

- Specialty based (eg general surgery, orthopaedics). These have been the most common PBMA studies (Bate, et al., 2007; Henderson and Scott, 2001; Mitton, et al., 2003a). In these studies marginal changes are assessed within a single program. According to Peacock the focus of these studies has been on shorter term goals, rather than strategic long term planning (Peacock and Edwards, 1997).

- Diseased based programs (eg cardiovascular disease, see for example (Carter, et al., 2000; Haas, et al., 2001; Halma, et al., 2004)).One of the drawback of the disease based program is that it may be difficult to allocate costs to diseases from available local data.

PBMA is a relatively resource-intensive activity. As such, it requires the commitment and cooperation of clinicians and managers, sometimes from competing programs. Further, it has been noted that, in the marginal analysis stage of PBMA, activities for investment are identified far more readily than are those for disinvestment. Finally, the results of a PBMA exercise are able to be implemented most successfully when those involved have control of the budget and the means of implementing the decisions (Haas, et al., 2008). Indeed, as PBMA relies on clinicians to identify areas of disinvestment, there is no incentive for them to do so if the freed resources will be lost to them.

5 Disinvestment and Efficiency - Challenges

This review of models for disinvestment has not identified any well established processes. Although there is considerable interest in disinvestment, there are problems in identifying which technologies should be considered for disinvestment, and strong incentives to retain existing technologies. Other barriers identified, include scientific, political and ethical challenges. Disinvestment does occur, but generally as a result of existing treatments or other interventions falling into disfavour. An alternative approach to proactive disinvestment of specific technologies is to encourage more rapid change in medical practice. This leads to a much broader consideration of current strategies for

health care reform which can be categorised as changing provider information, changing incentives, changing consumer behaviour, or changing structures.

5.1 Information to clincians

The production of guidelines and the results of clinical practice variations may trigger policies and strategies to change practice which may include the need to disinvest in particular interventions or practices. Guidelines and other approaches of evidence-based medicine attempt to change clinician behaviour by improving their knowledge. Promulgating information about medical practice variations (discussed above) attempts to change behaviour by peer comparison.

Clinical practice guidelines are systematically developed statements that assist clinicians, consumers and policy makers to make appropriate health care decisions. Such guidelines present statements of 'best practice' based on a thorough evaluation of the evidence from published research studies on the outcomes of treatment or other health care procedures. The NHMRC recommends that guidelines should be developed by a multidisciplinary committee, the initial tasks of which are to determine the need for, and scope of, the guidelines, define the purpose and target audience and identify the health outcomes that will improve as a result of their implementation.

In the development of guidelines, it is important to consider both the effectiveness and the costs of health care options. In its advice regarding the inclusion of economic evidence as part of guideline development, the NHMRC suggests that eliminating ineffective clinical practice is good for individuals undergoing health care, but it is also good for society, as health care spending is not wasted on ineffective care. Clearly, the health of the population may be improved if spending on health care can be directed to effective options. Within the context of this report, the overall question is whether proposed clinical practice guidelines lead to a more efficient allocation of scarce health care resources. Thus, in developing guidelines, the cost (i.e. resource use) as well as the effectiveness of the health care options available should be considered, in order to ensure:

- greater health gains for less cost;
- the same health gain for less cost; or
- greater health gain for an additional cost deemed worth paying.

Implementation and dissemination of guidelines also have resource implications. A new clinical practice may cost more than the current practice (e.g. if there is an effective health care option for patients who are currently untreated) or less (e.g. if a treatment is replaced by a less expensive treatment). Estimating the net cost of the new practice also requires some prediction of the success of the guideline in changing practice. Unless there is 100% adoption of the proposed practice, the costs of new practice patterns will not be the same as the anticipated cost of the guideline practice. There may also be a budget constraint that affects the implementation of clinical practice guidelines — identifying cost-effective practice per se does not necessarily mean that a proposed guideline is affordable within a current budget. For example, it may be that a procedure or treatment that is cost-effective when considered against other options on a per person basis has to be so widely applied (e.g. as in a population screening program) that the costs would exceed the available health care budget.

The guideline dissemination process also has associated costs and an economic evaluation can be used to analyse alternative strategies of dissemination to determine the most cost-effective approach. The total cost of the process is the cost of the guideline formulation plus the cost of dissemination and this cost can be compared with the costs of changing from current to new practice patterns. The greater the cost savings in changing practice, the greater the amount that is worth spending on dissemination. The cost-effectiveness of a particular guideline can be assessed by the estimated change in health outcomes for the net costs, that is, the cost of development and dissemination plus any additional costs of new practice patterns (National Health and Medical Research Council (NHMRC), 2001).

5.2 Incentives for clinicans

There is increasing interest in the use of payment mechanisms to improve health system efficiency. The approach can be described as a move away from paying clinicians for what they do, do paying for improved health outcomes. The problem is that it is difficult to reward better outcomes directly, as there are many influences beyond medical care that affect final outcomes and considerable time between the medical intervention and the outcome. Thus in practice, incentives have been directed towards reinforcing appropriate care. In the UK, this has been implemented through the Quality and Outcomes Framework, under which GPs are rewarded for achievement of nearly 200 specified indicators. This has had a substantial effect on GP incomes, but the evidence on whether it has improved practice and led to better outcomes is inconclusive. In the US, such schemes have been implemented in many settings, under the description of ‘pay for performance’ or P4P. Increasingly results are becoming available from the evaluation of pilot schemes. This is a rapidly developing field of research and would require a separate review project to summarise.

5.3 Changing consumer behaviour

Another strand of reform approaches emphasises the role of consumers. The objective is to make consumers more informed and therefore wiser purchasers of their own care. Some schemes are directed towards consumers decision about insurance, but these require a competitive insurance market. This is the rationale for the managed competition reforms being implemented in the Netherlands, Switzerland and to a lesser extent other countries. Other schemes are directed towards consumers’ choice of clinician, hospital and/or treatment. One approach is to provide consumers with accessible and comparable information on provider performance. The other is to use financial incentives, usually higher co-payments, to reinforce the choice of preferred providers. Again, there is a substantial field of research and to review it adequately would require a separate project.

5.4 Changing health care structures

There is also increasing interest in how organizational structures can hinder or facilitate health system performance. Organisational structures which are thought to provide stronger incentives for purchasing efficient care are the GP as gatekeeper to other specialized services, requiring enrollment for primary care to encourage comprehensive care and co-ordination, to the idea of a medical home. These

organizational structures can also be reinforced by financial incentives, from capitation, blended payments through to budget holding. This is a major field of development and evaluation.

6 Appendices

6.1 HTA organisations

Country	Name of the Agency
ARGENTINA	Institute for Clinical Effectiveness and Health Policy (IECS)
AUSTRALIA	Adelaide Health Technology Assessment (AHTA) Australian Safety and Efficacy Register of New Interventional Procedures – Surgical (ASERNIP-S) Medical Services Advisory Committee (MSAC) Pharmaceutical Benefits Advisory Committee (PBAC)
AUSTRIA	Ludwig Boltzmann Institut für Health Technology Assessment
BELGIUM	Belgian Health Care Knowledge Centre
BRAZIL	Departamento de Ciência e Tecnologia (DECIT)
CANADA	Agence d'Evaluation des Technologies et des Modes d'Intervention en Santé (AETMIS) British Columbia Office of Health Technology Assessment (BCOHTA) Canadian Coordinating Office for Health Technology Assessment (CCOHTA) Canadian Agency for Drugs and Technologies in Health (CADTH) includes the Common Drug Review (CDR) Ontario Medical Advisory Secretariat & Ontario Health Technology Advisory Committee (OHTAC) Program for Assessment of Technology in Health (PATH)
CHILE	Departamento de Economía de la Salud, División de Planificación Sanitaria
DENMARK	Centre for Applied Health Services Research and Technology Assessment, University of Southern Denmark, CAST (AP) Danish Institute for Health Services Research (DSI) Danish Institute for Evaluation and HTA (DACEHTA)
FINLAND	Finnish Office for Health Technology Assessment (FinOHTA)
FRANCE	Committee for Evaluation and Diffusion of Innovative Techniques (CEDIT) Haute Autorité de santé (HAS) /French National Authority for Health
GERMANY	German Agency for Health Technology Assessment (DAHTA) The German Institute for Quality and Efficiency in Health Care (IQWIG)
HUNGARY	Unit of Health Economics and Technology Research Assessment (HunHTA)
IRELAND	Interim Health Information and Quality Authority (iHIQA)
ISRAEL	Israeli Center for Technology Assessment in Health Care, The Gertner Institute
ITALY	Agenzia Sanitaria Regionale (ASR) Regione Veneto
LATVIA	Health Statistics and Medical Technologies State Agency (VSMTA)
MEXICO	Centro Nacional de Excelencia Tecnológica en Salud (CENETEC)

NETHERLANDS	Health Council of the Netherlands Gezondheidsraad Netherlands Organisation for Health Research and Development (ZonMw)
NEW ZEALAND	New Zealand Health Technology Assessment (NZHTA) The Pharmaceutical Management Agency of New Zealand (PHARMAC)
NORWAY	Norwegian Knowledge Centre for the Health Services (NOKC)
POLAND	Agencja Oceny Technologii Medycznych (AHTAPol), Agency for HTA in Poland Central and Eastern European Society for Technology Assessment in Health Care (CEESTAHC)
SPAIN	Agencia de Evaluación de Tecnologías Sanitarias, Instituto de Salud Carlos III / Health Technology Assessment Agency (AETS) Andalusian Agency for Health Technology Assessment (AETSA) Catalan Agency for Health Technology Assessment (CAHTA) Galician Agency for Health Technology Assessment Basque Office for Health Technology Assessment, (OSTEBA) Unidad de Evaluación de Tecnologías Sanitarias, Agencia Laín Entralgo
SWEDEN	Swedish Council on Technology Assessment in Health Care (SBU) Center for Medical Technology (CMT) Assessment, Department of Health and Society
SWITZERLAND	Swiss Network on Health Technology Assessment (SNHTA)
UNITED KINGDOM	Health Technology Board for Scotland National Health Service Health Technology Assessment (UK) / National Coordinating Centre for Health Technology Assessment (NCCHTA) National Institute for Health and Clinical Excellence (NICE)
UNITED STATES	Agency for Healthcare Research and Quality (AHRQ) U.S. Blue Cross/ Blue Shield Association (BCBSIL) Technology Evaluation Centre (TEC) Veterans' Affairs Technology Assessment Program (VATAP) Interregional New Technologies Committee, Kaiser Permanente

6.2 Search history

EMBASE, Ovid MEDLINE (R) In-Process, other Non-Indexed Citations, Ovid MEDLINE (R)

1	disinvestment. mp	70
2	ineffective intervention$	81
3	1 or 2	151
4	remove duplicates from 3	105
5	from 4 keep 9, 12-15, 19-21, 25-26, 29, 32-34….	36

Other key words used that did not expand the results included:

- obsolete*
- outmoded*
- superseded*
- delist*

6.3 Health technology disinvestment: test, drugs, clinical prtactice - Report of the workshop organised by Southern Health and the Victorian Department of Human Services.

The workshop was held in Melbourne on Thursday the 27th of August. Associate Professor Wayne Ramsey, Executive Director Medical Services and Quality at Southern Health introduced the workshop and welcomed the participants who included, clinicians, pharmacists, health policy and health service researchers and policy makers.

The policy perspective and introduction to the topic was presented by Dr. Adam Elshaug and Prof. Janet Hiller from the Adelaide Health Technology Assessment, The University of Adelaide. The presenters provided a brief history of disinvestment, the challenges faced and international models currently available (some of these have already been discussed and are part of the main body of this report). Most details from this presentation will soon be published by Elshaug and colleagues. Dr. Elshaug also presented results of a case study - airway surgery for obstructive sleep apnea and used it as an example of disinvestment at the national level. After the presentation participants gathered in small groups and were asked to discuss the criteria that are best suited for identifying and prioritising candidates for disinvestment.

The Health Economics Perspective was presented by Dr. Duncan Mortimer and Prof. Anthony Harris from the Centre for Health Economics, Monash University. Dr. Mortimer described the problem of allocating funding solely on the basis of effectiveness since this implies that 'money is no object'. Instead there is typically some concern with value for money and the trade-off between costs and benefits. He highlighted the role of economic evaluation in helping make these trade-offs more explicit so that informed choices can be made. He presented the "effectiveness plane" and used three hypothetical technologies to describe how economic evaluation can provide useful information to guide disinvestment decisions. Results from a discrete choice experiment eliciting consumer's preference for Government investment were also presented. Prof Harris used recently released data from clinical studies on vertebroplasty for painful osteoporotic vertebral fractures to illustrate the challenges facing disinvestment at the national level in Australia.

The local health service perspective was presented by Dr. Claire Harris and Ian Larmour from Southern Health. Dr. Harris presented results from a literature review looking at definitions of disinvestment and models. She concluded that there are different ways of looking at this concept; for such differences, is that there is no absolute measure of or operational criteria for disinvestment. She also described the aims of the SHARE report. Mr. Larmour presented results on the Therapeutic Evaluation Program (TEP), an initiative by the Pharmacy Department of Southern Health. Topics such as changing prescriber behaviour and adherence to guidelines, including reports of some initial success were included but are yet to be published.

Panel discussion on decision making in the absence of evidence was facilitated by Adam Elshaug and Janet Hiller. The challenge for decision makers is how to balance the cost of waiting for better evidence against the cost of acting prematurely. Dr. Elshaug presented some results from a qualitative research project exploring decision maker's views on the topic. The discussion then moved to dealing with uncertainty and the issue of funding technologies when there is absence of evidence.

The final remarks were provided by Richard King from the Centre for Clinical Effectiveness, Southern Health.

Small group discussions were held on each one of the topics presented. Results from these discussions are not available. The SHARE Team at Southern Health is writing the workshop report and this will be available on the Victorian Department of Human Services website along with the workshop presentation slides.

In summary most of the initiatives presented (as well as the references used during the workshop) had already been identified by the literature review which forms the subject of this report. The workshop highlighted the lack of published data on disinvestment and the growing interest in the topic. Participants were also asked about the need to have a disinvestment annual conference to present results from disinvestment projects or to have disinvestment sessions at appropriate conferences. There was also a call for a seminar and/or workshop to be held on a yearly basis.

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