Identifying existing health care services that do not provide value for money

Adam G Elshaug, John R Moss, Peter Littlejohns, Jonathan Karnon, Tracy L Merlin and Janet E Hiller

ABSTRACT

- Health systems can be improved appreciably by making them more efficient and accountable, and enhancing the quality of care, without necessarily requiring additional resources.
- Australia, like other nations, cannot escape making difficult health care choices in the context of resource scarcity, and the challenge of delivering quality care, informed by best available evidence, to an ageing population with multiple comorbidities.
- An opportunity exists for a cost-saving or cost-neutral agenda of reallocation of resources within the existing health budget, through reducing the use of existing health care interventions that offer little or no benefit relative to the cost of their public subsidy. This would allow reallocation of funding towards interventions that are more cost-effective, maximising health gain.
- Criteria based on those developed for health technology assessment (HTA) might facilitate the systematic and transparent identification of existing, potentially ineffective practices on which to prioritise candidates for assessment as to their cost-effectiveness.
- The process could be jointly funded by all relevant stakeholders but centrally administered, with HTA groups resourced to undertake identification and assessment and to liaise with clinicians, consumers and funding stakeholders.

Potentially ineffective health care practices

A policy of identifying and assessing ineffective or non-cost-effective practices, reducing their existing use (and redirecting those resources) undoubtedly represents an option for improving sustainability and quality in health care. However, Australia has a poor track record in achieving this, particularly outside the area of pharmaceutical assessment. A significant challenge is the need for, and requisite development of, a fair and systematic method to identify practices for which assessment is appropriate, based on an agreed framework. Failure to undertake this in a systematic and transparent manner has the potential to entrench stakeholder resistance. Mechanisms already exist to identify interventions that can be demonstrated to be harmful or ineffective before they are adopted in Australia. As well as enhancing and extending these mechanisms to consider interventions in current use, a further step would be to identify interventions that, although safe and effective, are not sufficiently cost-effective to warrant widespread use in routine practice.

Box 1 lists examples from a 2008 report from the Institute of Medicine in the United States of widely adopted health interventions now deemed “ineffective or harmful”, although arguably the list focuses on those that are harmful. Additional items are shown in Box 2 where the concern is less about safety and more about clinical and financial aspects.

In Australia, one projection of total health expenditure (in 2002–03 dollars) envisages an increase from $71.4 billion in 2002–03 to $162.3 billion in 2032–33. As a proportion of total gross domestic product (GDP), this represents an increase from 9.4% in 2002–03 to 10.8% in 2032–33 — an annual growth of 0.5% above the overall economic growth rate. Coupled with this projected increase in cost are concerns for the sustainability and quality of the Australian health care system. Debate continues on projected increase in cost are concerns for the sustainability and quality of the Australian health care system.5 Debate continues on projected increase in cost are concerns for the sustainability and quality of the Australian health care system.5 Debate continues on projected increase in cost are concerns for the sustainability and quality of the Australian health care system.5 Debate continues on projected increase in cost are concerns for the sustainability and quality of the Australian health care system.5 Debate continues on projected increase in cost are concerns for the sustainability and quality of the Australian health care system.5 Debate continues on projected increase in cost are concerns for the sustainability and quality of the Australian health care system.5 Debate continues on projected increase in cost are concerns for the sustainability and quality of the Australian health care system.5 Debate continues on projected increase in cost are concerns for the sustainability and quality of the Australian health care system.5 Debate continues on projected increase in cost are concerns for the sustainability and quality of the Australian health care system.5 Debate continues on projected increase in cost are concerns for the sustainability and quality of the Australian health care system.5 Debate continues on projected increase in cost are concerns for the sustainability and quality of the Australian health care system.5
1 Examples of health interventions widely adopted in the United States but now deemed ineffective or harmful

- Autologous bone marrow transplant with high-dose chemotherapy for advanced breast cancer
- Diethylstilbestrol (DES) to prevent miscarriage
- Electronic fetal monitoring during labour without access to fetal scalp sampling
- Episiotomy (routine) for birth
- Extracranial–intracranial bypass to reduce the risk of ischaemic stroke
- Gastric bubble for morbid obesity
- Gastric freezing for peptic ulcer disease
- Hydralazine for chronic heart failure
- Lidocaine to prevent arrhythmia and sudden death in acute myocardial infarction
- Mammary artery ligation for coronary artery disease
- Optic nerve decompression surgery for non-arteritic anterior ischaemic optic neuropathy
- Quinidine for suppressing recurrences of atrial fibrillation
- Radiation therapy for acne
- Monitoring uterine activity at home to prevent preterm birth
- Supplemental oxygen for healthy premature babies
- Thalidomide for sedation in pregnant women
- Triparanol (MER-29) for cholesterol reduction
- Chelation therapy to prevent or reverse atherosclerosis
- Spinal manipulation to treat migraine or cluster headaches
- Traction to treat low-back pain
- Antihistamines and oral decongestants to treat otitis media with effusion
- Fenfluramine plus phentermine to treat obesity
- Subcutaneous interferon alfa-2a to treat age-related macular degeneration


2 Health care practices and the context for suggesting they are candidates for formal assessment as possibly ineffective or non-cost-effective*

Antidepressant medications in treatment of mild–moderate depression

Context: A meta-analysis/regression of 35 trials (n = 5133) showed that drug–placebo differences in antidepressant efficacy increased as a function of baseline severity but were relatively small, even for patients with severe depression. The relationship between initial severity and antidepressant efficacy was attributable to decreased responsiveness to placebo among those with severe depression, rather than to increased medication responsiveness. (Kirsch et al, 2008.12)

Tympanostomy tubes (ear grommets) for fluid in the inner ear in children

Context: 6000 children with no known risk factors for developmental delay were followed up from infancy to age 11 years; those with persisting fluid were assigned to early insertion of tubes or to delayed surgery, 9 months later (no surgery if cleared in the interim). For otherwise healthy children, waiting and watching for up to a year or longer did no harm to any aspect of the child’s development, including learning abilities. (Paradise et al, 2007.13)

Implantable cardioverter defibrillators for ischaemic cardiomyopathy

Context: A microvolt T-wave alternans (MTWA) test can discriminate who will or will not benefit from implantable cardioverter defibrillators. All 768 patients with ischaemic cardiomyopathy underwent MTWA, but test results were not used in patient management. Half went on to defibrillator implantation, with 3-year follow-up. The authors suggested that, if the test were used on most defibrillator candidates, up to a third could be spared implantation, without increasing their risk of sudden death. (Chow et al, 2007.14)

Overprescribing of proton-pump inhibitors for dyspepsia

Context: An editorial claimed that studies consistently show proton-pump inhibitors are being overprescribed worldwide in primary and secondary care. Between 25% and 70% of patients taking these drugs have no appropriate indication. Proton-pump inhibitors cost more than other agents, yet effective and less expensive alternative drugs, such as H2-receptor antagonists, are available. (Forgacs and Loganayagam, 2008.15)

Tension-free repair versus watchful waiting for inguinal hernia

Context: Six community and academic centres examined costs, quality-adjusted life-years, and cost-effectiveness at 2 years of follow-up (n = 724 men, randomised). At 2 years, watchful waiting was a cost-effective treatment option for men with minimal or no hernia symptoms. (Stroupe et al, 2006.16)

Upper airway surgery for obstructive sleep apnoea in adults

Context: The intervention is resource-intensive with a high degree of clinical heterogeneity, and low and inconsistent clinical effectiveness. Cost-effective, non-invasive treatments are available. Over 60% of recipients report pain and persistent adverse side effects, with almost a quarter regretting surgery. Success rates are improved with multilevel procedures, but many patients do not persist. (Elishaugh et al, 2008.17)

* Text paraphrased from original abstract or report.

Towards a framework for identifying and prioritising practices for assessment

Items listed in Box 2 have attracted much debate regarding whether (or to what extent) their use is justified in modern, subsidised health care. To ensure a maximally productive debate, any process for selecting health care practices with a view to evaluating them for displacement should follow a protocol with pre-specified, transparent selection criteria.

In the field of health technology assessment (HTA), criteria have been developed for determining priorities for assessing individual new or emerging health interventions. In Box 3, we build on these criteria to propose a framework to facilitate systematic and transparent identification of existing, potentially cost-ineffective practices. The categories in this framework are a guide for identifying technologies that warrant evaluation. Box 4 explores criteria that might inform the prioritisation of candidates for detailed assessment.

From evidence to policy to practice

Two key questions remain. First, who should be responsible for funding, oversight, assessment, decision making, and implementation in this process? Second, after selection, assessment and a decision, should reductions in use be sought through the development and implementation of clinical practice guidelines and/or

---

270 MJA • Volume 190 Number 5 • 2 March 2009
New evidence: New evidence on safety, effectiveness and/or cost-effectiveness may come to light that changes previously held conclusions and is sufficiently useful for decision making. Sources include subsequent trials, cumulative meta-analyses, post-market surveillance, audits and registry data. It could also include longer-term datasets, where evidence becomes available on patient-relevant outcomes, rather than surrogate outcomes used previously; and developments in diagnostic parameters (and treatment outcome measures) that have undergone evidence-based reclassification.

Geographic variations in care: Geographic variations (eg, the Dartmouth Atlas of Health Care), after adjusting for demographics and location of centres of excellence, suggest differences in clinical opinion about the value of the interventions.

Provider variations in care: Clinical heterogeneity of procedure, where the choice of intervention varies (eg, surgical variation) for the same class of disease or condition (seek coupling with evidence of a long learning curve, and inconsistent or operator-dependent safety and effectiveness).

Temporal variations in volume: A trend in item volume between time-points (eg, 2, 3 or 5 years), of a substantial percentage (say 30%, 50% or 80%). Most often this is a decrease. An increase after adjusting for trends in incidence may flag “leakage” (usage beyond the restriction/indication) or indication “creep”.

Technology development: When an intervention has evolved to the point that it differs markedly from the initial or prototype intervention that was originally assessed or funded, then the initial intervention should be reviewed (eg, 256-slice compared with four-slice computed tomography). Note: this may be identified as a volume variation if marketing data are used, but not if the data source is a Medicare item number (Medicare describes the service, not the technical indications for undertaking that service). Perhaps an indicator that the unit cost of the intervention may be increasing unduly.

Public interest or controversy: Expressions (to media, letters to editors, enquiry submissions) from patients, consumer advocacy and support groups, and community groups, highlighting negative (or ineffective) experiences following treatment. To be substantiated by evidence.

Consultation: Consultation with clinical, nursing, allied health and technical staff, health care administrators and funders (including both public and private health insurance).

Nomination: A process (potentially anonymous) established where individuals, associations and colleges (from medical, nursing, research, allied health or the general public) could nominate interventions and justify their choice. To be substantiated by evidence.

Assess new intervention — displace old: When a new intervention is presented to the relevant committee(s) for regulatory assessment, and is considered a potential replacement for (an) established comparator(s) for that indication, then that comparator for that patient indication is automatically considered and assessed for disinvestment.

Leakage: Technology use (with reimbursement) outside the evidence-based indications (see also Temporal variations, above).

Legacy items: Long-established technologies that have never had their cost-effectiveness assessed — look for coupling with other identification items.

Conflict with guidelines: Where practice is inconsistent with clinical practice guidelines, clinical college position statements, Cochrane Review recommendations (and where there is no Cochrane Review on that technology).

* Items adapted from criteria for health technology assessment, including horizon scanning processes.19

The report concludes that “these are not reasons not to ask the difficult questions nor to shy away from making unpopular recommendations”. Given these sensitivities, a framework such as the one proposed here may improve consultation, transparency and overall governance.

If governments, the professions and the community really want and expect a “better” health system, then it is time to start asking questions about resource reallocation, in a spirit of transparency, with an explicit statement of values, and supported by a systematic and evidence-informed framework. The answers have the potential to enhance the sustainability and quality of health care.

Acknowledgements
Adam Elshaug is supported by a Hanson Institute Research Fellowship from the Institute of Medical and Veterinary Science, Adelaide. We thank the anonymous reviewers for their thoughtful and constructive comments on an earlier version of this manuscript.

Competing interests
Janet Hiller is Director, Tracy Merlin is Manager, and Adam Elshaug is a Fellow of Adelaide Health Technology Assessment (AHTA), which is contracted to complete evaluations of health technologies. John Moss provides health technology assessments to the Australian Government as a consultant. In all other respects, we declare we have no competing interests.

Author details
Adam G Elshaug, BSc(Hons), MPH, PhD, Hanson Research Fellow,1,2 and Lecturer3
John R Moss, MSocSci, FCHSE, FPAA, Associate Professor and Head3
Peter Littlejohns, MD, FFPH, FRCP, Professor and Clinical and Public Health Director6
Jonathan Karnon, BA(Hons), MSc, PhD, Associate Professor of Health Economics2
Tracy L Merlin, BA(Hons), MHP, Manager,1 and Senior Lecturer3
Janet E Hiller, MPH, PhD, FPAA, Director,1 Member,2 Professor,3 and Deputy Head6
1 Adelaide Health Technology Assessment, Discipline of Public Health, University of Adelaide, Adelaide, SA.
2 Hanson Institute, Institute of Medical and Veterinary Science, Adelaide, SA.
3 Discipline of Public Health, University of Adelaide, Adelaide, SA.
4 National Institute for Health and Clinical Excellence (NICE), London, UK.
5 School of Population Health and Clinical Practice, University of Adelaide, Adelaide, SA.
Correspondence: adam.elshaug@adelaide.edu.au

References
12 Kirsch I, Deacon BJ, Huedo-Medina TB, et al. Initial severity and antide-
pressant benefits: a meta-analysis of data submitted to the Food and Drug
Administration. PLoS Medicine 2008; 5: e45. doi: 10.1371/journ-
al.pmed.0050045.
13 Paradise JL, Feldman HM, Campbell TF, et al. Tympanostomy tubes and
developmental outcomes at 9 to 11 years of age. N Engl J Med 2007; 356:
248-261.
14 Chow T, Kereiakes DJ, Bartone C, et al. Microvolt T-wave alternans
identifies patients with ischemic cardiomyopathy who benefit from
implantable cardioverter-defibrillator therapy. J Am Coll Cardiol 2007; 49:
50-58.
15 Forgacs I, Loganayagam A. Over-prescribing proton pump inhibitors. BMJ
waiting for men with asymptomatic or minimally symptomatic inguinal
17 Elshaug AG, Moss JR, Hiller JE, Maddern GJ. Upper airway surgery should
not be first line treatment for obstructive sleep apnoea in adults. BMJ
18 Canadian Agency for Drugs and Technologies in Health. CADTH: topic
identification, prioritization and refinement. CADTH: HTA directorate pro-
19 Mundy L, Merlin T, Parella A, et al. The Australia and New Zealand horizon
20 Wennberg JE. Unwarranted variations in healthcare delivery: implications
21 Chalkidou K, Walley T, Culyer A, et al. Evidence-informed evidence-
23 Medical Services Advisory Committee. Report of a review of the Medical
Services Advisory Committee. Canberra: Australian Government Depart-
ment of Health and Ageing, 2005.
24 Gafni A, Birch S. Incremental cost-effectiveness ratios (ICERs): the silence
25 Kelly M. National Institute for Health and Clinical Excellence. Centre for
Public Health Excellence. Public health programmes and interventions and

(Received 28 May 2008, accepted 21 Aug 2008)