

Ten clinician-driven strategies for maximising value of Australian health care

Ian Scott MBBS, FRACP, MHA, MEd, Director of Internal Medicine and Clinical Epidemiology, Associate Professor of Medicine

Princess Alexandra Hospital, Ipswich Road, Woolloongabba, Qld 4102, Australia.
 Email: ian.scott@health.qld.gov.au

Abstract

Objective. To articulate the concept of high-value care (i.e. clinically relevant, patient-important benefit at lowest possible cost) and suggest strategies by which clinicians can promote such care in rendering the Australian healthcare system more affordable and sustainable.

Methods. Strategies were developed by the author based on personal experience in clinical practice, evidence-based medicine and quality improvement. Relevant literature was reviewed in retrieving studies supporting each strategy.

Results. Ten strategies were developed: (1) minimise errors in diagnosis; (2) discontinue low- or no-value practices that provide little benefit or cause harm; (3) defer the use of unproven interventions; (4) select care options according to comparative cost-effectiveness; (5) target clinical interventions to those who derive greatest benefit; (6) adopt a more conservative approach nearing the end of life; (7) actively involve patients in shared decision making and self-management; (8) minimise day-to-day operational waste; (9) convert healthcare institutions into rapidly learning organisations; and (10) advocate for integrated patient care across all clinical settings.

Conclusions. Clinicians and their professional organisations, in partnership with managers, can implement strategies capable of maximising value and sustainability of health care in Australia.

What is known about this topic? Value-based care has emerged as a unitary concept that integrates quality and cost, and is being increasingly used to inform healthcare policy making and reform.

What does this paper add? There is scant literature that translates the concept of high value care into actionable enhancement strategies for clinicians in everyday practice settings. This article provides 10 strategies with supporting studies in an attempt to fill this gap.

What are the implications for practitioners? If all practitioners, in partnership with healthcare managers, attempted to enact all 10 strategies in their workplaces, a significant quantum of healthcare resources could be redirected from low- to high-value care, culminating in much greater health benefit from the healthcare dollars currently being spent. However, such reforms will require a shift in clinician thinking and practice away from volume-based care to value-based care.

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Introduction

Health care in Australia is at a crossroads. In 2009, the Australian Hospital and Health Reform Commission (HHRC)¹ noted marked variations in care, suboptimal safety and reliability, fragmentation and discontinuity of care, and unsustainable cost increases. Subsequent studies confirm substantial overuse, under-use and misuse of clinical interventions.^{2,3} In the US, approximately 30% of healthcare expenditure is wasted on activities that add no value to care;⁴ the corresponding figure for Australia is unknown, but is likely to be significant. Medicare rebate payments bear little relationship to the health benefits of schedule items, private health insurance premiums continue to rise, many patients face increasing out-of-pocket medical expenses and may soon elect to forego essential care,⁵ and timely access to emergency care and urgent elective surgery in many locales is

suboptimal.⁶ The productivity of the healthcare workforce, despite a >20% increase in numbers and higher salaries over the past 10 years,⁷ has remained relatively static. Gains in life expectancy and reduction in disability burden since 2000 have flattened out considerably compared with the previous half century.⁷ This is despite healthcare expenditure in Australia in 2011–12 growing from 8.2% of gross domestic product (GDP) just 10 years ago to 9.3% now, representing a 68% increase in annual spending (priced in 2001 dollars) from A\$77.5 billion to A\$130 billion.⁸ The annual growth in expenditure of 6.8% has far exceeded annual growth in GDP of 3.5%. In recent times, state and federal budget deficits have evoked cuts in hospital funding, closure of beds and services, retrenchment of front-line clinical staff and rising numbers of unemployed medical graduates.

Effects of remedial strategies to date

The political window for substantive, bipartisan healthcare reform based on the blueprint offered by the HHRC¹ seems to have passed. The limited commitments to changes in federal and state funding relativities for hospitals and primary care, and the creation of new organisational entities of hospital and health services and Medicare Locals, have yet to show discernible impact on routine care. Hospitalisation persists as a commonly used default care option in the absence of more appropriate models of care in alternative settings.⁹

Strategies for optimising health care have been pursued, including hospital redesign projects, quality and safety standards and improvement programs, financial incentives, e-health initiatives, clinical practice guidelines and performance measurement and reporting. Unfortunately, for virtually all these initiatives, evidence of overall effectiveness and sustainability remains limited.^{10–14} Others¹⁵ argue instead for more resources to augment existing ‘business as usual’ models of care delivery (despite no consistent relationship between their quality and cost¹⁶), enhanced professional education and remuneration, and less ‘red tape’ and poor governance from politicians and bureaucrats.

The need for clinicians to lead efforts to maximise the value of healthcare

The author believes current budgetary fixes to healthcare overspend constitute temporary stop-gaps with little long-term impact, whereas organisational restructuring mostly tinkers at the edges and fails to achieve transformational change. What is required is a fundamental shift of medical practice to maximising high-value care (i.e. care conferring patient-important clinical benefit at lowest per unit cost).¹⁷ This requires clinicians from all disciplines to show leadership and critically appraise the value of current practice and take concerted action, in partnership with healthcare managers, towards minimising inappropriate and costly (i.e. low-value) care and maximising highly appropriate, less expensive (i.e. high-value) care.¹⁸

Methods

Based on personal experience in specialist clinical practice, evidence-based medicine and quality improvement, strategies were developed by the author that, in combination, could maximise high-value care and render health care more affordable and sustainable. Relevant literature was reviewed in retrieving studies supporting each strategy.

Results and discussion

Ten strategies were developed, as detailed below and summarised in Box 1.

Minimise errors in diagnosis

Cases of delayed, missed and incorrect diagnosis occur with an incidence of between 10% and 20% of clinical encounters.¹⁹ Such misdiagnosis results in unnecessary and costly care, with additional litigation costs incurred when serious adverse outcomes ensue. Most errors result from primary defects in clinical reasoning, particularly with regard to undifferentiated clinical presentations. Only in approximately 25% of cases do ‘system’ errors (related to test ordering and result reporting) predominate

over reasoning errors, despite much attention being given to the former.¹⁹ Greater awareness and acknowledgement of reasoning errors and more training in cognitive and behavioural techniques for minimising reasoning error²⁰ are needed in the curricula of medical schools and speciality colleges.

Overdiagnosis, that is diagnosing ‘diseases’ that do not materially impact on patient longevity or quality of life, is also becoming increasingly prevalent, with rates as high as 30% for breast cancer screening. This has resulted from the greater use of increasingly sensitive diagnostic and screening tests, more liberal disease definitions and more testing in patients with low to very low pretest probability of disease.²¹ Such overdiagnosis leads to wasteful and potentially harmful overtreatment. Clinicians must acquire a better appreciation of the natural (untreated) history of this expanded spectrum of disease, the risks and consequences of ‘false-positive’ tests and the benefits and harms of active intervention on early stage or self-limiting disease affecting patients with an otherwise good prognosis.²¹

Discontinue low- or no-value practices that provide little benefit or cause harm

Long-standing clinical practices must be disowned if new evidence reveals they now constitute waste. Between 30% and 50% of contemporary trials that test established practices show that the practices confer little or no benefit, in contradiction to prevailing assumptions.²² Examples include percutaneous coronary artery intervention in stable, non-critical coronary artery disease,²³ facility-based cardiac rehabilitation programs following myocardial infarction,²⁴ vertebroplasty for acute osteoporotic fracture²⁵ and blood glucose self-monitoring in stable type 2 diabetes.²⁶ Such discredited practices tend to persist, often for years,²⁷ sustained sometimes by vested commercial interests, but more often by strongly held professional beliefs.²⁸ Requests for investigations such as vitamin B₁₂, folate²⁹ and vitamin D³⁰ assays, and computed tomography (CT) scans for back pain and chest diseases³¹ have surged in recent years despite considerable doubt as to their usefulness to decision making. In response, more than 50 speciality colleges in the US, as part of a national *Choosing Wisely* campaign, have identified more than 250 low- or no-value interventions relating to common clinical scenarios,³² which they recommend their colleagues desist in providing. In Australia, researchers have identified more than 150 high-volume Medicare Benefits Schedule (MBS) items of potentially low value.³³ Speciality colleges in this country would do well to emulate the US campaign and engage their constituencies in identifying and discouraging ineffective care.

Defer the use of unproven interventions

Widespread use of new interventions should be avoided in circumstances where their effectiveness and safety remain uncertain. Examples of premature adoption of new technologies include endovascular intervention in acute stroke,³⁴ use of CT coronary angiography³⁵ and high-sensitivity cardiac troponin assays³⁶ in assessment of acute chest pain and renal denervation in treatment-resistant hypertension.³⁷ Another problem is ‘indication creep’, whereby proof-of-benefit in selected patient groups is extrapolated uncritically to a wider spectrum of patients. Overseas studies suggest many implantations of costly devices,

such as cardioverter–defibrillators,³⁸ resynchronisation pacemakers³⁹ and transcatheter aortic valves,⁴⁰ involve unproven indications. Both scenarios can lead to harm being done to some patients and resources being wasted. Expert opinion leaders and clinical guideline panels must provide accurate and unbiased evidence reviews of new technologies and only recommend their use in routine practice in situations where their benefits and harms in specific patient populations have been definitively elucidated on the basis of robust evidence from clinical trials and registries.

Select care options according to comparative cost-effectiveness

Many care standards entail high-intensity management regimens as opposed to less intense and expensive regimens that can be just as safe and effective.⁴¹ Examples of ‘less is more’ include low-dose intravenous bolus injections of proton pump inhibitors versus continuous high-dose infusions in bleeding peptic ulcers,⁴² short (5 days) versus standard (≥ 10 days) duration oral steroids in acute exacerbations of chronic obstructive pulmonary disease,⁴³ short (2–4 days) versus standard (7–14 days) duration antibiotics in paediatric urinary tract infections⁴⁴ and clinically indicated versus routine (every 72 h) replacement of intravenous cannulas.⁴⁵

Where different interventions are available for the same disease, the less cost-effective options are often chosen under the influence of commercial interests or regulatory requirements. Historical examples include a preference for expensive renin–angiotensin–aldosterone system antagonists and calcium channel blockers over cheaper thiazide diuretics as first-line agents in the treatment of essential hypertension,⁴⁶ for naltrexone or acamprosate over supervised disulfiram in the treatment of alcohol dependence,⁴⁷ heparin and glycoprotein inhibitors over bivalirudin or fondaparinux in percutaneous coronary intervention^{48,49} and time-consuming risk assessment tools over experienced nurse judgements in evaluating pressure ulcer risk.⁵⁰

The American College of Physicians in the US⁵¹ and the British Thoracic Society in the UK⁵² are educating their members in the principles of comparative cost-effectiveness and leading demonstration projects aimed at maximising the cost-effective use of technologies. Australian colleges should do likewise in fostering greater adoption of a ‘less is more’ reappraisal of existing practice and developing lists of alternative, more cost-effective interventions applicable to commonly encountered clinical scenarios.

Target clinical interventions to those who derive greatest benefit

Patients at highest absolute risk of adverse events due to common diseases, such as acute coronary syndromes (ACS) and non-valvular atrial fibrillation (NVAF), often receive the lowest treatment intensity, even after accounting for treatment-specific contraindications.^{53,54} Maximising treatment benefit while minimising treatment harm requires better targeting of interventions to individual patients by using risk prediction rules that accurately quantify benefit–harm trade-offs. For example, in the case of patients with NVAF, using the CHADS2 (congestive heart failure, hypertension, age >75 , diabetes mellitus, and prior stroke

or transient ischaemic attack (doubled)) score⁵⁵ (risk of stroke if not treated) and the HAS-BLED (hypertension, abnormal renal/liver function, stroke, bleeding history or predisposition, labile INR (international normalised ratio), elderly, drugs/alcohol concomitantly) score⁵⁶ (risk of bleeding if treated with anticoagulants) directs treatment to those who are likely to attract the maximum net gain. With regard to primary cardiovascular disease (CVD) prevention, expensive statins are prescribed to many people at low absolute risk ($<10\%$ CVD event rate over 10 years) on the basis of isolated elevations in serum lipids,⁵⁷ whereas more clinical benefit would be gained for the same outlays if such treatment was directed preferentially at those at high risk ($>20\%$ event rate over 10 years),⁵⁸ including those with established CVD. Achieving optimal risk factor modification and drug use in all patients with recent ACS would reduce hospital readmissions for recurrent ACS-related complications within 1 year by almost half.⁵⁹

Adopt a more conservative approach nearing the end of life

Approximately 30% of healthcare budgets are spent on patient care in the last year of life, with acute care in the final month accounting for one-third of this expenditure.⁶⁰ Almost two-thirds of terminally ill people for whom home or hospice palliative care would be appropriate die in hospital,⁶¹ often receiving heroic interventions. In one study, 25% of beds in 69 intensive care units (ICUs) were occupied by patients whom attending intensivists perceived as receiving inappropriate care.⁶²

A more conservative or palliative approach to end-of-life care has been shown, in the case of patients with advanced cancer, to prolong survival, improve symptoms, avoid invasive care, reduce hospital stays and lower costs (by up to one-third⁶³) compared with more aggressive care.⁶⁴ Similar outcomes are possible if advance care planning was systematically applied to patients with end-stage chronic diseases.⁶⁵ In one study, such an approach reduced both days and costs of hospitalisation in the last year of life by almost one-third.⁶⁶ Inappropriate overinvestigation and over-treatment of older patients with multimorbidity can be minimised by management approaches that integrate care-specific benefit–harm trade-offs with life expectancy, care goals and patients’ values and preferences.⁶⁷

Actively involve patients in shared decision making and self-management

Empowering patients to actively participate in decision making and self-management appears to reduce demand for some forms of care.⁶⁸ As many as 20% of patients who actively participate in discussions using decision aids choose less invasive and costly interventions than those who do not.⁶⁹ In one study, providing decision aids to patients potentially eligible for hip and knee replacements reduced surgeries by up to 38% and costs by up to 21% over 6 months.⁷⁰ In another study, shared decision making across a range of conditions facilitated by regular contact with trained health coaches resulted in 13% fewer hospital admissions, 10% reduction in preference-sensitive surgeries and 5% lower overall medical costs compared with usual care.⁷¹ Patients with chronic diseases, such as diabetes, heart failure and asthma, and who are poorly ‘activated’ (i.e. lacking skills and confidence in

Box 1. Summary of strategies for clinician-driven healthcare reform

1. Minimise errors in diagnosis

- Delayed, missed and incorrect diagnosis
 - i. Foster greater awareness and acknowledgement of reasoning errors
 - ii. Include more training in cognitive and behavioural techniques for minimising reasoning error in curricula of medical schools and speciality colleges
- Overdiagnosis
 - i. Gain a better understanding of the natural (untreated) history of expanded spectra of disease
 - ii. Appreciate the risk and consequences of ‘false-positive’ tests
 - iii. Define the benefits and harms of intervention on early stage or self-limiting disease in patients with otherwise good prognosis

2. Discontinue low- or no-value practices that provide little benefit or cause harm

- Speciality colleges and professional societies should identify and promulgate lists of low- or no-value interventions
- Campaigns similar to *Choosing Wisely* in the US should be mounted that inform clinicians and their patients as to the lack of benefit of scenario-specific interventions and discourage their use

3. Defer use of unproven interventions

- Expert opinion leaders and clinical guideline panels must provide accurate and unbiased evidence reviews of new technologies
- Recommendations for use in routine practice should be restricted to specific circumstances where patient-specific benefits and harms have been definitively elucidated on the basis of robust evidence from clinical trials and registries

4. Select care options according to comparative cost-effectiveness

- Speciality colleges should educate their members in the principles of comparative cost-effectiveness and lead demonstration projects aimed at maximising the cost-effective use of technologies
- Speciality colleges should develop and promulgate lists of alternative, more cost-effective interventions applicable to commonly encountered clinical scenarios

5. Target clinical interventions to those who derive greatest benefit

- Promote greater use of risk prediction rules that estimate absolute disease risk in individual patients and quantify benefit–harm trade-offs of specific interventions
- Target interventions to those individuals who have maximum absolute net gain, with specific attention to secondary prevention interventions in patients with common, highly-morbid diseases

6. Adopt a more conservative approach nearing the end of life

- Institute advance care planning and focus on early palliation in patients with end-stage chronic diseases
- Avoid inappropriate overinvestigation and over-treatment of older patients with multimorbidities using management approaches that integrate care-specific benefit–harm trade-offs with life expectancy, care goals and patients’ values and preferences

7. Actively involve patients in shared decision-making and self-management

- Empower patients to actively participate in shared decision making and self-management
- Use decision aids, tailored coaching and self-management programs to increase patient engagement in, and adherence to, management decisions

8. Minimise day-to-day operational waste

- Use waste reduction tools to identify areas of waste and prioritise and implement waste-reduction initiatives
- Assist managers in: negotiating supply contracts, drug formularies and device and prosthesis inventories; standardising and, where possible, automating ‘low-order’ clinical and non-clinical tasks; reconfiguring job descriptions and remuneration arrangements (where appropriate) to better align cost with value; and implementing quality and safety improvement interventions of proven value

9. Convert health care institutions into rapidly learning organisations

- Cultivate clinician-innovators who can develop, implement, re-evaluate and readjust changes in clinical practice in response to identified deficiencies

- Promote clinician-led action research that allows work flow and clinician acceptability to be built into the iterative development process
- Accelerate creation and diffusion of value-adding innovation within rapid learning healthcare organisations that constantly measure and benchmark outcomes of care, make changes to improve care and re-evaluate

10. Advocate for integrated systems of care that maximise value

- Design and promote integrated practice units that encompass all essential skills and services required over the full cycle of care for specific medical conditions
- Include outpatient and inpatient care, testing, education and coaching, rehabilitation, end-of-life care and home support services within the same actual or virtual organisation
- Prioritise the delivery of high-value prevention, wellness, screening and health maintenance services at the primary care level, integrated with relevant specialist providers
- Align professional roles and service configuration with population care requirements

managing their own diseases) demonstrate worse outcomes at higher cost⁷² (up to 12% higher per capita cost⁷³) than those who are highly activated, after adjusting for demographic characteristics and illness severity. Interventions such as coaching tailored to a patient's level of activation can increase activation levels, improve health indicators and reduce costs.^{74,75} At the population level, whole communities, comprising both current and future patients, could be engaged by way of citizen juries in discussions around what constitutes value-added, preference-sensitive care choices for common clinical scenarios.⁷⁶

Minimise day-to-day operational waste

Considerable aggregate waste exists in everyday healthcare operations in a variety of forms, including: (1) unnecessary investigations, such as duplicating tests already performed in other laboratories, retesting within short time intervals, requesting overinclusive test batteries and needless preoperative tests; (2) misused treatments, such as continuing treatments when the original indication has lapsed or incorrect drug administration (wrong dose, duration or route of administration); (3) avoidable defects in care delivery, such as health care-associated infections, late cancellations of elective surgery and preventable adverse drug events; (4) wasteful inventories, such as using expensive patented medicines rather than cheaper generic brands,⁷⁷ using costly devices and prostheses rather than less costly alternatives and using disposable equipment and apparel rather than reusable items; and (5) inefficient work practices, whereby highly-skilled, highly-paid clinicians perform low-order, administrative and other non-clinical tasks that could be abandoned, automated or delegated to lower-paid workers.⁷⁸ Much of this waste not only incurs costs due to delays in care or redoing previous work, but also results in patient harm and dissatisfaction.

The Institute of Healthcare Improvement in the US has produced a 'waste reduction tool' that provides a snapshot of potential areas of waste within a hospital, as identified by frontline clinical staff.⁷⁹ Using this snapshot, representatives of the clinician community, finance department and hospital executive engage in detailed analysis of the findings to prioritise and implement waste reduction initiatives. Several US hospitals have reported more efficient use of nursing hours and bed days, fewer complications and readmissions, lower costs and improved clinical outcomes across a range of clinical services.^{80,81} A recent

report from the Grattan Institute estimated A\$928 million of avoidable costs within Australian public hospitals each year as a result of unusually high length of stay, supply prices, numbers of tests and treatments per patient, staffing ratios and overhead costs.⁸² Another report from the same institute estimated savings of \$420 million per year resulting from greater substitution of lower-order tasks by nursing and allied health assistants and specialist nurses in anaesthesia and endoscopy.⁸³ At a local level, in the author's institution, a program of drug use optimisation resulted in savings of A\$1.18 million over 8 months.

Clinicians must collaborate with managers in negotiating supply contracts, drug formularies and device and prosthesis inventories; developing and auditing care protocols; standardising and, where possible, automating 'low-order' clinical and non-clinical tasks; reconfiguring job descriptions and remuneration arrangements (where appropriate) to better align value and cost; and implementing quality and safety improvement programs of proven value.⁸⁴

Convert health care institutions into rapidly learning organisations

Conventional research based on formal, highly protocolised controlled trials is often too slow and expensive in solving many care delivery problems.⁸⁵ More can be gained from cultivating clinician-innovators, acting either independently or as part of multisite collaborations, who develop, implement, re-evaluate and readjust changes in clinical practice in response to deficiencies they themselves have discerned within existing practice based on reliable measurements and feedback. This clinician-led 'in the field' action research allows work flow and clinician acceptability to be built into the iterative process while minimising time or money foregone in the event of failure. Such an approach underpinned highly successful programs for preventing catheter-related bloodstream infections in ICUs⁸⁶ and reducing operating theatre mishaps,⁸⁷ with resultant cost savings.

In accelerating this creation and diffusion of value-adding innovation, healthcare institutions, whether they be hospitals or general practitioner clinics, must become rapid learning organisations that constantly measure and compare costs and outcomes of care with those of their peers, make changes to improve and re-evaluate.⁸⁸ Costs and outcomes must be measured longitudinally over the full cycle of care for a medical condition, not separately

for each intervention, and outcomes include not only survival, but also the degree and sustainability of health or recovery achieved, the time taken for recovery and any care-related harms.⁸⁹ Rapidly learning organisations both evolve improved care internally and proactively look for, and import (with local adaptation), innovations from others. They feature clinical information systems and business intelligence units that collect, analyse and report cost and clinical data in real time. They seek out and collaborate with other like-minded organisations and try to integrate patient-centred care across all sectors of healthcare. Organisations such as these have been shown to deliver high-value care at lower costs.^{90,91}

Advocate for integrated systems of care that maximise value

The way the healthcare system is currently organised is inefficient in meeting the present and future care needs of the population, especially the chronically ill with multimorbidities.⁶ ‘Siloed’ clinical care and increasing super-specialisation has diminished accessibility and coordination of care for such patients, allowed unnecessary duplication of services and suboptimal health outcomes, and retarded the adoption of more effective, generalist-based models of care.⁴ Patients want their clinicians to take a holistic, rather than a disease-based, approach to their care and coordinate and communicate it across care settings.⁹² The current system of uncoordinated, sequential visits to multiple clinicians, departments and specialties works against value. Instead, integrated, team-based practice units are needed that encompass all essential skills and services required over the full cycle of care for common medical conditions and their related comorbidities. Such units should include outpatient and inpatient care, testing, education and coaching, rehabilitation, end-of-life care and home support services within the same actual or virtual organisation. More emphasis needs to be given to delivering high-value prevention, wellness, screening and health maintenance services at the primary care level, integrated with relevant specialist providers.⁹³

Examples of such integrated practice include area-wide hospital substitution programs,⁹⁴ hospital-wide patient flow programs,⁹⁵ reconfigured emergency–acute care systems based on patient complexity and urgency,^{96,97} collaborative primary care specialist teams based in non-hospital settings caring for patients with chronic diseases,^{98,99} primary care substitution of specialist services¹⁰⁰ and multidisciplinary, patient-centred medical homes.¹⁰¹

Conclusion

The challenge to clinicians of maximising value of care should not be underestimated, given entrenched beliefs and potentially legitimate concerns of some that established practices regarded as beneficial could be subject to premature disinvestment in response to new utilisation metrics (linked to pay-for-performance and quality assurance programs) that have not been properly validated. Nevertheless, only clinicians and their professional organisations can enact the above set of interdependent strategies for improving value, because ultimately value is determined by how medicine is practiced. Although system-level remedies for cost containment proposed by organisational analysts are not without merit,¹⁰² clinicians must lead efforts to maximise high-value care. If they fail to do so, then looming

insolvency of the healthcare system amidst grid-locked professional self-interest and conservatism may cause governments to consider severe cost-cutting measures, rationing of services, cumbersome remuneration formulas and major limits to professional autonomy that could inflict serious harm on the populations they serve.

Competing interests

None declared.

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