Is modern medicine at risk of losing the plot?

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ABSTRACT

- Contemporary medicine has much to its credit, but has created an insatiable demand for new technologies and more health services, fed by commercial promotion, professional advocacy and sociopolitical pressure.
- Total health expenditure at the national level is now almost 10% of gross domestic product and is expected to top 16% by 2020.
- After recent inquiries into the failings of its public health system, the Queensland Government has committed itself to a 25% increase in expenditure on health over the next 5 years. But will it lead to better population health, and is it sustainable?
- The return-on-investment curve for modern health care may be flattening out, in an environment of growing numbers of older patients with chronic illnesses, maldistribution of services and hospital overcrowding.
- A change in thinking is required if current medical practice is to avoid imploding when confronted with the next major economic downturn.
- Health policy, service funding and clinical training must focus on critical appraisal of the effectiveness of health care technologies and the structure and financing of health care systems.
- Practising clinicians will be obliged to provide leadership in determining value for money in the choice of health care for specific patient populations and how that care is delivered.

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Contemporary medicine has much to its credit. Substantial reductions in mortality from cardiovascular disease due to the advent of antithrombotic drugs, antihypertensive agents, angiotensin-converting enzyme inhibitors and statins; better treatments for peptic ulcer disease; joint replacement operations that alleviate pain and disability; organ transplantations that maintain life and function; and vaccines that can prevent or ameliorate cancer are but a few examples.

However, the flipside of such advances is that they create expectations among both clinicians and the public that, given enough resources and will, the ravages of all major diseases can be prevented or cured by medical technology. More health care, more hospitals and more medical services becomes the catchcry.

Demand for new medical technology is insatiable, perhaps more so among the "baby boomers". Patients and practitioners expect clinicians to always be able to "do something", even if it is of little value.[1] We want every test or treatment that might be helpful (especially when confronted with advanced or terminal illness), without much regard for cost, expecting that public or private insurance will cover it. We fall victim to commercial marketing and media hype that seek to metamorphose every new drug or device into a "breakthrough", "miracle cure" or "major advance",[2] even though over 80% of new treatments are mere copies or slight modifications of existing therapies that confer little extra benefit but add more cost.[3,4]

The role of clinicians

As busy clinicians caring for individual patients, we tend to absolve ourselves of the responsibility to get involved in debates about cost-effectiveness and health spending at a population level. Our professional ethic demands we do all we can for the patient in front of us within the parameters of the existing health care system, even though this may compromise our *next* patient's chances of receiving care for which the indications are unassailable. Can we continue to remain aloof from the "dirty work" of deciding how a finite resource — the health budget — should be spent? Can we simply go on expecting governments and health funds to spend more?

The answer to both questions is "no". While rises in general inflation rates, population ageing, administrative inefficiencies and the practice of defensive medicine are often blamed for burgeoning health costs, it is new medical technology, especially hospital care and pharmaceuticals, that underpins more than a third of the growth in health costs over the past decade.[5] Individual clinicians, as operators, prescribers and gatekeepers, drive this expenditure, with patients contributing less than 20% of total health spending in the form of the Medicare levy and health insurance premiums.[6]

Health care spending: how much is enough?

Total spending on health care in Australia rose to $78.6 billion for 2003–04, or 9.7% of gross domestic product (GDP), compared with 8.3% in 1993–94, and is predicted to top 16% by 2020.[6] This includes growth in spending in real terms by state and federal governments, with current annual growth rates (5.8% and 5.4%, respectively) easily outstripping economic growth.[6]

Recent events in Queensland serve as a test case for what will very soon be played out in the rest of the nation at both levels of government. In light of findings of the 2005 Morris and Davies inquiries into the Bundaberg Hospital scandal[7] and the Forster inquiry into Queensland Health,[8] Premier Peter Beattie has committed to an additional $9.7 billion of health funding in Queensland over the next 5 years — a 25% increase over current expenditure levels — at the same time that population growth is expected to average no more than 2.5% per annum.[9] The money is being spent on higher salaries and new positions for public hospital staff, on assets and equipment, and on providing more surgical operations and pharmaceuticals. This follows the $2.8 billion spent on hospital redevelopment in Queensland between 1992 and 2004.[8]

While acknowledging the need for "catch-up" in Queensland, given its 14% lower rate of per capita spending on health compared to the national average before 2005,[9] it is fair to ask whether this significant increase in funding will yield proportionate improvements in service delivery and health outcomes. For example, early indications are that, owing to rising demand, increased expenditure on elective surgery over the 8 months to June 2006 has not been matched with a commensurate reduction

in length of waiting lists for operations.[10] Studies in the United States show that neither quality of care nor patient outcomes necessarily improve as more is spent on health care; indeed, the reverse may happen.[11,12] Is this order of funding sustainable? Probably not. Potential revenue raisers, such as means-testing and copayments for elective procedures, health care levies applied to rates notices, and a "migration tax" on emigrants to Queensland, will likely raise no more than $380 million per year, compared with the planned annual spending of more than $1.5 billion on health.[13] Even with recent state budget surpluses, unless the Queensland economy grows by more than 4.0% every year, significant increases in general taxation will be required to sustain this level of funding if sizeable deficits are to be avoided.[13]

Private health insurance funds that pay for private hospital services face a similar dilemma as they struggle to maintain profitability,[14] relying heavily on government subsidy, by way of tax-rebated premiums, to stay afloat. Payments for hospital benefits in 2004–05 alone amounted to $5.75 billion, an increase of 8.1% on the previous year, and since 2001, insurance premiums have increased by 39% despite an increase in contributor numbers in that time of less than 2% and annual inflation rates of less than 3%.[15]

The law of diminishing returns

Something has to give. The return-on-investment curve for modern medicine may be starting to flatten out. We are confronted with growing numbers of older patients with more comorbidity for whom treatment risk–benefit ratios are less favourable than in previous generations. Insufficient provision of primary, residential, rehabilitative, community and palliative care for such patients has led to more people requiring hospital admission by default, with resultant overcrowding and worsening access block within these institutions.[16] Up to a quarter of the health budget is spent on inpatient care of people during the last 18 months of life in the absence of any real prospects of extending overall survival or quality of life.[17] Many of these patients might fare better with palliative care, nursing support and appropriately conservative medical therapy in the community, hospice or nursing home rather than spending their last days in hospitals receiving invasive but ultimately futile interventions.[18]

The rise in average life expectancy for non-Indigenous Australians from 55 to 75 years over the last century has come mainly from reductions in infant and child mortality and in deaths at middle age from acute cardiovascular events.[19] About half of this gain is due to better preventive care and healthier lifestyles, and the remainder to acute medical care. More of the population is surviving into old age with chronic illnesses, many with precarious functional capacity and poor quality of life.[20] At the same time, the rising prevalence of obesity, diabetes, mental health disorders (particularly depression), cancer, hypertension, renal disease, heart failure and alcohol and substance misuse (and related diseases) may curtail further gains in life expectancy,[19] even though much of this growing disease burden is mediated by lifestyle factors and is therefore potentially avoidable.

The overall effectiveness of modern health care is also open to challenge. Care directed at minor illnesses or risk factors, normal ageing effects (such as balding) and the "worried well" results in less, not more, population health.[21] Studies suggest that, in the modern era, the number of patients who need to be treated to save one life or prevent one morbid event can be in the hundreds to thousands for elective procedures such as coronary revasacularisation,[22] breast cancer screening[23] and surgery for localised prostate cancer.[24] For other procedures, such as arthroscopy[25] and caesarean section,[26] the procedure may have no impact on symptoms or natural history. Conversely, between 20%[27,28] and 45%[29] of eligible people miss out on effective interventions for treating or preventing common and serious conditions such as acute coronary syndromes, heart failure and stroke. Health care itself incurs a direct cost in this country of up to $2 billion a year in dealing with health care-related adverse events, combined with another $400 million a year in legal and compensation expenses.[30] This bill is likely to continue rising as health care becomes more complex and vulnerable to error. A growing number of respected clinician-researchers, who are by no means modern-day Ivan Illich-style doomsayers, seek to educate us about the diminishing returns on investment in modern health care[31-33] and the gaping holes in potentially fruitful areas of health care research that fail to attract sponsorship from industry, government or academia.[34]

More worryingly, external threats to our health and to that of future generations may overwhelm any further gains in population health that derive from health care. Potential threats especially relevant to our part of the world include the effects of global warming, prolonged drought and water shortages, land salination, international pandemics, family breakdown, work-related stress, and socioeconomic inequities. In terms of preventive health, public policies regarding access to alcohol, food quality and nutritional value, water recycling, education, housing, the work environment, child health, injury prevention and marital counselling might yield, in aggregate, a larger dividend in improved population health than would eventuate from huge additional investments in clinical medicine. If so, the former deserve wider advocacy and perhaps a greater share of GDP.[35] Implementing effective policies in these areas is particularly urgent with regard to improving the health of Indigenous populations, the mentally ill and the homeless.

The calm before the storm

Future referenda or federal elections, or even the next Queensland state election, may reveal that voters are happy to have their taxes progressively increased to pay for more health care. But they may not be aware of the law of diminishing returns. If they were, they might resist rises in taxation at both levels of government, in which case, relative expenditure on health services would, at some point, need to be capped. Alternatively, other government sectors, such as education, social security or defence, would have to be deprived of funding to keep the health care sector solvent.

In times of relative prosperity, as we presently have in Australia, the need for reform may not be accepted while health care in its current form continues to be perceived by most as being affordable, equitable and safe. But when, not if, the next economic downturn materialises, there will be no escape. Hard decisions will then need to be made as to whether the country can afford chemotherapy for every case of advanced cancer, intensive care for every severely premature baby, drug-eluting stents for every patient with symptomatic coronary disease, dialysis for every patient with end-stage renal disease, or an implantable cardioverter-defibrillator for every patient with heart failure.

At the moment, rationing of care, when it occurs, is informal, ad hoc, highly variable and based on little systematic application of

Questions and possible responses relevant to modern medicine

1. How well do clinical interventions really work in prolonging life and/or tangibly improving states of health valued as important by patients?

- Interventions for specific clinical conditions that reduce all-cause mortality in absolute terms by less than 1%, reduce major non-fatal events by less than 2%, reduce relapse (or remission failure) rates by less than 10%, or do not confer a minimal clinically important change in symptom relief or quality of life should be suspended unless completely harmless and of negligible cost.
- Operative procedures for which adverse outcomes vary inversely with procedural volume should only be undertaken in high-volume, high-expertise centres.

2. For whom and under what circumstances do interventions work best and confer the least harm?

- Patient populations that will achieve the largest absolute net gains in health as a result of a specific intervention should be given priority in receiving that care.

3. Which interventions should be subsidised?*

- Any intervention that fails to meet criteria listed in the response to Question 1 should not be subsidised.*
- Decisions about the order of priority for subsidising interventions should be made on the basis of cost-effectiveness analysis and the relative population burden of illness and disability attributable to the target disease.

4. Should patients be trained and motivated to take more responsibility for their own wellbeing and to manage their own illnesses?

- In clinical circumstances in which counselling and behavioural strategies, self-management schemes and rehabilitation programs have been shown to be as effective as (or more effective than) drugs or operations, and entail less or equal cost, they should be promoted and subsidised* if meeting the criteria of Question 1.
- People who do not smoke or misuse alcohol or illicit drugs and who maintain normal bodyweight should be able, with a doctor's certification, to apply annually for a rebate of a portion of their Medicare levy and a discount on health insurance premiums.

5. Who, within or beyond the clinical professions, is best fit to deliver care efficiently and safely?

- In clinical circumstances in which delivery of specific forms of care by non-traditional caregivers has been shown to be as effective as, or more effective than, traditional caregivers, at less cost and with no increase in harm, the former should be supported and subsidised.*

6. When might social and public health legislation aimed at preventing disease and injury yield better returns than clinical care in improving population health?

- In circumstances in which preventive social and public health strategies aimed at whole populations have been found to be as effective as, or more effective than, clinical care of incipient or established disease in individual patients for preventing ill health, such strategies should take precedence over clinical care if they are of equal or lower cost.

7. How might the different elements of health care — general practice, hospital care, community care, residential and palliative care — be structured, coordinated and funded to maximise return on investment in health care?

- The current federal/state split in funding and administration of different elements of health care should be abolished and replaced by a federal system of funding systems of integrated care delivered and administered at a regional or area level.
- Public–private partnerships should be promoted in circumstances in which delivery of high-level services (such as emergency medicine and intensive care) to defined populations cannot be provided by one or both sectors acting independently because of prohibitive cost or unavailability of personnel.
- Every citizen should be registered with a single general practitioner (or group practice) who would be responsible for overseeing a comprehensive care package that included health promotion and illness prevention in addition to acute care interventions and procedures.
- A national, unique patient identifier system linking the GP register mentioned above with all key health care databases (ABS, AIHW, Medicare Australia, PBS and death registries), combined with an opt-in patient-held health information card, should be advocated to enable timely delivery of safe and effective care, minimise the incidence of unnecessary (and potentially harmful) tests and treatments, and allow longitudinal epidemiological data to be gathered for assessing long-term effects of health care.

ABS = Australian Bureau of Statistics. AIHW = Australian Institute of Health and Welfare. PBS = Pharmaceutical Benefits Scheme.

* In this context, subsidisation refers to funding from either public or private sources. ◆

cost-effectiveness analysis (with the notable exception of the approach used by the Pharmaceutical Benefits Advisory Committee in selecting drugs for subsidisation under the Pharmaceutical Benefits Scheme). The care people receive may be more dependent on where they live, who their doctor is, what health insurance they have, and how wealthy they are.[36] A system of health care that denies people equitable access to care for which clinical indications and expected net benefit are in no doubt has failed its purpose for existing.

Governments (both state and federal) and health funds may try in future to relinquish more of their responsibility over how money is spent and seek to transfer it to, or at least share it with, clinicians. Clinician-led fundholding within managed care schemes, clinical service networks and primary care or district trusts may be seen as the only viable mechanism for enticing clinicians to be more directly accountable to the public for health care expenditure and delivery,[37] despite its reported drawbacks.[38] Such initiatives may oblige clinician groups to consider the relative value of each other's areas of practice. Going by the tortuous history in the 1990s of the Relative Value Study into medical professional remuneration levels in Australia,[39] this will prove to be a very challenging exercise.

Improving return on investment

No single policy or reform strategy will avoid the day of reckoning between benefit, access and affordability. As exemplified by changes to medical indemnity legislation, only mass action and

public advocacy by practising clinicians will achieve lasting solutions. History tells us not to expect a master plan or blueprint to emerge from "on high" that will transform health care. Every clinician must assume his or her share of professional responsibility in prioritising and targeting health care in everyday clinical practice and in justifying this approach in interactions with other stakeholders, whether they be industry bodies, the media, regulatory agencies, governments, research groups, medical educators or the lay public.

In both contexts, the questions and suggested responses listed in the Box, while controversial, may stimulate needed debate. Getting answers to these questions will require every clinician to be versed in the applied sciences of clinical epidemiology and systems analysis, combined with a concerted effort at filling the gaps in the evidence base underpinning much of our current clinical practice.

As stewards of a limited and perhaps dwindling resource, clinicians must reconcile conflicting social interests: providing care of proven value or real promise to the right recipient in the right manner and setting, while at the same time restricting access to unproven or marginally effective new technology for which patient safety, efficacy and return on investment have not been established. Now is the time to seriously reflect on how to fulfil this obligation if we are to avoid the prospect of dealing, unprepared, with an externally imposed crisis in which governments and funders further abdicate the policy-making platform and we, as clinicians, are left holding the can.

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Competing interests

None identified.

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