issues brief

Deeble Institute for Health Policy Research

title	Can value-based health care support health equity?

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Key messages

- Governments and public-funded health organisations should establish cross-sector partnerships with health, community and social services as they implement value-based health care initiatives.

- Planning for and developing appropriate responses to equity issues should be specifically designed into funding arrangements to ensure cost transparency backed up by tangible actions to reduce health inequities and improve health equity.

- To achieve greater public value for health investment, commissioning decisions should be informed by data that identifies health disparities.

- To achieve greater public value for health investment, Commonwealth, state and territory health departments, Primary Health Networks, and health service providers must make more deliberate efforts to address health disparities through their commissioning decisions.

- Data linkage and analysis of community, health and social services data should be prioritised in order to drive better health outcomes for individuals and the community, and to achieve greater personal and public value.

- As new technologies and treatments are funded, consideration must be given to ensuring value both at an individual level and at a public level, including how equity will be promoted.

Executive summary

This paper explores equity in the context of value-based health care strategies and health care reforms currently being implemented or considered in Australia. It draws on international experience and research and proposes matters for more detailed consideration by health policy makers as reforms are developed and implemented.

It considers whether value-based health care strategies can strengthen health equity in Australia and reviews the tools available to policy makers to implement equity-focused health reform.

Funding and governance arrangements are acknowledged as a platform for strengthening the health system, and the opportunities presented through the negotiation of the 2020-25 National Health Agreement are highlighted.

Data development, collection, reporting and linkage across the sectors that contribute to health determinants will support data-driven decision-making and efforts to address variation in health care, and ensure greater transparency and accountability for government funding decisions.

Service design efforts must include codesign and patient engagement strategies to promote both value and equity in health care.

Effort must be focused not only on health services as they are currently delivered, but also on emerging treatments and therapies, to ensure that the benefits of innovation and research investment are realised across the population, not just by those who can afford to pay for these, otherwise there is a significant risk that Australia's universal health system, which already demonstrates levels of inequity, will be further eroded.

Recommendations are provided to support the achievement of greater public value for health investment as hospitals, health services and governments implement value-based health care reforms.

1   Introduction

Health equity and associated disparities exist in Australia, notwithstanding a long history of universal healthcare through Medicare and public hospital services. Inequity of health care and health care outcomes is experienced in particular across disadvantaged groups, including Aboriginal and Torres Strait Islander peoples, those living in rural and remote communities, and those experiencing socio-economic disadvantage. The social determinants of health shape much of this inequity and particularly for those experiencing chronic illness.

The costs to individuals, families, communities and the economy of health inequity are substantial. Current payment and service models have not effectively addressed health equity issues, and as new models are being developed to underpin more sustainable approaches to the funding of health services such as value-based health care programs, there is a risk that equity issues will persist or be exacerbated. Equity is also an understated consideration in the funding decisions being made with regard to innovations such as precision medicine, an emerging approach for disease treatment that takes into account individual variability in genes, environment, and lifestyle for each person.

This paper explores equity in the context of value-based health care strategies and health care reforms currently being implemented or considered in Australia. It draws on international experience and research and proposes matters for more detailed consideration by health policy makers as reforms are developed and implemented.

1.1   *What is health equity?*

The World Health Organization defines health equity as the "absence of avoidable, unfair, or remediable differences among groups of people, whether those groups are defined socially, economically, demographically or geographically or by other means of stratification". It notes an implication that all people should 'have a fair opportunity to attain their full health potential and that no one should be disadvantaged from achieving this potential' (WHO, 2020).

Health inequity increases health and social welfare costs, reduces economic and labour productivity, and results in lost income and poorer health outcomes at a population level, as well as for individuals (WHO, 2013).

Achieving greater health equity requires addressing health disparities, which are shaped by factors including the social determinants of health. It has been estimated that actions to close the health gaps between the most and least disadvantaged people in Australia aged between 25 and 64 in 2008 could result in (Brown et al., 2012):

- 500,000 fewer people experiencing chronic illness
- 170,000 more people working, generating $8 billion in extra earnings
- $4 billion annual savings in welfare support payments
- 60,000 fewer hospitalisations annually, saving $2.3 billion in hospital expenditure
- 5.5 million fewer Medicare services required annually, saving $273 million
- 5.3 million fewer Pharmaceutical Benefit Scheme prescriptions annually, saving $184.5 million.

Health policy that seeks to optimise equity, for example through universal healthcare, requires public resources which are finite, and which must be managed judiciously to ensure effective investment.

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1.2 What is value-based health care?

Value in health care has been defined as the health outcomes that matter to patients relative to the resources or costs required (Porter and Teisberg, 2006). In a 2019 Australian Healthcare and Hospitals Association issues brief, Woolcock proposed greater consideration of the balance between clinically relevant outcomes and outcomes that matter to patients (Woolcock, 2019). In an evidence-based approach to decision-making about the public funding of health services, clinically relevant outcomes are prioritised. Increasingly, public-funded services are focused on incorporating the outcomes that matter to patients as part of this decision-making, supported through the development of Patient Reported Outcome Measures.

In Australia, health costs are borne by both individuals and the public, through the funding governments provide for public hospitals and health services, Medicare, the Pharmaceutical Benefits Scheme and other government-supported health resources. Therefore, the concept of value must be considered both in terms of personal value, and public (or societal) value.

Resources and costs are not confined to single episodes of care. This implies that a value-based health care perspective will often require a longitudinal view of a person's sequence of healthcare encounters to properly assess the outcomes realised and costs incurred.

1.3 What is public value and how does it relate to equity?

Public value is the return taxpayers obtain from public services for the taxes that they pay (Ballintyne and Mintrom, 2018). While public value does not equate with equity, conceptually, in countries such as Australia which aspire to universal health coverage, the achievement of public value requires a focus not only on achieving better health outcomes for individuals, but also at population level. This may be expressed through a public health approach which aims to "maintain and improve the health of the entire population and to reduce inequalities in health between population groups" (Cohen et al., 2014).

A focus on public value provides an opportunity to support and promote health equity. This is in contrast to the market-driven competitive value that may be prioritised in health systems dominated by private health service provision such as in the United States.

'In a publicly funded system and with a desperate need to integrate care for patients to achieve the best possible outcome and experience, it is more about doing the right thing at the right time, with decisions better supported by data that comes directly from patient feedback' (Lewis, 2019).

Public value embraces value for individuals, value for the whole population, and technical value (or efficiency) – the 'triple value' described by the Oxford Centre for Triple Value Healthcare (3VH, 2020). It is demonstrated through transparency and accountability measures, and ideally, involves stakeholders in deliberating about rationing decisions and expenditure choices to ensure legitimacy. Review and evaluation processes are critical to demonstrating ongoing public value.

Some commentators have expanded the concept of public value to social value, taking into account both the effect of the good health of the population on requirements for other forms of public expenditure such as social welfare, and the impact of the social determinants on requirements for health expenditure (Healthcare Costing for Value Institute, 2015).

Equity is an overarching dimension in Australia's Health Performance Framework (AIHW, 2020) which has as its objective*: to improve health outcomes for all Australians and ensure the sustainability of the Australian health system*. Indicators measure performance and progress against dimensions including the determinants of health, the health system and health status, providing an overview of national effort in the health system to achieve equity and public value. However, the initial set of core indicators are limited in how they capture and provide insight to the desired health system characteristics, often being only proxy measures or capturing in a limited fashion Australia's health system performance.

Measures to ensure public value for taxpayer investment in health are put in place through national health agreements. For example, the Heads of Agreement signed between the Commonwealth, state and territory governments for the 2020-25 National Health Agreement outlines arrangements to promote efficiency, equity, safety and quality (COAG, 2018).

The Australian Commission on Safety and Quality in Health Care has also cited public value as a driver for the inclusion of consumers in health decision-making and service design (ACSQHC, 2011), and have embedded patient-centred care in the National Safety and Quality Health Service (NSQHS) Standards.

Health equity is also considered in the NSQHS Standards, specifically in relation to improving health equity for Aboriginal and Torres Strait Islander peoples (Wardliparingga Aboriginal Research Unit, 2017).

These wider considerations of the impacts on the health of both an individual and society more broadly point to a move away from a purely medico-centric view of health and to making progress in improving equity in health. While a medical model of healthcare is a fundamental part of a well-functioning health system, the experience of health occurs within a broader context.

A narrow conceptualisation of value-based health care would represent a loss of opportunity for more sustainable improvements in health equity.

2   Can value-based health care address equity issues?

The COAG Heads of Agreement signed between the Commonwealth, state and territory government for the 2020-25 National Health Agreement makes specific provision for collaborative work to be undertaken among the jurisdictions to implement a value-based approach to health care, including provision at Clause 7c to undertake reform processes to pay for value and outcomes (COAG, 2018). The Independent Hospital Pricing Authority has also indicated its intention to undertake work on value-based payment models (IHPA, 2019), and the states and territories have begun a range of programs focusing on value-based health care such as NSW Health's system wide change program, Leading Better Value Care program (NSW Health, 2020)

Given Australia's commitment to universal health care, and the achievement of both equity and public value in national health policy, it is timely to consider the challenges and opportunities associated with achieving these objectives as value-based health care approaches are implemented. To progress these considerations, it will be necessary to view value as it pertains to both individuals, and to the population more broadly.

Woolcock (2019), acknowledges the utility of the Porter and Teisberg (2006) definition of value in providing a frame of reference for the allocation of resources and aligning stakeholder focus on achieving health outcomes that matter to patients, but noted:

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> *'In a universal health care system, the concept of social value or the price governments are prepared to pay for health care, may also be a defining feature of value.'*

Likewise, in a 2017 editorial, UK health leader Sir Muir Gray noted (Gray, 2017):

> *'The techniques that have been developed over the past 20 years include evidence based decision making (to ensure that only interventions with strong evidence of cost effectiveness are used), quality improvement (to improve outcomes), and cost reduction. These are all necessary but not sufficient. A new approach is emerging called value based healthcare, which aims to increase the value that is derived from the resources available for a population.'*

Some commentators consider that a focus on maximising value does not adequately address equity. The Oxford Centre for Triple Value Healthcare describes the definition widely used in the United States and internationally, value being the relationship between outcomes for the patient treated and costs, as technical value or efficiency, and highlights a need for a broader definition including population value within a health and social care system which optimises health and wellbeing for the whole population (3VH, 2020).

An alternative definition has been proposed for the United Kingdom's National Health Service (UK NHS) as 'the equitable, sustainable and transparent use of the available resources to achieve better outcomes and experiences of care for every person' (Hurst et al., 2019). These perspectives imply a broader view of what value-based health care should represent by shifting the exclusive focus away from individual outcomes and preferences. This is a particularly relevant consideration given a health system with a finite budget and a service delivery objective of universal healthcare.

Cookson et al., (2017) note a possible tension between cost-effectiveness objectives and equity objectives, for example where service delivery in disadvantaged communities requires additional costs:

> *'Who gains and who loses from a cost-increasing health program depends on differences among people in terms of health risks, uptake, quality, adherence, capacity to benefit, and – crucially – who bears the opportunity costs of diverting scarce resources from other uses.'*

Using a health equity impact plane (see Figure 1), Cookson et al provide a means to consider cost-effectiveness (net total health impact) against net health equity impact, although they note data limitations and conceptual challenges, for example regarding equality of outcome or opportunity.

The short-term focus of pay-for-performance measures typically used in value-based health care programs is seen by some commentators as a limitation in achieving goals such as long-term health and quality of life. While these do not drive the achievement of equity, they are fundamental considerations for policy makers designing health systems with equity as a goal.
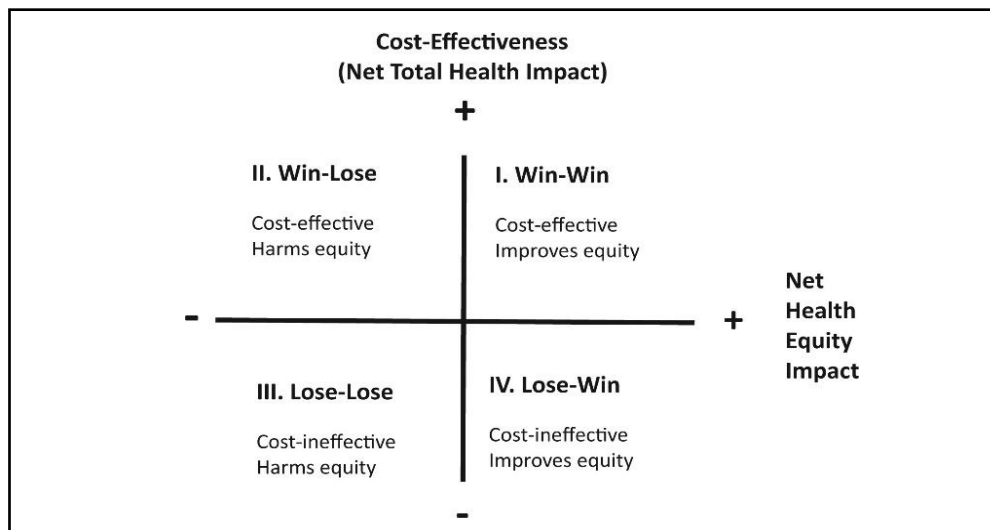
Figure 1: Health Equity Impact Plane (Cookson et al., 2017).
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According to Jan (2019), a transactional view of health care with short-term targets such as blood sugar or blood pressure control impedes the rewarding of longer-term goals that may be more meaningful to consumers such as quality of life and continuity of care. Incentives may be misdirected, insufficient to influence behaviour, and may not consider social and professional norms that drive behaviour. This perspective highlights the longitudinal nature of an individual's health, whether this be in receiving a defined course of care for a particular health need or from the health consequences of an individual's cumulative health seeking/risking behaviour over relevant periods.

Conversely, others argue that a focus on equity, and in particular, the social determinants that underpin inequity, is a critical step towards a quality health system where value is prioritised. Enhanced delivery care models, for example social prescribing and accountable care services which include partnerships with community services to address social needs, may lead to a reduction in health service usage and an improvement in health outcomes, both at individual and population level (Bhatt, 2018). This expands the range of outcomes to be considered within a Porter and Teisberg conceptualisation of value-based health care, but also offers a potentially more sustainable approach to addressing health inequalities.

This is explored in a 2013 paper (Alberti et al., 2013) who acknowledge that while policy interventions at clinical and payer levels will not eliminate health disparities, they can support better identification of need, and the design of system-level responses which will support the provision of high-quality and more equitable care.

3 What tools are available to optimise a focus on equity in value-based health care?

3.1 Funding arrangements

There is significant opportunity, through greater funding flexibility, to support models of care that better address the needs of disadvantaged groups – for example, psychosocial interventions complementing physical interventions. Some funding approaches such as bundled pricing also promote care standardisation so that all groups receive the same evidence-based care where this is appropriate. Similarly, the focus of value-based health care programs across the whole pathway of care, taking a longer term approach rather than an episodic approach, seek to identify opportunities for more upstream, preventive and early interventions. These are particularly relevant to disadvantaged groups who are disproportionately impacted by determinants of health such as smoking and obesity. Exemplifying these considerations, the Queensland Department of Health has recently appointed an independent panel of experts to provide advice on the changes required to the funding model used for Queensland hospital and health services to support the move from a volume-based incentive to one which will drive equity and outcomes.

The implementation of pay-for-performance models in the United States provides some lessons for Australian policy makers considering similar funding arrangements, for example in public hospital settings. Drawing on the experience of pay-for-performance implementation in Massachusetts hospitals, Alberti et al consider that incentives must be thoughtfully constructed to avoid penalising health services that are most likely to care for populations adversely affected by the social determinants of health (Alberti et al., 2013). This is particularly relevant in the Australian mixed public-private health system where structural incentives such as public subsidies for private services can have the effect of favouring resourcing for areas and population groups with greater means.

It can also be associated with private sector selective practices of choosing to service only the most profitable patients leaving more complex and clinically risky patients to the public system (Yang et al., 2019).

Health systems where value-based health care programs are well-established are transitioning from funding arrangements that support payment for episodes of care to payments for the full cycle of care for patients. These bundled care funding arrangements not only support greater clarity for patients regarding the costs of their care but provide a mechanism for identifying and addressing equity issues for individuals and for patient cohorts (Dwada, 2015). Planning for and developing adequate responses to potential equity issues should be specifically designed into bundled care pricing arrangements to ensure cost transparency is backed up by tangible actions to support equity.

Health funding in Australia is allocated via institutional arrangements, including Commonwealth transfers to state and territory governments to fund public hospitals, bulk-billing reimbursements, or via Medicare and private health insurance reimbursements to individuals for payments made to health service providers. In a value-based approach to health care which seeks to optimise equity, consideration might be given to allocating resources to population sub-groups sharing a common need or characteristics (Jani and Gray, 2015). An example of this is the Australian Government Department of Health funding from July 2020 for voluntary patient enrolment for general practice patients over the age of 70, and for Aboriginal patients over the age of 50, to support better access to primary care for these population groups. While details are not yet available on how the primary

healthcare provided to enrolled patients will differ from non-enrolled patients, it should presumably include taking a longer-term view of a patient's healthcare needs rather than traditional episodic and reactionary care.

Internationally and in Australia, some health services are considering options for blended funding models which include capitation, fee-for-service and performance components, with the aim of encouraging a focus of preventive care, improving safety and quality, and achieving better outcomes for patients, rather than funding for volume. Hegde and Haddock (2019) provide an example of funding methodologies being developed by Dental Health Services Victoria to support their value-based health care program which aim to optimise both health outcomes, equity, and individual and public value for expenditure.

Risk-adjusted payment models and block payments to address inequity, for example to support the management of patients with multiple comorbidities or to promote health care access in rural settings, may be part of a blended funding model in value-based care programs. However international experience suggests that risk adjusting or paying for value without detailed data on health disparities will not ensure tailored and higher quality health care for people whose health is influenced by negative social determinants (Ganos et al., 2017).

Where risk-adjusted payment models and block payments are used, appropriate funding is required to reflect the risk that is being transferred from the funder to the provider. This risk relates to unexpected patient demand and the costs of providing new approaches to patient care.

3.2   *Data-driven decision-making*

Better use of data, in particular linked data across agencies, is required to support data-driven decision making and to target investment. Using linked data sets to map advantage and disadvantage will enable a better understanding of health needs (as opposed to simply relying on forecasts of utilisation), and will support health planners to shift the question from 'who is likely to present at our facilities?' (demand forecast) to 'who *should* be presenting?' (health needs analysis). This will enable prioritisation of those most in need and where there is opportunity for greatest health gain, including targeting of patient groups that may not currently be accessing services. For example, the Queensland Department of Health has undertaken specific work to incentivise a focus on Aboriginal and Torres Strait Islander mothers who were not accessing ante-natal care, and a smoking cessation program for people with mental health issues. These schemes need careful design to limit resource shifting and gaming – the Queensland antenatal incentive program, for example, included a prerequisite that performance for non-Indigenous antenatal care needed to be maintained. Children's Health Queensland has also undertaken extensive work linking data across non-health agencies (for example, education, housing and police) to profile the needs of children and families across their area. They then compared this with current service provision to identify gaps and inform service planning.

3.3   *Addressing variation*

A value-based approach to health care aims to optimise high value care and minimise low value care, and addressing variation is a strategy to achieve this. Identifying and acting on variation is an opportunity to address equity and access issues, to ensure that high value care is available to all. The Atlases of Variation in Health Care published by the Australian Commission on Safety and Quality in Health Care (ACSQH, 2018) have identified patterns of health inequity, including population groups

with the highest burden of disease having the lowest rate of a related investigation or treatment. Examples include:

- People in areas of lower socioeconomic status (SES) having lower rates of colonoscopy and higher rates of bowel cancer than people living in areas of higher SES
- Aboriginal and Torres Strait Islander peoples having higher rates of cataract than non-Indigenous people, but lower rates of cataract surgery
- People in regional Australia having lower rates of cardiac stress tests and imaging than people in major cities, despite higher rates of heart disease
- Potentially preventable hospitalisations for heart failure and diabetes complications being 1.5 times higher in the lowest SES areas of major cities compared with the highest SES areas (ACSQH, 2018b).

Addressing variation has also been identified in United States health programs as a critical component for achieving an equity focus in value-based health care. For example, a program in Fairfax County, Virginia for uninsured, low income residents resulted in disparate health outcomes for Hispanic and non-Hispanic patients. Performance data reporting was used to inform the design of team-based incentive payments to close gaps and improve care performance for patients with the greatest need. A 'Disparities Dashboard' was used at the Icahn School of Medicine at Mount Sinai, New York to provide clinicians with information and motivation to improve health equity. Funding was provided to embed care coordinators and social workers in the healthcare team, and performance targets were tied to a payment reform (Ganos et al., 2017). Positive results achieved through this program suggest that risk targeting, rather than risk adjusting, may be a useful funding mechanism to address variation.

Public reporting of health and welfare data, including data linkage activities, for example as led by the Population Health Research Network (2020) and community needs analyses, such as those undertaken by Primary Health Networks,, also provide an opportunity to better understand the relationship between equity issues and health outcomes. Some Primary Health Networks are using data aggregators such as POLAR (POpulation Level Analysis and Reporting) Explorer to analyse de-identified data sourced from general practice, community health providers, public hospitals, ambulance services, the Australian Bureau of Statistics and others for population health planning, program development, evaluation and research on their local population (Outcome Health, 2020).

More deliberate efforts to resource programs that address disparities identified through data reporting activities must become part of the commissioning role led by Primary Health Networks, and in the resourcing of public hospitals and health services.

3.4   *Health outcomes that matter to patients*

Health outcomes that matter to patients are the numerator in the value equation and are important data both at an individual and population level to measure and respond to equity issues (Lewis, 2019). However, the fragmented nature of Australia's health system, including the Commonwealth/state divide in governance and funding, and the silos that exist across primary and acute care, make attribution of outcomes difficult, notwithstanding the joint accountability for health outcomes that the Commonwealth, states and territories have acknowledged in the COAG February 2018 Heads of Agreement (COAG, 2018). The potential to identify and respond to equity issues will remain limited, unless deliberate efforts are made to develop indicators for equity. Jurisdictions and health service providers developing Patient Reported Outcome Measures (PROMs)

and Patient Reported Experience Measures (PREMs) should give consideration to equity issues as these data are developed.

At the system level there is opportunity through aggregated outcomes data to understand the relative value of different interventions for different population sub-groups to inform investment and disinvestment decisions. However economic assessment is not the only consideration in health service planning, and often, in order to address equity, the trade-off may be efficiency – for example providing care closer to home in rural and regional areas is generally less cost-effective than centralising care in metropolitan areas. However it is important that these decisions are made in an informed way with a true understanding of the both the cost and the societal benefits, including equity. The health equity impact plane demonstrates these trade-offs (Figure 1).

In his review looking at health equity in England, Michael Marmot refers to this as 'proportionate universalism' meaning that health inequalities are not confined to poor health for the poor and good health for everyone else, rather, health follows a social gradient. Everyone below the top has greater risk of worse health than those at the top and we need to be sensitive to this gradient and respond proportionately to need (Marmot et al., 2020).

A review of the report ten years on demonstrates that the most deprived areas and communities, have experienced the greatest declines in funding in almost all social, economic and cultural domains, and poverty, poor health and socioeconomic inequalities have increased. The data presented shows that government spending has not only declined in key social determinants of health, but that it is now also allocated in a less equitable way – meaning that spending allocations are less weighted towards deprived areas and communities than previously (Marmot et al., 2020).

Marmot (2020) in his foreword states 'the question we should ask is not, can we afford better health for the population of England, but what kind of society do we want?'

An outcomes focus at the individual clinician/patient level also supports equity. The use of PROMs supports meaningful conversations with individual patients, identifying 'what matters to them'. Often services are designed around what is assumed to matter to *most* patients and may not reflect the specific values of more marginalised groups. Additionally when that outcome data is aggregated at care team level there is also opportunity to better understand the interventions that are most effective for particular population groups and to tailor service provision accordingly. PROMs may support improved equity, if sufficient attention is paid to building the health literacy of disadvantaged groups to enable them to participate in those discussions and articulate their values. At an aggregate level using PROMs data to inform service design, it is important to note there is a risk that the data is not representative of sub-groups and that it actually might widen inequity by responding only to the views of the advantaged, health literate consumers who respond.

Contextual information on the social determinants of health are also critical to understanding the opportunities to improve both equity and value in health care, as the social determinants play an important role alongside health system and biomedical disease factors in shaping health outcomes (Kuluski and Guilcher, 2019). While social factors such as housing, income and employment may be prioritised as patients define outcomes that matter to them, the ability of health service providers to support achievement of these outcomes is limited by the siloed delivery of health, community and social services in Australia. Notwithstanding this, opportunities exist to highlight the need for collaborative service delivery particularly for patients with complex needs.

There is significant work required to influence governments to broaden the metrics that define success in healthcare and elevate the importance of outcomes to the same level as outputs and access targets.

3.5   Service design reform

Alberti et al., (2013) point to coordinated population-based care, such as medical homes and accountable care organisations, as providing opportunity to focus on equity that is not available in fee-for-service, user-pays models. They note that the focus of these service models on conditions which more often affect people experiencing health and health care disparities 'presents an unprecedented moment in time to make real and measurable progress in closing these gaps'. However, they caution that this will require the creation of incentives which take into account the complexities of caring for those people most adversely affected by the social determinants of health.

While the funding and governance arrangements differ substantially in Australia, the Health Care Homes program, Aboriginal Community-Controlled Health Organisations, and the coordinated care programs available to veterans are examples of similar payment and service models which prioritise equity and value. Co-located services may also provide opportunities to achieve greater value for patients, and to address equity issues, for example co-locating community health services with affordable housing facilities for homeless people. Critiques of the Health Care Homes program in Australia have noted a substantial limitation related to appropriate incentives and funding to support quality care for people with multiple comorbidities (Thurecht et al., 2017).

3.6   Co-design and patient engagement

The Australian Commission on Safety and Quality in Health Care (ACSQHC) discusses improving the quality and safety of healthcare through partnerships with patients and consumers (ACSQHC, 2011). A feature of value-based care strategies is their focus on patient-centred care and patient engagement. Co-design and agreeing outcomes that matter to patients presents a significant opportunity at program design and delivery level to identify and address equity issues. This contrasts with traditional funding methodologies where decisions about equity are taken at a macro-level, but not generally at program design and delivery level. This may be of particular benefit to people living with long-term chronic and complex conditions, for whom the social determinants of health play a significant role in shaping both access to care and the health outcomes achieved.

4   Does value-based health care have a role in addressing emerging health equity challenges?

Contemporary challenges for health policy makers include the ability to make innovative health treatments and therapies available to all in a cost-efficient manner, particularly where there is a commitment to universal health care. Exemplifying these challenges is the capacity of society to pay for and make precision medicine available for all, for example as part of cancer treatment services.

Precision public health strategies have been proposed as a means by which precision medicine can be translated into population health benefits. An example is the development of heart disease risk prediction scores which take into consideration genetics as well as traditional risk factors such as smoking and high blood pressure, although proponents acknowledge that there is limited data available to date to demonstrate the achievement of better health outcomes (Peeters, 2019).

In the UK, work is already under way to translate the opportunities presented by genomic medicine to population-level health strategies. For example, the UK NHS Genomic Medicine Service has a long-term plan to sequence 500,000 whole genomes by 2023-24. From 2019, whole-genome sequencing has been offered to all children with cancer, seriously ill children with rare genetic conditions, and some adults with rare conditions. Longer term, a quarter of people with inherited high cholesterol levels will also be included; and there are plans to extend genomic analyses to healthy individuals, with up to 5 million people to be covered.

The UK's King's Fund has proposed that genomic medicine offers a data source and the potential to develop a framework to incorporate, act on and contextualise these data in a population health approach, alongside socio-economic, environmental and behavioural data (Price, 2019).

Others have cautioned that these technologies and the growth in available data come with a high likelihood of over-diagnosis and over-treatment (Milne et al., 2019). They argue that the push for personalised medicine and the emphasis on individual responsibility for health sidelines the importance of social determinants in shaping health, and risks creating further inequity for those without the means to pay for new health treatments.

Concerns can also arise relating to privacy of electronic patient data as occurred during the My Health Record opt-out process (Choice, 2019). However, legislative changes have been made to further strengthen patient data protections (ADHA, 2018).

In Australia, Peeters (2019) notes that more attention will need to be paid to how precision analytics can be applied to determine the optimal combination of population level and individual level interventions and suggests safeguards will be required to limit overtreatment and inappropriate interventions.

Artificial intelligence (AI) is also being used to varying degrees in the health care environment, with tasks that normally require human intelligence being performed by computer systems. These tasks can be patient-oriented, clinician-oriented, or administrative and operational-oriented, and they can range from simple to complex (Deloitte, 2019). While currently being adopted to perform distinct functions in silos, the capacity to complete tasks across a variety of topics and activities, and which could therefore be applied across a patient journey, is in very early stages of development (Deloitte, 2019).

Machine-learning is a branch of AI. Sophisticated algorithms can be used to 'learn' features from a large volume of healthcare data to provide insights to assist clinical practice, with self-correcting abilities continuously improving accuracy based on feedback from clinical activities. It is a fast-growing trend in healthcare, providing increasingly sophisticated decision support and population-level monitoring (Rajkomar et al., 2018).

With inequity already present in existing healthcare services and records, there is potential for historical data to replicate these patterns of healthcare disparities, and for machine learning models trained on these data to perpetuate these inequities. While there are many promising early examples of AI in healthcare in Australia (PC, 2019), and considerations for its introduction more broadly have been reported (Pearce, et al., 2018), any explicit focus on equity is not apparent. This is explored in a 2018 paper by Rajkomar et al (2018), describing key biases in the design, data and deployment of a machine-learning model that may perpetuate inequities.

Design bias, for example, may occur in the development of models to predict the onset of clinical depression if groups within that environment have been systematically misdiagnosed. If the model learns from these data, it will perpetuate the disparity (Rajkomar et al., 2018).

Data bias may also occur when the data does not contain a sufficient sample size from a population group to properly tailor predictions to them, or the data set for the group is less complete as a result of existing fragmented care (rather than randomly incomplete). The case of a hypothetical predictive monitoring system to detect patients at high risk of deterioration in an intensive care unit is described by Rajkomar et al., (2018) The influence of an under-representation of African American patients in the historical data used in AI system training was considered. It postulated that the system may have a lower sensitivity and miss more African American patients at risk of deterioration, resulting in harm to patients if clinicians have over reliance on the system. Conversely, it might result in a higher false-positive rate in predicting deterioration in African American patients, harming patients if clinicians experience 'alert fatigue' and learn to dismiss or discount alerts (Rajkomar et al., 2018).

Deployment bias stems from how clinicians and administrators interact with the model, and the extent to which they trust the model even when it is wrong or ignore it when they should not (Rajkomar et al., 2018).

Rajkomar et al (2018) recommend going beyond the American Medical Association policy (AMA, 2018) that when testing or deploying AI, steps are taken to address bias and avoid introducing or exacerbating health care disparities. They recommend that, rather than simply guarding against these harms passively, machine-learning systems should be used proactively to advance health equity (Rajkomar et al., 2018). In design and data phases, researchers should consider how prior healthcare disparities impact the AI model. In deployment phases, and consistent with a value-based approach to health care, ongoing monitoring and evaluation of patient outcomes, performance and resource allocation for all patient segments, and in particular for those specific patient groups where disparities have previously been known to occur.

A value-based health care approach to policy making in relation to precision medicine and AI may assist in moderating individual expectations and demand for treatments with broader societal expectations for public value and equitable access to services and treatments. If deployed judiciously, with appropriate frameworks in place to incorporate consideration of the social determinants in policy decision-making, there is an opportunity for value-based health care methodologies to positively impact equity and reduce social, cultural and economic inequalities.

5   Conclusion and recommendations

Value-based health care must focus not only on delivering value at individual level, but also at a societal level, or equity gaps will be further exacerbated. Efforts to improve health equity must be rewarded, and adequate arrangements must be in place to ensure that the concept of universal health remains central to Australia's health system. This will require deliberate strategies to protect the interests of those people who are most vulnerable, particularly those who are negatively impacted by social determinants. It will also require effort to ensure public value is delivered through a sustainable and affordable health system.

While value-based health care strategies alone will not drive improved health equity, renewed health policy reform efforts are an opportunity to consider governance, funding and structural reforms in the context of known equity issues.

The time to shape these strategies with an equity focus is now, given the work currently being undertaken across Australia in both the private and public sectors, and across primary and acute health, to implement value-based health policy reform.

To adequately consider equity in the design of health care programs including those that are value-based will require focused consideration on questions including:

- Will there be a disparate impact on particular communities or population sub-groups?
- Which patients will benefit from or be disadvantaged by the proposed model of care or funding/payment mechanism?
- Are there alternative approaches that would better address health inequity?
- Will incentives or penalties adversely impact equitable provision of care and achievement of health equity?
- Will patient groups and communities be engaged in codesign processes?

Explicit policy initiatives which incentivise health equity will be required to address these questions.

5.1 Recommendation 1: Governments and public-funded health organisations should establish cross-sector partnerships with health, community and social services as they implement value-based health care initiatives

As governments and public-funded hospitals and health services implement value-based health care initiatives, purposeful effort is required to establish and formalise strong partnerships between health, community and social services. These arrangements should seek to facilitate flexible, innovative and timely responses in their approach to service design and delivery, according to community needs and with the explicit intent of advancing health and social equity.

5.2 Recommendation 2: Funding reforms should consider arrangements that strengthen incentives for improving health equity

Planning for and developing appropriate responses to equity issues should be specifically designed into funding arrangements to ensure cost transparency backed up by tangible actions to reduce health inequities and improve health equity.

Those population sub-groups with diverse backgrounds, or with particular care needs, who are most affected by health inequities should be included in the design and implementation of care delivery and payment reforms.

5.3 Recommendation 3: To achieve greater public value for health investment, commissioning decisions should be informed by data that identifies health disparities

To achieve greater public value for health investment, Commonwealth, state and territory health departments, Primary Health Networks, and health service providers must make more deliberate efforts to address health disparities through their commissioning decisions. This requires investment

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in data development, collection and linkage to support a better understanding of the determinants of health. Jurisdictions and health service providers developing PROMs and PREMs should give consideration to equity issues as data reporting frameworks and indicators are developed.

5.4   Recommendation 4: Data linkage across community, health and social services data sets should be prioritised

Data linkage and analysis of community, health and social services data should be prioritised in order to drive better health outcomes for individuals and the community, and to achieve greater personal and public value. Establishing cross-sector partnerships for data reporting may require strengthening of governance arrangements, and investment to support reporting over time. Ensuring that the right data governance structures are in place, that the right education and training are available, and that safeguards are robust but not unduly restrictive will be essential.

5.5   Recommendation 5: As new technologies and treatments are funded, consideration must be given to ensuring value both at an individual level and at a public level, including how equity will be promoted

Government health investments should ensure equitable and affordable access to innovative and emerging treatments and therapies, such as precision medicine. Traditional decision-making paradigms must become more agile to ensure knowledge and discovery can be translated effectively and efficiently for better patient care, supported by public investment strategies that make innovative and emerging treatments and therapies available to all, not just to those who can afford them. Data generated through precision medicine provides an opportunity to enhance population health data to inform better health service planning.

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