

NHMRC Partnership Centre: Health System Sustainability

ANNOTATED BIBLIOGRAPHY

REPORTS, DOCUMENTS AND DATA SOURCES FOR RESEARCH IN HEALTH SYSTEMS SUSTAINABILITY

SECTION 1. THE CORE OF SUSTAINABILITY

Amalberti R, Nicklin W, Braithwaite J. Preparing national health systems to cope with the impending tsunami of aging and its associated complexities. Towards more sustainable health care. *Int J Qual Health Care*. In press.

Health care systems across the world are experiencing increased financial, organisational and social pressures attributable to a range of critical issues including the challenge of ageing populations. Health systems need to adapt, in order to sustainably provide quality care to the widest range of patients, particularly those with chronic and complex diseases, and especially those in vulnerable and low income groups.

Coiera E, Hovenga EJS. Building a sustainable health system. *IMIA Yearbook*. 2007: 11-18. Available from [file:///C:/Users/mq74577883/Downloads/imia_2007--1_8405%20\(1\).pdf](file:///C:/Users/mq74577883/Downloads/imia_2007--1_8405%20(1).pdf)

Health care faces some significant challenges over the coming decades, based upon increasing demands and decreasing resources, making long term sustainability of the current system an essential strategic goal. We need to decide what sustainability principles we would like to see our future health system adhere to. A first principles approach to sustainability helps us conceptualise unsustainable practices and structures. This requires an agreement about the most significant sustainability indicators we need to measure. Indeed a national commitment to strict, ambitious, quantitative and well-tracked national goals is highly desirable.

Information technology is an essential component of our response, but is no panacea. It is crucial that our nations undertake a formal sustainability analysis of their health systems, to identify where the most pressing challenges are.

Richardson JR. Can we sustain health spending? *Med J Aust*. 2014 Jun 16;200:629-31. Available from <https://www.mja.com.au/system/files/issues/ric00564.pdf>

Australian governments currently spend relatively little on health. Are cutbacks really what's needed? The anomalous concern with the costs and not the benefits of an expanding health sector implies comparative lack of concern or confidence in the benefits despite evidence that better health is one of the diminishingly few ways in which we can improve the quality of life of the population.

World Economic Forum. Sustainable health systems: Visions, strategies, critical uncertainties and scenarios. A report from the World Economic Forum in collaboration with McKinsey & Company. Cologny/Geneva: World Economic Forum; January 2013. Available from: http://www3.weforum.org/docs/WEF_SustainableHealthSystems_Report_2013.pdf

The purpose of the project – and this report – is to support strategic dialogue among various stakeholders on what health systems are now, what they might be in the future and how they could adapt to be sustainable. Sustainability is unlikely to be achieved through incremental changes. Instead, transformative solutions will be needed – solutions that require cooperation across industry sectors and governments, and thereby challenge the current boundaries of healthcare and established norms of operation.

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2. WHERE ARE WE NOW?

2.1 DATA

Australian Commission on Safety and Quality in Health Care. Australian atlas of healthcare variation. Sydney: ACSQHC; 2015. Available from <http://www.safetyandquality.gov.au/atlas/>

The Australian Commission on Safety and Quality in Health Care has released the first Australian Atlas of Healthcare Variation, illuminating variation in health care provision across Australia. The atlas presents a clear picture of substantial variation in healthcare use across Australia, across areas such as antibiotic prescribing, surgical, mental health and diagnostic services.

Some variation is expected and associated with need-related factors such as underlying differences in the health of specific populations, or personal preferences. However, the weight of evidence in Australia and internationally suggests that much of the variation documented in the atlas is likely to be unwarranted. Understanding this variation is critical to improving the quality, value and appropriateness of health care.

Six clinical areas are examined in the atlas, covering prescribing, diagnostic, medical and surgical interventions. Priority areas for investigation and action include the use of antimicrobials and psychotropic medicines; variation in rates of fibre optic colonoscopy, knee arthroscopy, hysterectomy and endometrial ablation; and inequitable access to cataract surgery.

Australian Commission on Safety and Quality in Health Care. In brief – exploring healthcare variation in Australia: analyses resulting from an OECD study. Sydney: ACSQHC; 2014. Available from <http://www.safetyandquality.gov.au/publications/exploring-healthcare-variation-in-australia/>

This publication summarises a more detailed discussion paper by the Australian Commission on Safety and Quality in Health Care (the Commission) and Australian Institute of Health and Welfare, Exploring Healthcare Variation in Australia: Analyses Resulting from an OECD Study. The paper outlines variation in the rates of several common healthcare interventions across Australia. More detailed information, including references, is in the full document, which is available here: www.safetyandquality.gov.au/our-work/variation-in-health-care

Australian Commission on Safety and Quality in Health Care (ACSQHC), 2015. Vital signs 2015: the state of safety and quality in Australian health care. Sydney: ACSQHC; 2015. Available from <http://www.safetyandquality.gov.au/publications/vital-signs-2015-the-state-of-safety-and-quality-in-australian-health-care/>

Vital signs 2015 provides information about the safety and quality of health care for the general public. It is structured around three important questions that members of the public ask about their health care: Will my care be safe? Will I get the right care? Will I be a partner in my care?

Australian Health Care Reform Alliance. AHCRA background briefing: Health Reform; Social Determinants; Primary Health Care; Reform Progress; Health Equity. AHCRA; 2013? Available from <http://www.healthreform.org.au/background-briefing-papers/>

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The Australian Health Care Reform Alliance (AHCRA) is a coalition of over 40 organisations representing consumers and health care providers advocating for a fairer and more effective health care system. AHCRA has developed a series of five briefing papers on key health reform issues. Each paper provides a general overview of the issue and outlines the main ways in which it is being addressed through the health reform process. The briefing papers were prepared by the AHCRA Executive with input from members and can be downloaded and used as an information resource on the health reform process.

Australian Institute of Health and Welfare & Australian Institute of Health and Welfare. Australia's health 2014: the 14th biennial welfare report of the Australian Institute of Health and Welfare. Canberra, ACT: Australian Institute of Health and Welfare; 2014. Available from <http://www.aihw.gov.au/publication-detail/?id=60129547205>

Our focus is on key facts and health issues of the moment, presented through a combination of short statistical 'snapshots' and analytical feature articles, backed by online links to more detailed information available in other more specialised AIHW reports. The feature articles cover a diverse range of topics, including an investigation of the health 'gap' between Indigenous and non-Indigenous populations, illicit drug use, private hospitals, mental health, and what the ageing of Australia's population means for us and our health system. The report also presents, for the first time, a comprehensive look at childhood obesity and youth health, and the health of the working-age population.

Biggs A. Health in Australia: a quick guide. Canberra: Parliament of Australia, Department of Parliamentary Services; 2013. Available from http://parlinfo.aph.gov.au/parlInfo/download/library/prspub/2825641/upload_binary/2825641.pdf;fileType=application/

This guide provides an overview of Australia's complex health system: what governments do, the role of private health insurance, how much we spend on health care, how Australian health outcomes compare internationally, the health care workforce and links to further information and resources.

Independent Hospital Pricing Authority. National Hospital Cost Data Collection Australian Public Hospitals Cost Report 2012-2013, Round 17. Canberra: IHPA; 2015. Available from https://www.ihoa.gov.au/sites/g/files/net636/f/publications/nhcdc_cost_report_2012-2013_round_17_0.pdf

The Independent Hospital Pricing Authority (IHPA) is an independent government agency established under Commonwealth legislation on 15 December 2011 as part of the National Health Reform Agreement (NHRA). The Independent Hospital Pricing Authority (IHPA) was a key element of the NHRA, and is charged with determining the National Efficient Price (NEP) for public hospital services, allowing for the national introduction of Activity Based Funding (ABF).

The implementation of ABF provides incentives for efficiency and increases transparency in the delivery and funding of public hospital services across Australia. IHPA's primary function is to calculate and deliver an annual National Efficient Price (NEP). The NEP is a major determinant of the level of Australian Government funding for public hospital services and provides a price signal or benchmark for the efficient cost of providing public hospital services. We undertake several major
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areas of work designed to inform the annual determination of the NEP, including ongoing consultation with all Australian health departments, expert advisory committees and key stakeholders.

Kim GH, Trimi S, Chung JH. Big-data applications in the government sector. Communications of the ACM. 2014 Mar 1;57(3):78-85. Available from <http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=98b41b9f-74ca-4e8b-933f-7c47eea3cac9%40sessionmgr4001&vid=1&hid=4109>

Big data, a general term for the massive amount of digital data being collected from all sorts of sources, is too large, raw, or unstructured for analysis through conventional relational database techniques. Almost 90% of the world's data today was generated during the past two years, with 2.5 quintillion bytes of data added each day.⁷ Moreover, approximately 90% of it is unstructured. Still, the overwhelming amount of big data from the Web and the cloud offers new opportunities for discovery, value creation, and rich business intelligence for decision support in any organization. Big data also means new challenges involving complexity, security, and risks to privacy, as well as a need for new technology and human skills.

New South Wales. Audit Office. New South Wales Auditor-General's Report. Performance audit. Managing length of stay and unplanned readmissions in NSW public hospitals: NSW Health. Sydney: NSW Audit Office; 2015. Available from <http://www.audit.nsw.gov.au/publications/latest-reports/managing-length-of-stay-and-unplanned-readmissions-in-nsw-public-hospitals>

Information is readily available about length of stay for patients treated in hospitals. Reducing hospital length of stay is an efficiency metric for NSW Health. However, information on unplanned readmissions is of less value due to the current limitations in its data collection and the complex nature of this indicator. Information is used to actively manage patient flow, which is an underlying driver of length of stay. Managers at Local Health Districts appeared not to use unplanned readmissions information as much as length of stay information. There are many local and statewide initiatives that aim to reduce length of stay and unplanned readmissions. However, the impact of some local and statewide initiatives on length of stay and unplanned readmissions are not well understood and quantified due to the lack of evaluations conducted.

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2.2 CURRENT ISSUES, CHALLENGES, RISKS

Banks G. Health costs and policy in an ageing Australia. Health Policy Oration 2008, Menzies Centre for Health Policy, John Curtin School of Medical Research, ANU, Canberra, 26 June. Internet. Available from <http://www.pc.gov.au/news-media/speeches/cs20080328/cs20080701-agedhealthpolicy.pdf>

At a broad level, we can conceptualise the market for healthcare like the markets for other services in the economy, as being shaped by both demand and supply-side influences.

- On the demand-side, the key determinants of expenditure growth are changes in the size and structure of the population, its overall affluence or purchasing power and — related to this — societal preferences or expectations and, of course, inherent healthiness.
- On the supply-side, new knowledge and technical change have a strong bearing on the nature of health services provided, as well as on who and what can be treated. The implementation and diffusion of technology over time depends on the availability of, and access to, skilled people and capital resources.

Barlass T. Confessions of a Sydney surgeon: why your operation may not work. Sydney Morning Herald 6 March 2016. Available from <http://www.smh.com.au/nsw/confessions-of-a-sydney-surgeon-why-your-operation-may-not-work-20160302-gn95ya.html>

A leading Sydney surgeon has confessed to performing surgery that doesn't work due to patient pressure and widespread adoption of procedures that have become accepted without enough scrutiny.

Boxall, AM. What are we doing to ensure the sustainability of the health system? Canberra: Parliamentary Library; 2011. Available from http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1112/12rp04#_Toc310493592

This paper leaves questions about the absolute level of health spending aside. Instead, it focuses on government spending on health, in particular federal government expenditure, and considers the fiscal sustainability of the health system. Put simply, fiscal sustainability in public finances means that governments must be able to pay for all their financial obligations without making radical adjustments to taxes or shifting the burden of debt onto future generations.

To achieve fiscal sustainability, governments must be disciplined when making decisions about spending. They must promote the efficient operation of government and balance the allocation of resources across sectors with the aim of achieving the best value for money. Significant threats to fiscal sustainability include an increase in the size of the dependant population and/or economic downturn because of their impact on government revenue, particularly through taxation receipts, and demand for social welfare services.

Braithwaite J, Clay-Williams R, Nugus P, Plumb J. Health care as a complex adaptive system. In: Hollnagel E, Braithwaite J, Wears R, eds. Resilient Health Care. London, United Kingdom: Ashgate; 2013: 57-76

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This chapter frames resilience in the context of health care as a complex adaptive system (CAS). We initially introduce relevant systems concepts, and then discuss health care as a CAS, presenting and analysing three case studies illuminating key characteristics. Then we discuss resilience in the health care CAS.

Clay-Williams R, Nosrati H, Cunningham FC, Hillman K, Braithwaite J. Do large-scale hospital- and system-wide interventions improve patient outcomes: a systematic review. *BMC Health Services Research* 2014 14:369 Available from: <http://bmchealthservres.biomedcentral.com/articles/10.1186/1472-6963-14-369>

While health care services are beginning to implement system-wide patient safety interventions, evidence on the efficacy of these interventions is sparse. We know that uptake can be variable, but we do not know the factors that affect uptake or how the interventions establish change and, in particular, whether they influence patient outcomes. We conducted a systematic review to identify how organisational and cultural factors mediate or are mediated by hospital-wide interventions, and to assess the effects of those factors on patient outcomes.

Geelhoed E. Is our current health system sustainable?. *Medicus*. 2015 Feb;55(1):35. Available from <https://search.informit.com.au/fullText;dn=954819162324147;res=IELHEA>

By international standards, Australia has a strong and efficient health system. However the pressure on expenditure is relentless and without comprehensive strategic reform, our collective health will be compromised, impacting most on those already disadvantaged such as low socio-economic groups, individuals suffering chronic diseases (particularly mental health) and other marginalised sectors of the community.

Goodridge D, Westhorp G, Rotter T, Dobson R, Bath B. Lean and leadership practices: development of an initial realist program theory. *BMC health services research*. 2015 Sep 7;15(1):1. Available from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4562348/pdf/12913_2015_Article_1030.pdf

Lean as a management system has been increasingly adopted in health care settings in an effort to enhance quality, capacity and safety, while simultaneously containing or reducing costs. The Ministry of Health in the province of Saskatchewan, Canada has made a multi-million dollar investment in Lean initiatives to create “better health, better value, better care, and better teams”, affording a unique opportunity to advance our understanding of the way in which Lean philosophy, principles and tools work in health care.

Horvath J. Review of Medicare Locals: Report to the Minister for Health and Minister for Sport. 2014. Available from [http://www.health.gov.au/internet/main/publishing.nsf/Content/A69978FAABB1225ECA257CD3001810B7/\\$File/Review-of-Medicare-Locals-may2014.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/A69978FAABB1225ECA257CD3001810B7/$File/Review-of-Medicare-Locals-may2014.pdf)

The Australian health care system consists of universal access to the PBS, the MBS and the public hospital system; reflecting the pattern of illness and the medical knowledge of the time they were established – 40 years ago. While the system has remained as a frozen snapshot of that moment when episodic care prevailed, today’s health care needs are very different. The burden of disease has shifted to chronic illnesses - which call for a continuum of care – and fundamental changes in the health care workforce have emerged to deal with these. It is axiomatic that form should follow

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function. Organisational structures and funding in health need to align with the clinical outcomes that are expected today – in 2014.

Miller GC, Valenti L, Britt H, Bayram C. Drugs causing adverse events in patients aged 45 or older: a randomised survey of Australian general practice patients. *BMJ open*. 2013 Oct 1;3(10):e003701. Available from <http://bmjopen.bmj.com/content/3/10/e003701.full.html>

Strengths and limitations of this study: A major strength of this study is that it contains data from 7518 patients collected by hundreds of randomly selected general practitioners (GPs) representing 2.7% of all practicing GPs in Australia. Older patients with multiple morbidity and polypharmacy present more frequently to GPs and this results in a selection bias in the study. The study used patient recall of events in the preceding 6 months, which may lead to under-reporting due to recall bias.

National Health Performance Authority. Healthy communities: Potentially preventable hospitalisations in 2013-14. Sydney, NSW: NHPA; 2015. Available from <http://www.myhealthycommunities.gov.au/our-reports/potentially-preventable-hospitalisations/december-2015>

This report highlights differences in the rates of potentially preventable hospitalisations nationally by: comparing rates of potentially preventable hospitalisations for all 22 conditions across 31 PHN areas and more than 300 smaller local areas called Statistical Areas Level 3 (SA3); and focusing on the five conditions that contribute most to potentially preventable hospitalisations and bed days – chronic obstructive pulmonary disease (COPD), diabetes complications, heart failure, cellulitis, kidney and urinary tract infections (it is).

OECD. OECD reviews of health care quality: Australia 2015: raising standards. Paris: OECD; 2015. Available from <http://www.oecd-ilibrary.org/docserver/download/8115131e.pdf?expires=1454541618&id=id&accname=ocid260979a&checksum=32D189BBC20866A225E10463DA548D9A>

COUNTRY KEY FINDINGS - LESSONS LEARNT

- Australia's health system is highly fragmented, making it difficult for patients to navigate. Devolving primary care to the states and territories would better align health services, increase efficiency, and reduce the disruption to continuity of patient care.
- The development of ten national standards for mandatory hospital accreditation represents an important element of the safety and quality improvement architecture of Australia's health system. Expanding the scope of the standards to take in aged care, mental health services and primary health care should be a priority.
- Australia's national system for regulating 14 health professions makes Australia a leader among OECD countries. The system includes annual registration linked with compulsory continuing professional development, and a website that consumers can use to verify the registration of health professionals. Expanding the system to include other health professions should be the next step.
- The existence of areas of extreme remoteness has challenged Australian health service delivery in a way that few countries have experienced. The country heavily relies on foreign doctors, and has experimented with changing scopes of practice and innovations such as telehealth to meet the needs of remote inhabitants. The quality of rural health care can be improved with strong

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governance, flexible funding, and by increasing the capacity of telehealth and other innovations. High-performing health services should be rewarded with greater autonomy.

Rollins, Adrian. Forcing GPs to adopt half-baked e-health record a dud idea: AMA [online]. Australian Medicine, Vol. 27, No. 11, 11 Nov 2015: 14. Available from <http://search.informit.com.au/documentSummary;dn=602091330681948;res=IELAPA>

AMA President Professor Brian Owler said the MyHR system was far from fully developed, so using PIP incentives to get doctors to sign up was ill-considered and premature.

Swerissen, H., Duckett, S., and Wright, J., 2016, Chronic failure in primary medical care, Grattan Institute. Available from <http://grattan.edu.au/wp-content/uploads/2016/03/936-chronic-failure-in-primary-care.pdf>

Ineffective management of chronic conditions in primary care leads to worse health outcomes and higher costs. Some estimates suggest the cost of potentially preventable hospital admissions from chronic disease is \$2 billion each year. Even if we use the more realistic estimates developed for this report, the costs are \$322 million per year. And of course, Australians would be in better health. The evidence shows that a consistent approach to clinical care pathways for specific chronic diseases can make a real difference to outcomes. And for that, we need much greater investment in supporting service development and innovation in primary care.

Tests, treatments, and procedures for healthcare providers and consumers to question [document on the Internet]. Choosing Wisely Australia; no date [cited 2016 March 16]. Available from <http://www.choosingwisely.org.au/recommendations>

Australia's peak colleges, societies and associations have developed lists of recommendations of the tests, treatments, and procedures that healthcare providers and consumers should question. Each recommendation is based on the best available evidence.

World Health Organization. Climate change and health. Fact sheet No 266. Updated September 2015. Internet. Available from <http://www.who.int/mediacentre/factsheets/fs266/en/>

Although global warming may bring some localized benefits, such as fewer winter deaths in temperate climates and increased food production in certain areas, the overall health effects of a changing climate are likely to be overwhelmingly negative. Climate change affects social and environmental determinants of health – clean air, safe drinking water, sufficient food and secure shelter.

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SECTION 3. HOW DO WE GET FROM HERE TO THERE? MODELS, THEMES, STRATEGIES

Amalberti R, Braithwaite J, Nicklin W, Vincent C. White Paper. Health systems and their sustainability: dealing with the coming pressures of ageing, chronic and complex conditions, technology and resource constraints. International Society for Quality in Health Care: Feb 2016.

Ageing populations worldwide are placing increasing pressures on healthcare systems, and transforming the nature of care needed. Healthcare systems must continuously innovate and adapt if they are to meet the challenge of delivering safer, better care to more complex patients with limited healthcare budgets into the future.

Berwick DM, Hackbarth AD. Eliminating waste in US health care. JAMA. 2012 Apr 11;307(14):1513-6. Available from <https://www.icsi.org/asset/y74drr/BerwickWedges2012.pdf>

In just 6 categories of waste—overtreatment, failures of care coordination, failures in execution of care processes, administrative complexity, pricing failures, and fraud and abuse—the sum of the lowest available estimates exceeds 20% of total health care expenditures. The actual total may be far greater. The savings potentially achievable from systematic, comprehensive, and cooperative pursuit of even a fractional reduction in waste are far higher than from more direct and blunter cuts in care and coverage. The potential economic dislocations, however, are severe and require mitigation through careful transition strategies.

Chambers DA, Glasgow RE, Stange KC. The dynamic sustainability framework: addressing the paradox of sustainment amid ongoing change. Implement Sci. 2013 Oct 2;8(1):117. Available from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3852739/pdf/1748-5908-8-117.pdf>

It is time to embrace the culture of a learning healthcare system to promote sustainability of interventions that are optimized and customized to the myriad of clinical and community settings. The enormous changes in health systems in the past few years give particular salience to a conceptualization of sustainability as a dynamic process, and provide unparalleled opportunity to test and refine the principles offered in this paper.

Council of Australian Governments. National Healthcare Agreement 2012. Intergovernmental Agreement on Federal financial relations. Canberra: COAG; 2012. Available from <http://www.federalfinancialrelations.gov.au/content/npa/healthcare/national-agreement.pdf>

The objective of this Agreement is to improve health outcomes for all Australians and the sustainability of the Australian health system. This Agreement defines the objective, outcomes, and performance indicators, and clarifies the roles and responsibilities that will guide the Commonwealth and States and Territories in delivery of services across the health sector.

Duckett, S. The health system sustainability myth. [Internet] AMA; 2014. Available from <https://ama.com.au/ausmed/health-system-sustainability-myth>

Discussions on the sustainability of health care are generally framed in terms of a false dichotomy: rationing or increased taxes. But there are other options. Policymakers should direct their attention

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to eliminating waste and respecting patient choices about their end-of-life care for a more cost-efficient and equitable health system.

Fineberg HV. A successful and sustainable health system—how to get there from here. *New England Journal of Medicine*. 2012 Mar 15;366(11):1020-7. Available from http://www.qualitycolloquium.com/documents/NEJM_Successful_and_Sustainable_Health_System.pdf

To achieve a successful and sustainable health system, we must be able and willing to try many different things. But therein lies a unifying idea: do many things. No single stroke will solve this problem. A successful and sustainable health system will not be achieved by supporting prevention, it will not be achieved by championing competition, it will not be achieved by comparing the effectiveness of different practices, it will not be achieved by striking commercial influence from professional decision making, it will not be achieved by changing the way we pay doctors, and it will not be achieved by just reengineering the system. It requires all these changes and more. We need the cleverness of the fox and the persistence of the hedgehog. We must be willing to adopt many strategies and use them to reach one big goal.

Gullery, Carolyn, and Greg Hamilton. "Towards integrated person-centred healthcare—the Canterbury journey." *Future Hospital Journal* 2.2 (2015): 111-116. Available from <http://futurehospital.rcpjournals.org/content/2/2/111.full.pdf+html>

Here, we address this challenge and that of the King's Fund report, namely to better demonstrate measurable impacts of a given transformation on patient outcomes. Canterbury has demonstrated measurable reductions in demand for hospital and long-term residential care services, and achieved this while the proportion of people over 65 years has increased from 13.4% to 15.0% between the 2006 and 2013.

Hillman, KM, Rubinfeld GD, Braithwaite J. Time to shut down the acute care conveyor belt? *Medical Journal of Australia*. 2015; 203 (11): 429-31

A rapid response system may be an appropriate model for meeting the urgent need for more suitable care for patients at the end of life.

Horne F. If we don't change direction soon, we'll end up where we're going. In *Healthcare Management Forum* 2016 Mar 1 (Vol. 29, No. 2, pp. 59-62). SAGE Publications. Available from <http://hmf.sagepub.com/content/29/2/59.full.pdf+html>

Suggestions for elements of a national transformation agenda [Canada], key enablers required to ensure the best change initiatives are leveraged across healthcare systems, and questions that should be asked by leaders in the evaluation of change initiatives are proposed.

Lang T, Rayner G. Beyond the Golden Era of public health: charting a path from sanitarianism to ecological public health. *Public health*. 2015 Oct 31;129(10):1369-82. Available from http://ac.els-cdn.com/S0033350615003029/1-s2.0-S0033350615003029-main.pdf?_tid=83407d1a-d925-11e5-9dcd-0000aacb361&acdnat=1456119264_7405aff8b91e07a5aac7d12848cbe177

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While health has to be at the heart of any viable notion of progress the dominant policy path offers new versions of the 'health follows wealth' position. The paper posits ecological public health as a radical project to reshape the conditions of existence. Both of these broad paths require different functions and purposes from their institutions, professions and politicians.

National Commission of Audit. A pathway to reforming health care. In: Towards responsible government: the report of the National Commission of Audit, phase one. Canberra: Australian Government, 2014. Available from http://www.ncoa.gov.au/report/docs/appendix_volume%201.pdf

The Terms of Reference ask the Commission to look at whether there is a strong case for continued direct involvement in activities currently undertaken by the Commonwealth. The options outlined above go part of the way to addressing this issue in the area of health. However, considerable detailed work will be necessary to delve more deeply into restructuring the health system. This recognises both the complexity and the need to progress reform carefully — either through major structural reform or the alternative of incremental reforms.

National Health and Hospitals Reform Commission (Australia). A Healthier Future for All Australians: Final Report June 2009. Department of Health and Ageing; 2009. Available from [http://www.health.gov.au/internet/nhhrc/publishing.nsf/content/1AFDEAF1FB76A1D8CA257600000B5BE2/\\$File/Final_Report_of_the%20nhhrc_June_2009.pdf](http://www.health.gov.au/internet/nhhrc/publishing.nsf/content/1AFDEAF1FB76A1D8CA257600000B5BE2/$File/Final_Report_of_the%20nhhrc_June_2009.pdf)

This report identifies actions that can be taken by governments to reform the health system under three reform goals: 1. Tackling major access and equity issues that affect health outcomes for people now; 2. Redesigning our health system so that it is better positioned to respond to emerging challenges; and 3. Creating an agile and self-improving health system for long-term sustainability.

National Patient Safety Foundation. Free from harm: Accelerating patient safety improvement fifteen years after to err is human. Boston, MA: National Patient Safety Foundation; 2015. Available from <http://www.npsf.org/?page=freefromharm#form>

With a grant from AIG, the National Patient Safety Foundation (NPSF) convened an expert panel in February 2015 to assess the state of the patient safety field and set the stage for the next 15 years of work. The resulting report calls for the establishment of a total systems approach and a culture of safety, and calls for action by government, regulators, health professionals, and others to place higher priority on patient safety science and implementation.

Productivity Commission. Efficiency in Health. Productivity Commission Research Paper. 2015. Available from <http://www.pc.gov.au/research/completed/efficiency-health/efficiency-health.pdf>

In this paper, the Commission has identified and assessed opportunities to improve the operation of Australia's health care system. This is based on a roundtable the Commission held with health policy experts in November 2014, as well as follow-up research. Specifically, the Commission has highlighted areas where there are good prospects for efficiency gains through reforms that can be delivered 'within system' — that is, without changing existing institutional and funding structures — and without delay. Larger-scale reforms, informed by a comprehensive and independent review of the health system, could potentially achieve more substantive efficiency gains.

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Raine R, Xanthopoulou P, Wallace I, et al. Determinants of treatment plan implementation in multidisciplinary team meetings for patients with chronic diseases: a mixed-methods study. *BMJ Qual Saf* 2014;23:867-876. Available from <http://qualitysafety.bmj.com/content/early/2014/06/09/bmjqs-2014-002818.full.pdf+html>

Multidisciplinary team (MDT) meetings are assumed to produce better decisions and are extensively used to manage chronic disease in the National Health Service (NHS). However, evidence for their effectiveness is mixed. Our objective was to investigate determinants of MDT effectiveness by examining factors influencing the implementation of MDT treatment plans. Conclusions: Greater multidisciplinaryity is not necessarily associated with more effective decision making. Explicit goals and procedures are also crucial. Decision implementation should be routinely monitored to ensure the equitable provision of care.

Reddy S. Integrated Health Care. *Australian Health Review*. 2015 Dec 2. Available from http://www.publish.csiro.au/?act=view_file&file_id=AH15135.pdf

Considering the grim scenario of burgeoning health-care costs and cost-cutting measures by the Australian Government, there is a clear case to invest and research into disciplines that will ensure sustainability of the public health system. There is evidence that integrated health care contributes to a cost-efficient and quality health system because of potential benefits like streamlined care for patients, efficient use of resources, a better cover of patients and improved patient safety. This article argues it is time for the discipline of integrated health care to be recognised on its own and investment be driven into the establishment of integrated care centres.

Robinson S, Varhol R, Bell C, Quirk F, Durrington L. HealthPathways: creating a pathway for health systems reform. *Australian Health Review*. 2015 Feb 24;39(1):9-11. Available from http://www.publish.csiro.au/?act=view_file&file_id=AH14155.pdf

This article provides a short description of HealthPathways [the Canterbury model] and considers what it may offer in the Australian context and some of the barriers and facilitators to implementation.

Schell SF, Luke DA, Schooley MW, Elliott MB, Herbers SH, Mueller NB, Bungler AC. Public health program capacity for sustainability: a new framework. *Implement Sci*. 2013 Feb 1;8(1):15. Available from <http://implementationscience.biomedcentral.com/articles?query=schell&volume=&searchType=&tab=keyword>

The sustainability framework presented here suggests that a number of selected factors may be related to a program's ability to sustain its activities and benefits over time. These factors have been discussed in the literature, but this framework synthesizes and combines the factors and suggests how they may be interrelated with one another. The framework presents domains for public health decision makers to consider when developing and implementing prevention and intervention programs. The sustainability framework will be useful for public health decision makers, program managers, program evaluators, and dissemination and implementation researchers

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Schoten SMV. Hospital quality systems: unravelling working mechanisms. Utrecht: NIVEL; 2015. Available from <http://www.nivel.nl/sites/default/files/bestanden/Proefschrift-steffie-van-schoten.pdf>

The research presented in this thesis was conducted at NIVEL, Netherlands Institute for Health Services Research, Utrecht, The Netherlands. This research is set out to gain thorough insights into the working mechanisms underlying the structure-process-outcome relationships of quality improvement within hospital quality systems. These insights can lead to a better understanding of the conditions under which a quality system can result in higher quality of care.

Furthermore, this research aims to gain insights into the determinants of effective quality systems and the long-term added value of quality systems for hospitals. The main research questions of this thesis are: (1) Does having a hospital quality system lead to higher quality of care? (2) What are the working mechanisms of hospital quality systems that lead to higher quality of care?

Scott I. Ten clinician-driven strategies for maximising value of Australian health care. *Australian Health Review*. 2014;38:125-133. Available from http://www.publish.csiro.au/?act=view_file&file_id=AH13248.pdf

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.

Sunol R, Wagner C, Arah OA, et al. Implementation of departmental quality strategies is positively associated with clinical practice: Results of a multicenter study in 73 hospitals in 7 European countries. *PLoS ONE*. 2015; 10(11). Available from <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0141157>

There are significant gaps between recommended standards of care and clinical practice in a large sample of hospitals. Implementation of department-level quality strategies was significantly associated with good clinical practice. Further research should aim to develop clinically relevant quality standards for hospital departments, which appear to be more effective than generic hospital-wide quality systems.

Timmins, Nicholas, and Chris Ham. "The quest for integrated health and social care: A case study in Canterbury, New Zealand." *The Kings Fund* (2013). Available from <https://www.hqsc.govt.nz/assets/General-NEMR-files-images-/kings-fund-CDHB-Sept-2013.pdf>

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Canterbury can demonstrate that it has low rates for acute medical admissions compared to other health boards in New Zealand. Its average length of stay for medical cases is not the lowest in New Zealand, but it is low. Its acute readmission rate is low. These three gauges combined point to a system that has good-quality general practice that is keeping patients who do not need to be in hospital out of it; is treating them swiftly once there; and discharging them safely to good community support.

Vincent C, Amalberti R. Safer healthcare: Strategies for the real world [Internet]. Heidelberg: SpringerLink; 2016. Available from <http://www.springer.com/it/book/9783319255576>

The authors argue that we need to see safety through the patient's eyes, to consider how safety is managed in different contexts and to develop a wider strategic and practical vision in which patient safety is recast as the management of risk over time. Most safety improvement strategies aim to improve reliability and move closer toward optimal care.

However, healthcare will always be under pressure and we also require ways of managing safety when conditions are difficult. We need to make more use of strategies concerned with detecting, controlling, managing and responding to risk. Strategies for managing safety in highly standardised and controlled environments are necessarily different from those in which clinicians constantly have to adapt and respond to changing circumstances.

WHO. Scaling up health services: Challenges and choices. WHO Technical Brief No.3 - DRAFT 3, June 12th 2008. [Internet]. Available from http://www.who.int/healthsystems/topics/delivery/technical_brief_scale-up_june12.pdf

Whilst there are few certainties in scaling up, three generalizations are fairly robust:

- Scaling up generally involves a partnership of organizations working on service delivery, financing and/or stewardship (co-ordination, regulation etc.).
- Scaling up generally requires a highly committed group of individuals to push it along.
- Monitoring implementation of the scale-up is crucial for assessing progress relative to overall objectives and for identifying aspects of the scale-up which are not working well. In practice, this is often a neglected aspect of scaling up.

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SECTION 4. THE FUTURE

Australian Bureau of Statistics. Future population growth and aging. Canberra: Australian Bureau of Statistics; 2009 Available from [http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/LookupAttach/4102.0Publication25.03.092/\\$File/41020_Populationprojections.pdf](http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/LookupAttach/4102.0Publication25.03.092/$File/41020_Populationprojections.pdf)

Population projections are not predictions or forecasts. They simply show what would happen to Australia's population if a particular set of assumptions about future levels of fertility, mortality, net overseas migration and, for states and territories, net internal migration, were to hold for the next 50 to 100 years. The assumptions are based on demographic trends, current debate, and possible future scenarios arising from research in Australia and elsewhere.

Fit for the Future: scenarios for low-carbon health care 2030. Internet. UK, NHS Sustainable Development Unit. September 2009. Available from http://www.sduhealth.org.uk/search/resources.aspx?q=fit+for+the+future&zoom_query=fit+for+the+future

Fit for the Future explores scenarios for the healthcare system in England in 2030. It was commissioned by the NHS Sustainable Development Unit to help healthcare organisations think about the medium- and long-term future, and understand and prepare for their role.

The report concludes that a low-carbon NHS is a more efficient NHS and, if the service is to provide the best possible quality of healthcare in the future, it must build both its efforts to mitigate climate change and its resilience to that change. This requires investing in the future and getting it right. Climate change is the biggest global health threat of the 21st century.¹ Fit for the Future recommends five key steps to creating a sustainable low-carbon healthcare system, which is prepared for whatever the future holds. (See section five of the report for full details.)

Our vision of the future hospital – a new model of clinical care. In: Future Hospital Commission. Future hospital: caring for medical patients, Royal College of Physicians; 2013: 26-28. Available from file:///C:/Users/mq74577883/Downloads/Future%20Hospital%20Commission%20full%20report_1_0.pdf

The Future Hospital Commission aims to develop a new model of care that delivers safe, high-quality care for patients across seven days. In the future, hospital services must be designed to deliver continuity of care as the norm for all patients, including those with multiple and complex conditions. This means delivering specialist and general medical care that is coordinated to meet the clinical, care and support needs of all patients.

This necessitates effective relationships between medical and other teams, and stable medical teams that deliver both excellent care and an effective environment in which to train the next generation of doctors. It will also require clear arrangements for providing ongoing care for patients when they need to move from one place of care to another, including when they leave hospital.

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Healthcare changes dramatically because of technological developments, from anesthetics and antibiotics to magnetic resonance imaging scanners and radiotherapy. Future technological innovation is going to keep transforming healthcare, yet while technologies (new drugs and treatments, new devices, new social media support for healthcare, etc) will drive innovation, human factors will remain one of the stable limitations of breakthroughs. No predictions can satisfy everybody; instead, this article explores fragments of the future to see how to think more clearly about how to get where we want to go.

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SECTION 5. CONCLUSION

A review of the literature on sustainability and health systems indicates that:

- Sustainability is increasingly recognised by governments, industries and public sectors around the world as an issue to be addressed as a matter of urgency.
- Common threats to sustainability include climate change, increasing population, ageing population, and increasing expectations of health services.
- Technology is both an opportunity and a threat in that it provides new solutions but at increasing cost.

A variety of methodologies have been proposed as providing pathways to a sustainable health system but further investigation is needed to assess their viability and to expand the range of possible options.