

Key findings and recommendations

This Atlas provides a fascinating insight into health care use across Australia. Sometimes variation in health care use reflects differences in the clinical needs of a population or differences in patient preferences and values. Yet variation can also be a sign that some people are missing out on the care they need or not receiving appropriate care. This represents unwarranted variation.

Addressing unwarranted variation can help ensure that more people receive appropriate care. Measurement of variation is the first step. Acting to improve the appropriateness of care where indicated is the next step.

This section presents the key findings and the Commission's recommendations for action.

1. Chronic disease and infection: potentially preventable hospitalisations

Almost half (47%) of the potentially preventable hospitalisations in Australia in 2014–15 were due to the five conditions examined in this chapter: chronic obstructive pulmonary disease (COPD), kidney infections and urinary tract infections (UTIs), heart failure, cellulitis, and diabetes complications. Substantial variation was observed between local areas (Statistical Area 3 – SA3) in the rates of hospitalisation for each condition. Variation was greatest for COPD (16-fold difference), diabetes complications and cellulitis (approximately 12-fold difference for both). Rates of hospitalisation for heart failure and UTIs varied seven-fold and six-fold, respectively.

The high hospitalisation rates and substantial variation reported for the chronic diseases in this chapter show that recommended care is not always provided for people with these conditions. Even with the significant funding provided through Medicare to better coordinate primary care for people with complex chronic disease, fragmented health services contribute to suboptimal management. Likely contributors to variation include a higher proportion in some areas of patients with the most complex chronic disease, for whom hospitalisation may be inevitable. Poor access to health services

in the community is also related to higher rates of potentially preventable hospitalisations. Ability to access health services is determined not only by clinician supply, but also by costs, transport and sufficient health literacy to know when to consult health providers. For all the conditions examined in this chapter, hospitalisation rates were higher among Aboriginal and Torres Strait Islander Australians, people living in areas of relative socioeconomic disadvantage, and those living in remote areas.

A fundamental component of system changes to reduce potentially preventable hospitalisations must be a shift to a better integrated primary care system, with a stronger focus on coordinating care. Critically, health systems also need to become better at managing disease where it already exists, to reduce the progression of chronic disease, minimise negative impacts and improve patients' quality of life.

Patients live with their chronic disease all day, every day. They have to be put at the centre of prevention and management, particularly in primary care. The implementation of a Health Care Home model will greatly improve appropriateness and coordination of care for patients with multiple chronic and complex conditions.

Data item	Range across local areas [^] per 100,000	Times difference	Times difference excluding top and bottom 10%	Number over one year
1.1 Chronic obstructive pulmonary disease Hospitalisations, all ages	63 to 990	15.7	3.3	66,250
1.2 Heart failure Hospitalisations, all ages	90 to 632	7.0	2.1	55,511
1.3 Cellulitis Hospitalisations, all ages	102 to 1,262	12.4	2.9	59,466
1.4 Kidney and urinary tract infections Hospitalisations, all ages	140 to 899	6.4	2.2	73,277
1.5 Diabetes complications Hospitalisations, all ages	52 to 601	11.6	2.8	43,737

[^] Statistical Area 3

Key findings and recommendations

1. Chronic disease and infection: potentially preventable hospitalisations

Recommendations

1a. Local Hospital Networks, Primary Health Networks and the Aboriginal Community Controlled Health Service sector to follow the following principles in developing chronic disease management programs, as described in the report of the Primary Health Care Advisory Group *Better Outcomes for People with Chronic and Complex Health Conditions* and consistent with the National Strategic Framework for Chronic Conditions:

- i. Voluntary patient enrolment with a practice or healthcare provider to provide a clinical 'home base' for coordination of, management of, and ongoing support for, the patient's care
- ii. Patients, families and carers as partners in care, where patients are activated to maximise their knowledge, skills and confidence to manage their health, aided by technology and with the support of a healthcare team
- iii. A risk stratification approach that supports identification of patients with high coordination and multiple provider needs, to ensure personalisation of service provision
- iv. Enhanced access by patients to care provided by their Health Care Home; this may include in-hours support by telephone, email or videoconferencing, and effective access to after-hours advice or care
- v. Nomination by patients of a preferred clinician, who is aware of their problems, priorities and wishes, and is responsible for their care coordination

vi. Flexible service delivery and team-based care that supports integrated patient care across the continuum of the health system through shared information and care planning

vii. A commitment to care that is of high quality and safe, including care planning and clinical decisions that are guided by evidence-based patient healthcare pathways, appropriate to the patient's needs

viii. Data collection and sharing by patients and their healthcare teams to measure patient health outcomes and improve performance.

Many patients will recognise features of the Health Care Home in their existing general practices.

Chronic obstructive pulmonary disease

1b. Local Hospital Networks, Primary Health Networks and the Aboriginal Community Controlled Health Service sector to promote appropriate care for the management of people with chronic obstructive pulmonary disease (COPD) using:

- i. *The COPD-X Plan: Australian and New Zealand Guidelines for the Management of Chronic Obstructive Pulmonary Disease 2016* as the routine model of care
- ii. Targeted anti-smoking programs in populations with high smoking rates, including areas with a high proportion of the population who are Aboriginal and Torres Strait Islander Australians, rural and remote areas, and areas of socioeconomic disadvantage.

1c. State and territory health departments to develop culturally appropriate pulmonary rehabilitation programs for Aboriginal and Torres Strait Islander Australians with COPD.

Heart failure

1d. Local Hospital Networks, Primary Health Networks and the Aboriginal Community Controlled Health Service sector to implement process improvement for the effective management of people with heart failure, including:

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- i. Multidisciplinary care across the acute and primary care sectors
 - ii. A combination of strategies, including non-pharmacological approaches such as physical activity programs and fluid or dietary management, and pharmacotherapy.
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Diabetes

1e. Local Hospital Networks, Primary Health Networks and the Aboriginal Community Controlled Health Service sector to promote appropriate care for the management of people with diabetes using:

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- i. The guidelines *General Practice Management of Type 2 Diabetes 2016–18* as the routine model of care
 - ii. The *Australian National Diabetes Strategy 2016–2020* to ensure the provision of integrated models of care
 - iii. Performance management frameworks to assess compliance of care with relevant diabetes treatment guidelines.
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All conditions associated with potentially preventable hospitalisations

1f. The Commission, in collaboration with Aboriginal and Torres Strait Islander Australians and relevant organisations, to produce resources for addressing health literacy.

1g. State and territory health departments, in collaboration with Aboriginal and Torres Strait Islander Australians, and Australian Government health agencies, to continue to invest in whole-of-government approaches for addressing the social determinants of health for Aboriginal and Torres Strait Islander Australians, people in areas of socioeconomic disadvantage, and people living in outer regional and remote areas.

1h. State and territory health departments to investigate funding and pricing strategies within the activity-based funding framework to promote appropriate care for people with conditions associated with potentially preventable hospitalisations, with a particular focus on potentially avoidable hospital readmissions.

1i. Australian, and state and territory health departments to develop appropriate service specifications, evidence-based education and training, and other tools to enable providers, patients, practice managers and the broader healthcare sector to engage with chronic disease management programs, such as Health Care Homes.

1j. Primary Health Networks to use HealthPathways, where practicable, to improve the coordination of care across providers for chronic conditions.

Key findings and recommendations

2. Cardiovascular conditions

Analysis of Statistical Area Level 3 (SA3) rates showed a nine-fold variation in hospitalisations for MI and a four-fold variation for hospitalisations for atrial fibrillation as a primary diagnosis.

In Australia, cardiovascular conditions are the leading cause of death and are responsible for 13% of hospitalisations. To address rates of cardiovascular hospitalisations, risk factors must be reduced through public health initiatives. System changes are needed to improve access to primary health care for high-risk groups, and primary and secondary prevention for individuals needs to improve. Increasing the health literacy of high-risk groups and their ability to self-manage risk factors is a vital component of any strategy to reduce hospitalisations due to cardiovascular diseases.

Hospitalisation rates for MI were three times higher among Aboriginal and Torres Strait Islander Australians than other Australians. Higher rates of hospitalisation for MI were also found in areas of socioeconomic disadvantage. Reducing smoking rates could decrease the number of hospitalisations for MI and atrial fibrillation significantly. Addressing the higher rates of smoking among Aboriginal and Torres Strait Islander Australians, people at socioeconomic disadvantage, and people living in remote areas could reduce cardiovascular hospitalisations in these groups, in particular.

Currently, routinely collected data are not sufficiently detailed to allow measurement of variations in outcomes after cardiovascular events, and to relate these to the appropriateness and effectiveness of care. Linking routine datasets would provide more information about patterns of cardiac care in Australia. Collecting more detailed data on cardiac care, ideally through a clinical quality registry, would enable more intensive analysis of treatments and outcomes, helping to guide future improvements in care. Routine review of benchmarked clinical performance and outcomes data through clinical quality registries could also improve cardiac care.

The original intent of this chapter was to examine patterns of use of many more investigations and therapies for cardiovascular disease. However, the available data would not have produced reliable results. For example, difficulties in tracking the care of patients transferred between hospitals meant that accurate pictures of variation in the use of interventions for MI could not be produced. Developing capabilities to use linked data will enable variation in care for patients with cardiac disease to be explored.

Data item	Range across local areas [^] per 100,000	Times difference	Times difference excluding top and bottom 10%	Number over one year
2.1 Acute myocardial infarction Hospitalisations, people aged 35–84 years	105 to 905	8.6	2.6	32,388
2.2 Atrial fibrillation Hospitalisations, people aged 35 years and over	192 to 740	3.9	1.7	58,608

[^] Statistical Area 3

Recommendations

2a. State and territory health departments to examine variation in the timeliness and access of patients to appropriate investigations and interventions for suspected acute myocardial infarction.

2b. The Commission to develop a clinical care standard on the management of atrial fibrillation.

Key findings and recommendations

3. Women's health and maternity

This Atlas examined variation in three women's healthcare interventions and two maternity care items. Analysis by Statistical Area Level 3 (SA3) showed marked rate differences across Australia in hysterectomy, endometrial ablation, cervical loop excision and cervical laser ablation, and third- and fourth-degree perineal tears.

Hysterectomy (surgical removal of the uterus – womb) and endometrial ablation (surgical removal of the inner lining of the uterus) are commonly used to treat heavy menstrual bleeding. The hysterectomy rate in Australia is one of the highest reported in the Organisation for Economic Co-operation and Development (OECD), and there is concern that hysterectomy may be overused to treat benign conditions.

This Atlas observed a seven-fold difference between the lowest and highest rates of hysterectomy and a 21-fold difference in rates of endometrial ablation. This finding extends understanding of variation from the first Atlas, and confirms there is marked variation in use of each procedure across Australia. Higher rates of hysterectomy in some areas could be due, in part, to lower use of less invasive treatments for heavy menstrual bleeding. Although hysterectomy stops menstrual bleeding in all women, it is a major surgical procedure. Pharmaceutical treatment is recommended as the first-line treatment for heavy menstrual bleeding, and endometrial ablation as the first surgical option, if appropriate and the woman prefers it. Improving access to these effective treatments may help some women avoid the need for hysterectomy.

This Atlas observed an 18-fold variation in rates of cervical loop excision or cervical laser ablation. Expanding availability of these precancer treatments in outpatient settings and ensuring use consistent with guidelines may reduce this variation.

In selected women aged 20–34 years, the Atlas observed a three-fold variation in caesarean section rates. Australia has a higher rate of caesarean section than the OECD reported average. Ensuring that young women with uncomplicated pregnancies have information and access to services that support their choices for first birth will help ensure the appropriate use of caesarean section.

In all women giving birth vaginally, the Atlas observed a 12-fold variation in rates of third- and fourth-degree perineal tears. Developing an agreed national standard of care to minimise the risk of perineal trauma in childbirth is a priority.

Data item	Range across local areas [^] per 100,000	Times difference	Times difference excluding top and bottom 10%	Number over one year
3.1 Hysterectomy Hospitalisations, women aged 15 years and over	115 to 763	6.6	2.1	27,586

Data item	Range across local areas [^] per 100,000	Times difference	Times difference excluding top and bottom 10%	Number over three years
3.2 Endometrial ablation Hospitalisations, women aged 15 years and over	19 to 390	20.5	4.2	28,606
3.3 Cervical loop excision cervical laser ablation Hospitalisations, women aged 15 years and over	23 to 408	17.7	2.1	43,920

Data item	Range across local areas [^] per 1,000 selected women	Times difference	Times difference excluding top and bottom 10%	Number over three years
3.4 Caesarean section, selected women aged 20–34 years	147 to 438	3.0	1.5	75,018

Data item	Range across local areas [^] per 1,000 vaginal births	Times difference	Times difference excluding top and bottom 10%	Number over three years
3.5 Third- and fourth-degree perineal tears, all vaginal births	6 to 71	11.8	2.9	18,463

[^] Statistical Area 3

Key findings and recommendations

3. Women's health and maternity

Recommendations

Hysterectomy and endometrial ablation

3a. The Medicare Benefits Schedule (MBS) Review Taskforce to ensure that MBS item descriptors relating to treatments for heavy menstrual bleeding are aligned with the care described in the Heavy Menstrual Bleeding Clinical Care Standard.

3b. State and territory health departments to ensure that women who have heavy menstrual bleeding have been offered clinically appropriate treatment options, as described in the Heavy Menstrual Bleeding Clinical Care Standard, before they are placed on a waiting list for hysterectomy.

3c. Relevant professional colleges to include intrauterine device insertion within their advanced training programs. They should also review incentives for clinicians to participate in continuing professional development training programs on intrauterine device insertion, and access to such programs, to increase the number of clinicians skilled in insertion of the levonorgestrel intrauterine system.

Cervical loop excision and cervical laser ablation

3d. State and territory health departments to implement outpatient models of care for cervical loop excision and cervical laser ablation to ensure that, if clinically appropriate, patients can be offered treatment in outpatient settings.

Caesarean section

3e. The Commission to work with relevant colleges and specialist societies to develop decision support tools on birth options for pregnant women aged 34 years and under without complications for birth.

3f. Maternity health services to ensure regular clinical review of perinatal data (National Core Maternity Indicators and additional data from perinatal datasets) by a multidisciplinary team that includes neonatologists.

3g. The Australian Institute of Health and Welfare, in collaboration with data providers and other stakeholders, to investigate ways of improving reporting of caesarean section rates according to obstetric and neonatal risk factors, such as use of the Robson classification.

3h. The Commission to refer the Atlas findings to the Community Care and Population Health Principal Committee of the Australian Health Ministers' Advisory Council for consideration in relation to the inclusion of caesarean section <39 weeks (273 days) without obstetric or medical indication as a National Core Maternity Indicator (as described in the AIHW report *National Core Maternity Indicators 2010–2013*, released in 2016).

Third- and fourth-degree perineal tears

3i. Relevant medical and midwifery professional colleges to develop, agree on and disseminate an agreed model of care for the second stage of labour to minimise the risk of severe perineal trauma.

3j. The Commission to work with Women's Healthcare Australasia, and relevant colleges and specialist societies to develop a clinical care standard on perineal care during vaginal birth, to improve national consistency of best practice for the prevention, recognition and management of severe perineal trauma.

4. Surgical interventions

This Atlas examined variation in six surgical interventions by Statistical Area Level 3 (SA3). Lumbar spinal fusion showed the largest variation between areas, with a seven-fold difference between the highest and lowest rates. Rates of spinal decompression showed a five-fold difference. A four-fold difference was found for rates of knee replacement, laparoscopic cholecystectomy, appendicectomy and cataract surgery.

For some of these procedures, 'indication creep' and differing clinician views of the value of the operation in new patient populations are likely to have contributed to the variation. For example, spinal fusion surgery was initially used primarily to treat fractures and deformities of the spine, but its use has now broadened to include treatment of degenerative spine disorders. In the case of cholecystectomy, introduction of the laparoscopic technique was followed by a sharp rise in its use. This may have been partly due to a lowering of the threshold for the procedure.

Wide variation in use of a surgical procedure may reflect a lack of agreement on its indications. For procedures with uncertain benefits outside a small patient population, substantial variation raises the likelihood that rates are too high in some areas. For the interventions in this chapter where the evidence is unclear, determining whether there are subgroups of patients who are more likely to benefit from the procedure should be a priority. Identification of patients who are likely to benefit would be aided by routine collection and analysis of the severity and nature of patients' presenting symptoms, and patient-reported outcomes after surgery. Limiting spinal fusion procedures undertaken because of low back pain has been recommended in the United Kingdom.

Ensuring that patients understand the evidence about the likelihood of risks and benefits is particularly important if the degree of benefit from surgical treatment is not clear. Accessible information, improved health literacy and high-quality tools for shared decision-making would support patients to make better informed choices about care.

The variation in rates of cataract surgery highlights inequity of access. The rate of cataract surgery hospitalisations for Aboriginal and Torres Strait Islander Australians was 80% of the rate for other Australians.

Key findings and recommendations

4. Surgical interventions

Data item	Range across local areas ^a per 100,000	Times difference	Times difference excluding top and bottom 10%	Number over one year
4.1 Knee replacement Hospitalisations, people aged 18 years and over	128 to 507	4.0	1.9	52,039
(See table below for 4.2 and 4.3)				
4.4 Laparoscopic cholecystectomy Hospitalisations, all ages	89 to 392	4.4	2.0	49,874
4.5 Appendicectomy Hospitalisations, all ages	103 to 360	3.5	1.7	40,752
4.6 Cataract surgery Hospitalisations, people aged 40 years and over	835 to 3,279	3.9	1.6	245,797

Data item	Range across local areas ^a per 100,000	Times difference	Times difference excluding top and bottom 10%	Number over three years
4.2 Lumbar spinal decompression Hospitalisations, people aged 18 years and over	30 to 156	5.2	2.0	44,169
4.3 Lumbar spinal fusion Hospitalisations, people aged 18 years and over	10 to 69	6.9	2.5	14,746

^a Statistical Area 3

Recommendations

Knee replacement

- 4a. The Medicare Benefits Schedule (MBS) Review Taskforce to ensure that MBS descriptors reflect the care described in the Osteoarthritis of the Knee Clinical Care Standard.

- 4b. State and territory health departments to use the Osteoarthritis of the Knee Clinical Care Standard to promote appropriate care for the management of people with knee pain, including conservative non-surgical management using a combination of non-pharmacological and pharmacological treatments.

- 4c. State and territory health departments to promote timely access to joint replacement or joint-conserving surgery when conservative management no longer provides adequate pain relief or maintenance of function.

Lumbar spinal decompression and fusion

- 4d. The Commission to lead work with relevant professional colleges and societies to develop an Australian guideline for management of low back pain and sciatica, to promote appropriate care for people with these conditions. This should be based on a modification of the 2016 National Institute for Health and Care Excellence guideline *Low Back Pain and Sciatica in Over 16s: Assessment and Management*, and any other relevant high-quality Australian and international evidence.

- 4e. State and territory health departments, and relevant colleges and specialist societies to implement the Australian guideline on low back pain and sciatica to promote appropriate care for people with low back pain and sciatica.

4f. The Commission to work with relevant specialists and experts to identify the next steps needed to define and deliver appropriate care for low back pain and sciatica.

4g. The Spine Society of Australia to publish the outcome of the pilot trial of the Australian Spine Registry. The Commission to work with the Spine Society of Australia to develop a business case for the development of a clinical quality registry for all patients undergoing spinal fusion and decompression surgery in Australia. All patients who have spinal fusion and decompression operations in Australia would be entered on this registry unless they opt out. The registry is to be established and operated according to the Framework for Australian Clinical Quality Registries.

Laparoscopic cholecystectomy and appendicectomy

4h. State and territory health departments to lead work with relevant professional colleges and societies to develop clinical guidance on timing, imaging and thresholds for surgery for appendicectomy and laparoscopic cholecystectomy.

4i. State and territory health departments, and relevant colleges and specialist societies to promote, disseminate and implement guidance on surgery thresholds for biliary disease and abdominal pain. To maximise implementation, the guidance should be incorporated within care pathways.

4j. The Commission to work with relevant professional colleges and specialist societies and HealthPACT to develop a technology brief to examine the evidence for the use of intraoperative cholangiography to delineate the biliary anatomy and to detect stones in the common bile duct.

Cataract surgery

4k. The Commission to develop a clinical care standard for cataract surgery, and the MBS Review Taskforce to ensure that MBS descriptors reflect the care described in the clinical care standard.

4l. State and territory health departments to work with the Aboriginal Community Controlled Health Service sector to ensure culturally appropriate, ongoing and consistent services for cataract assessment and cataract surgery in areas where these are needed.

Key findings and recommendations

General recommendations

Driving appropriateness of care

- 5a. The MBS Review Taskforce Committees to identify a range of educational and regulatory mechanisms to improve appropriate test ordering and interpretation. These might include clinical decision support, restrictions on ordering, individualised audit and feedback, and guidance on referrals to secondary care. Funders, test providers and clinicians to ensure these are used in practice and their effectiveness monitored.
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- 5b. The Australian Government and state and territory health departments to promote routine measurement and recording of obesity markers, such as body mass index (BMI) and waist circumference for all adults and children who attend primary care or an outpatient clinic, or who are admitted to a health service, to facilitate strategies to manage obesity being included as options in healthcare decision-making.
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- 5c. The Commission to work with relevant colleges, epidemiological experts and government agencies to develop methods for estimating population needs (expected rates and ranges) of specified interventions based on clinical consensus on best practice and the body of available academic literature.
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- 5d. The Council of Presidents of Medical Colleges to progress its work on obesity by identifying actions that can be taken by professional colleges and societies to improve the prevention and management of obesity.
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- 5e. Professional colleges and societies to work in partnership with relevant organisations within the Aboriginal and Torres Strait Islander health sector to provide cultural safety competency training to their members as part of continuing professional development.
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5f. The Commission to publish a set of core common questions for patient reported outcome measures (PROMS) for use in Australia.

5g. The Commission to work with the states and territories, the private healthcare sector and HealthPACT to identify best-practice models for the introduction of new technology in the Australian clinical setting and develop guidance, as required, to support appropriate uptake of new medical technology.

Supporting investigation of variation

5h. The Commission to develop, in collaboration with professional colleges, state and territory health departments and health service representatives (public and private), a guide for clinicians, health service managers and governing bodies of health services to investigate variation in health care and improve appropriateness of care.

5i. The Commission to work with professional colleges and specialist societies to develop resources for clinical leaders, heads of departments and managers on use of data to investigate variation and improve appropriateness of care, consistent with action 1.28 in the National Safety and Quality Health Service Standards (second edition). The resources should be suitable for adoption in training and continuing professional development curriculums for colleges.

5j. Health services to routinely monitor variation in clinical practice and patient outcomes, provide feedback to clinicians on their practice, and take action to improve care, consistent with action 1.28 in the National Safety and Quality Health Service Standards (second edition).

Improving data use

5k. The Commission to hold a roundtable meeting of policymakers, researchers, and clinicians experienced in using routine data sources to investigate variation, to identify ways in which those data sources could be better used for analysing appropriateness of care.

5l. The Australian Institute of Health and Welfare (AIHW) to develop the capacity for national linked data for examining variations in clinical practice, appropriateness of care and patient outcomes.

5m. The Commission to work with the AIHW, state and territory health departments, and researchers to use linked data for examining variations in clinical practice, and to support states and territories to drive appropriateness of care and patient outcomes. Cardiovascular disease to be an initial priority for this work.

5n. The Health Workforce Division of the Australian Government Department of Health to work with the Australian Health Practitioner Regulation Agency (AHPRA) to expand data collection on clinician location of practice so the extent of practice in outer regional and remote areas is quantified. Professional colleges, and states and territories, to use the expanded data on workforce statistics to inform the number and location of training positions.

5o. The Commission to work with the AIHW, state and territory health departments, and researchers to investigate methodologies for monitoring changes in unwarranted variation over time, and the impacts of actions to reduce variation.
