

Chapter 2

Diagnostic interventions



At a glance

Almost 600,000 Medicare Benefits Schedule (MBS) funded fibre optic colonoscopies were performed in Australia in 2013–14, and the number of services is likely to rise as the National Bowel Cancer Screening Program increases its coverage. Very large variations were seen in colonoscopy rates across the country – the highest rate was 30 times that of the lowest. Even when highest and lowest rates were removed, the rate was more than four times higher in one local area compared with another. Rates were higher in high socioeconomic populations in metropolitan areas and decreased with distance from major cities. Participation in the National Bowel Cancer Screening Program follows similar trends, with higher participation in metropolitan areas.

Approaches to screening and initial treatment for prostate cancer are controversial. More than 25,000 MBS-funded prostate biopsies were performed in Australia in 2013–14, with considerable variation across the country.

Low back pain is a frequent reason for presentation to general practitioners, who may refer patients for diagnostic imaging. However, inappropriate use of diagnostic imaging exposes patients to unnecessary radiation. More than 314,000 MBS-funded computed tomography (CT) scans of the lumbar spine were performed in 2013–14, with marked variation around Australia, suggesting overuse of this investigation.

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Recommendations

Fibre optic colonoscopy

- 2a. The MBS Review Taskforce reviews relevant MBS item(s) to align reimbursement with adherence to the existing National Health and Medical Research Council (NHMRC) clinical practice guidelines for surveillance colonoscopy.
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- 2b. Primary health networks work with general practitioners to ensure colonoscopy referral practices align with applicable NHMRC guidelines and the Royal Australian College of General Practitioners' guidelines for preventive activities in general practice (the red book). In addition, general practitioners recommend faecal occult blood test screening to age-appropriate patients.
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- 2c. The Australian Government Department of Health continues to use educational materials related to the National Bowel Cancer Screening Program to promote key health messages, in particular among lower socioeconomic and rural and remote populations, about faecal occult blood testing and the substantial benefits of early diagnosis on patient outcomes.
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- 2d. The Commission hosts a roundtable of clinical, consumer, and Australian, state and territory government representatives to support specialty-led strategies to improve adherence to the relevant NHMRC guidelines for surveillance colonoscopy in bowel cancer screening.
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Prostate Biopsy 40 years and over

- 2e. Clinicians follow the clinical practice guidelines for prostate-specific antigen testing and early management of test-detected prostate cancer from the Prostate Cancer Foundation of Australia and Cancer Council Australia, and the Royal Australian College of General Practitioners' Guidelines for preventive activities in general practice (the red book).
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- 2f. Clinicians use the prostate cancer screening decision aid produced by the Royal Australian College of General Practitioners for patients who request screening.
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- 2g. NPS MedicineWise, as part of its Choosing Wisely campaign, monitors effective implementation of the Royal College of Pathologists of Australasia recommendations on prostate-sensitive antigen testing.
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Computed tomography of the lumbar spine

- 2h. The Commission reviews the need for updating the NHMRC guidelines on lumbar imaging in acute non-specific low back pain as part of the ongoing national guideline prioritisation processes.
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- 2i. Relevant clinical colleges review the availability and quality of education and training materials, and continuing professional development courses, to improve clinicians' knowledge and skills in referring patients or using CT imaging of the lumbar spine.
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- 2j. NPS MedicineWise, as part of its Choosing Wisely campaign, monitors effective implementation of the Royal Australian and New Zealand College of Radiologists recommendation that imaging should not be performed in patients with non-specific acute low back pain.
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Background

The development of modern medicine has led to advances in diagnostic interventions that were not available to previous generations. An emerging challenge is to ensure the appropriate use of these diagnostic interventions to benefit, rather than harm, patients. Diagnostic tests are used to assist clinicians and patients with diagnoses and treatment options.

This chapter considers three diagnostic tests – fibre optic colonoscopies, prostate biopsies and computed tomography of the lumbar spine. All are widely used and have known benefits for detecting disease. However, if they are used when there is a low chance of detecting significant treatable disease, they can cause harm.

Colonoscopies are used to screen for colorectal cancer and other large bowel diseases. Colorectal cancer is the second most common cause of cancer death in Australia¹, and the number of colonoscopies performed in Australia has increased.² Possible reasons for this include:

- the introduction of the National Bowel Cancer Screening Program
- the ageing population
- the increasing prevalence of colorectal cancer
- the availability of open-access endoscopy units
- the increasing use of private endoscopy services compared with public endoscopy services.³

Prostate biopsies are used to detect prostate cancer. Prostate cancer is the third-largest cause of cancer death among Australian men. Almost all patients presenting with localised prostate cancer live beyond five years, with 10-year survival rates at 93 per cent and 15-year survival rates at 77 per cent.⁴ If early detection tests indicate prostate cancer may be present, a prostate biopsy is performed to determine whether this is the case. The number of prostate biopsies performed has increased as a result of the greater use of the prostate-specific antigen (PSA) test to detect preclinical cancer.²

The screening of apparently healthy men using the PSA test is a complex issue and the subject of ongoing debate in Australia and internationally. While screening may offer a longer life to those with aggressive cancers, it may harm men with cancers that would have caused no symptoms or harm by exposing them to treatments that cause significant adverse effects without any compensating benefit.⁴

Computed tomography of the lumbar spine is used to detect spinal abnormalities associated with low back pain. In Australia, low back pain is the leading cause of years lived with disability.⁵ Radiation doses from CT scans are about 100 times higher than plain X-rays resulting in potential harm if overused.⁶ Most lower back pain has no accompanying abnormalities on imaging.

Chapter overview

This chapter includes the following data items:

- fibre optic colonoscopy
- prostate biopsies 40 years and over
- computed tomography of the lumbar spine.

International comparisons

In recent decades, colorectal cancer survival rates have improved in developed countries as a result of advances in cancer prevention, screening and management practices. In England, the *NHS Atlas of Variation in Healthcare* reported a two-fold variation in rates of colonoscopy procedures and flexible sigmoidoscopy procedures across geographical areas.⁷

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Internationally, prostate cancer rates vary widely due to differences in lifestyle, detection practices, particularly in the use of PSA testing in men with and without symptoms, and treatment options. The highest prostate cancer rates are found in high-income areas of the world, such as Australia, western and northern Europe and North America. However, the highest mortality rates are found in South America, the Caribbean and sub-Saharan Africa. Studies of healthcare variation in the United States report a seven-fold variation in prostate biopsy rates.⁸

The use of CT scans for low back pain is increasing worldwide.⁹ The appropriateness of spinal imaging has been investigated in Canada. The findings suggested that financial interests, defensive medicine and consumer demand were leading to overuse of spinal imaging. A study from Canada's National Pain Centre has highlighted that CT scans were often unnecessary, particularly for patients with degenerative spinal disease.¹⁰

A study in the United States found that a significant proportion of variation in rates of spinal surgery is due to differences in the rates of advanced spinal imaging (CT and magnetic resonance imaging).¹¹ Improved consensus on the interpretation of spinal imaging studies is likely to reduce unwarranted variations.

Australian initiatives

National guidelines provide directions on the appropriate use of fibre optic colonoscopies¹² and prostate biopsies.¹³

In relation to CT imaging of the lumbar spine, the Royal Australian and New Zealand College of Radiologists has education modules about appropriate referrals for medical imaging. This includes the use of CT imaging for acute low back pain.¹⁴

About the data

The data in this chapter is from the MBS dataset, which does not include publicly funded hospital services.

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- 3 DLA Piper Australia. Review of MBS colonoscopy items. Canberra: Department of Health and Ageing, 2011.
- 4 Cancer Council Australia. Prostate Cancer. 2014. (Accessed 7 October 2015 at: www.cancer.org.au/about-cancer/types-of-cancer/prostate-cancer.html#note_1).
- 5 Vos T, Barber RM, Bell B, Bertozzi-Villa A, Biryukov S, Bolliger I, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990–2013: a systematic analysis for the global burden of disease study 2013. *The Lancet*. 2015;386(9995):743.
- 6 Goergen S, Maher C, Leech M, Kuang R. Acute low back pain. Education modules for appropriate imaging referrals. Sydney: Royal Australian and New Zealand College of Radiologists, 2015.
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- 8 The Center for the Evaluative Clinical Sciences, Dartmouth Medical School. The Dartmouth Atlas of Health Care. Chicago, Illinois: American Hospital Publishing, 1996.
- 9 Dagenais S, Galloway EK, Roffey DM. A systematic review of diagnostic imaging use for low back pain in the United States. *The spine journal*. 2014;14(6):1036–48.
- 10 Busse J, Alexander PE, Abdul-Razzak A, Riva JJ, Alabousi M, John Dufton D, et al. Appropriateness of spinal imaging use in Canada. Ottawa: Canadian Institutes of Health Research, 2013.
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- 12 Australian Cancer Network Colorectal Cancer Guidelines Revision Committee. Guidelines for the prevention, early detection and management of colorectal cancer. Sydney: Cancer Council Australia and Australian Cancer Network, 2005.
- 13 Prostate Cancer Foundation of Australia PSA Testing Guidelines Expert Advisory Panel. Draft clinical practice guidelines for PSA testing and early management of test-detected prostate cancer. Sydney: Prostate Cancer Foundation of Australia and Cancer Council Australia, 2014.
- 14 The Royal Australian and New Zealand College of Radiologists. Education modules for appropriate imaging referrals (Accessed 3 September 2015 at: www.ranzcr.edu.au/quality-a-safety/program/key-projects/education-modules-for-appropriate-imaging-referrals).