Evidence–Practice

gaps REPORT

Volume 1

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National Institute of Clinical Studies

The National Institute of Clinical Studies is Australia's national agency for helping close the gaps between evidence and practice in health care.

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Preface

Preface

The National Institute of Clinical Studies (NICS) is Australia's national agency for helping close the gaps between evidence and practice in health care. Our aim with this report is to raise awareness of the gaps between what is known from the best available research and what is actually done in day-to-day practice. We hope that information presented in this format is helpful to those interested in making health care more effective.

Although we have deliberately used an informal style, every effort has been made to ensure the material is factually correct. We have cited authoritative sources of evidence such as Cochrane systematic reviews and National Health and Medical Research Council guidelines, where available.

The evidence–practice gaps chosen represent situations of apparent underuse or overuse across the health care system. They do not provide a complete picture of where such gaps exist and many important areas are not covered. Our selection was determined in part by the availability of Australian data. For instance, many nursing and allied health topics were considered but not included because of the shortage or absence of data on current practice. The lack of available data on many important aspects of care represents a real limitation in our capacity to monitor the uptake of evidence. Clearly, there is an imbalance between our confidence in the evidence and the uncertainty about the state of current practice. This means that we do not know whether people are getting the care that will deliver best outcomes.

'Knowing–doing gaps' occur in every industry – the problem is not unique to health care, nor to Australia. The existence of gaps between what we know and what we do is an internationally recognised dilemma. There are complex reasons why these gaps occur, many of them related to the way systems are designed and operate. Although we have highlighted the existence of overall gaps, there is often great variability within this whole picture.

Some of the examples in this report – the treatment of heart failure, pain management and prevention of venous thromboembolism – have been identified as clinical priority areas for NICS and projects are either underway or planned to address the gaps between the evidence and current practice.

We intend to produce another volume of the NICS *Evidence–Practice Gaps Report* and would welcome input from anyone with an interest in the application of evidence in health care. Suggested topics and novel ideas are sought for how routinely collected data could be used to shed light on the application of evidence in clinical practice.

Evidence–practice

Evidence–practice gaps

The difference between what we know from the best available research evidence and what actually happens in current practice.

Advising on smoking cessation

Why is this important?

More than one in five Australians who visit a general practitioner smoke.[1] Cigarette smoking is the largest preventable cause of death and disease in Australia. Some 19,000 annual deaths and 20 per cent of cancer deaths can be attributed to tobacco use.[2,3] It is also estimated to cost the community $21 billion each year.[4]

Best available evidence

We know that GPs who give brief advice to smokers can have an impact. Pooled data from 16 trials reveals a small but significant increase in the proportion of patients who successfully give up smoking when they have been advised by their GP, compared with those who receive no advice.[5]

There are several strategies that can enhance the effectiveness of advice from a doctor, including pharmacotherapies such as nicotine replacement therapy and buproprion.

Nicotine replacement approximately doubles the odds of quitting and is effective regardless of the amount of advice provided.[6]

Current practice

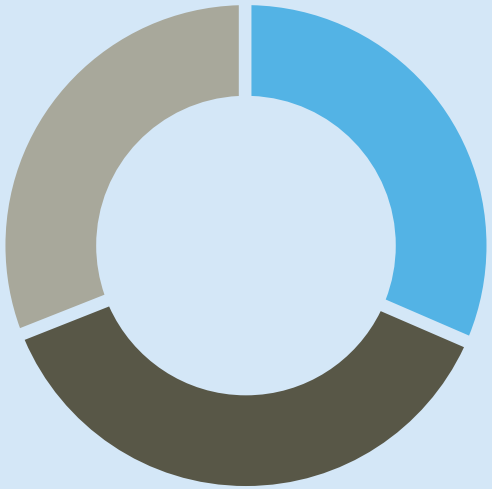
GPs in Australia typically identify 65 per cent of their patients who smoke and provide cessation advice or counselling to only about half of these.[7–9] These figures have remained virtually unchanged for the past 10 years.[10]

Implications

- Giving a patient brief advice on smoking cessation can influence their decision to quit.
- The cost of such advice is small yet can result in significant overall public health benefits. This practice should therefore be encouraged in Australian practices.

Smoking is the largest preventable cause of death and disease in Australia. Giving a patient brief advice on smoking cessation can influence their decision to quit.

Smoking cessation advice in general practice



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Advising on smoking cessation in pregnancy

Why is this important?

Cigarette smoking by pregnant women can harm not only their own health, but also that of the foetus. Smoking during pregnancy doubles the risk of having a low birthweight baby.[1] It is also associated with a higher risk of spontaneous abortion, premature birth, stillbirth, sudden infant death syndrome (SIDS), cleft palate and cleft lip, and childhood cancers.[2]

In Australia, smoking rates for women are higher in younger age groups. The prevalence of smoking among women generally peaks between the ages of 20 and 24, remains high for those aged 25 to 29, then starts to decline.[3] High smoking rates happen to coincide with peak fertility, given that the average age of first-time mothers is 27 years and 29 years for mothers generally.[4] It should not be a surprise then that approximately 30 per cent of women are smokers when they become pregnant and about 20 per cent smoke during pregnancy.[5]

Best available evidence

There is compelling evidence from a large number of trials that smoking cessation programs can be effective in reducing smoking rates among pregnant women, and consequently in reducing the adverse effects on both mothers and babies.[6]

Pregnancy is a time when many women are motivated to make healthy lifestyle changes, including quitting smoking, and it is also a time when they have regular contact with health professionals.[7] In Australia, nearly all women who give birth attend some sort of antenatal care, whether it is provided by general practitioners, obstetricians, midwives, nurses, antenatal clinics or antenatal classes.

For pregnant women, psychosocial treatments (such as self-help materials and counselling) are preferred over pharmacotherapies such as nicotine replacement therapy, because the pharmacotherapies carry some risk to the foetus. The data show that extended psychosocial interventions, such as those involving more intensive counselling, work better than minimal advice.

Although stopping smoking early in the pregnancy will be of greatest benefit to the foetus and expectant mother, smoking cessation at any point during pregnancy is beneficial.[5]

Current practice

Generally there is limited information on whether antenatal care providers in Australia are identifying and counselling pregnant women who smoke. However, the available data suggest it is not routine practice. For example, a 2002 study found that no smoking cessation advice was given to almost three-quarters of women smokers who were 30 weeks into pregnancy and had contacted health care providers.[8]

One in five women smoke during pregnancy. Although stopping smoking early in pregnancy will be of greatest benefit, quitting at any point during pregnancy is beneficial.

Another study which looked at the local protocols and national policies developed and used by providers of antenatal care in Australia found that 90 per cent of protocols did not include written information and advice about smoking cessation. Only 28 per cent of the protocols included smoking as an item on a checklist.[9]

Implications

- Antenatal care providers should offer effective smoking cessation interventions to pregnant women who smoke.
- Whenever possible, pregnant women who smoke should be strongly encouraged to undergo extended psychosocial interventions that exceed minimal advice to quit.

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Screening for lung cancer with chest X-rays

Why is this important?

Lung cancer is the leading cause of cancer death in Australia. When we talk of lung cancer we include malignancies of the trachea, bronchus and lung. These cancers caused 7038 Australian deaths in 2001, which equated to 19 per cent of all cancer deaths.[1] Lung cancer has a poor prognosis, with only 12 per cent of patients still alive five years after diagnosis.

Since 1991 there has been a 22 per cent drop in the male death rate from lung cancer, but among women the death rate has increased by nearly nine per cent. It comes as no surprise to learn that the most important risk factor for lung cancer is tobacco use. Smoking is estimated to cause up to 95 per cent of new lung cancer cases, hence the increasing number of women with lung cancer, due to their increased tendency to smoke.[2] Despite progress being made in tobacco control, there will continue to be a high death toll from lung cancer among current and former smokers for many years to come.

There are four different types of lung cancer. The most aggressive types usually spread to other organs before they can be detected on chest X-ray. Work is underway in Australia to consider the potential of lung cancer screening by helical computed tomography (a newer, more sensitive diagnostic tool) among high-risk groups, but reliable evidence is currently not available to recommend its use for this purpose.

Best available evidence

There have been numerous trials of chest X-ray screening for lung cancer. However, current evidence does not support annual chest X-ray screening. When compared with 'less frequent' chest X-ray screening, 'more frequent' screening is at best ineffective and at worst harmful.[3]

Evidence does not support annual chest X-ray screening of current or former smokers to detect lung cancer.

Current practice

Chest X-rays are ordered at the rate of one for every 100 general practitioner encounters, making them the most frequent imaging test ordered by GPs.[4] Over 1.5 million chest X-rays are reimbursed through Medicare every year, with about equal numbers performed on females and males, and most among people aged 65–74 years.

One study has found that only 1.2 per cent of chest X-rays are ordered for tobacco abuse, while twice that number are ordered as part of a general check-up.[5] On that basis it is reasonable to conclude that the extent of overuse is relatively modest. On the other hand, published data from an earlier survey of GPs tells a different story. A national survey of more than 800 GPs was conducted in 1996 to determine the level of chest X-ray screening for lung cancer among heavy smokers.[6] One in five believed that an annual chest X-ray was an effective screening test. Twenty-two per cent of those surveyed reported that they recommend an annual chest X-ray as a screening test for asymptomatic heavy smokers.

Implications

- Research from the mid-1990s tells us that more than one in five GPs believed it was appropriate to refer patients known to be heavy smokers for annual chest X-rays.
- If these beliefs prevail and translate into practice, many hundreds of thousands of chest X-rays would be performed with no evidence of benefit and some evidence that they may increase the risk of premature death.
- The cost to the health care system of such unnecessary 'screening' would be in the order of tens of millions of dollars annually.

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Preventing stroke in patients with atrial fibrillation

Why is this important?

In Australia, stroke affects 40,000 people every year and is the third most common cause of death.[1,2] There are many known risk factors for stroke. One major risk factor is atrial fibrillation, a rapid and irregular heart beat. Its prevalence increases with age, from two per cent in the total population, to five per cent in people over 65 years, and 10 per cent in people over 75 years.[3]

Atrial fibrillation increases the risk of stroke because the rapidly beating heart does not completely empty of blood. Blood pools and therefore forms clots that may break off and travel to the brain and block small arteries. Brain cells thus deprived of blood can die, causing permanent disability, coma or death.

Best available evidence

There is now considerable evidence to support the use of blood-thinning agents (anticoagulants) in the prevention of stroke in some patients with atrial fibrillation, especially those with specific risk factors, such as previous stroke, high blood pressure, heart failure and advanced age.

An analysis of trials involving a total of 2313 patients with atrial fibrillation found a reduction in stroke, heart attack and death in the patients treated with anticoagulants. While an increase in the rates of brain haemorrhage may have been expected with the use of anticoagulants, the risk was not significantly increased.

A review of two trials involving 485 people with atrial fibrillation and a past history of stroke found that anticoagulants reduced the recurrent risk of stroke by two-thirds. No brain haemorrhages were reported among people given anticoagulants.[4]

Consistent with this evidence, the current National Health and Medical Research Council guidelines recommend the use of the oral anticoagulant warfarin for people with atrial fibrillation to prevent stroke, in certain circumstances.[5]

Current practice

Many countries report data demonstrating the underuse of warfarin in patients with atrial fibrillation. There is evidence from England, Canada and the USA that less than half the patients who are appropriate candidates for warfarin are receiving it.[6–8]

A recent Australian study found that 16 per cent of the patients studied were receiving warfarin to prevent stroke, but a further 64 per cent could have been receiving it if published clinical guidelines were applied.[9] The study concluded that the number of preventable strokes far outweighed the problems associated with warfarin use in the management of atrial fibrillation.

For every 1000 patients with atrial fibrillation, by taking oral anticoagulants about 25 will avoid experiencing a stroke and 12 will avoid dying from a stroke.

Implications

- There is evidence to support the wider use of anticoagulants in a subgroup of patients with atrial fibrillation.
- Each year, for every 1000 patients with atrial fibrillation who are given anticoagulants, we can assume that about 25 fewer people will experience a stroke and 12 fewer will die from a stroke than would be the case if they were not given them.[10]
- While there are dangers and costs associated with warfarin use and monitoring, the wider use of warfarin in certain patients could prevent significantly more strokes each year.

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Using ACE inhibitor and beta-blocker therapies in heart failure

ACE inhibitor

Why is this important?

Heart failure is a chronic and complex syndrome with high morbidity and mortality, and is a major health care burden. It is estimated to affect one to two per cent of all Australians and is known to increase sharply with age, affecting around 10–13 per cent of people aged 65 years and older.[1,2] In 2000, an estimated 325,000 Australians were affected by heart failure. A further 214,000 were estimated to have underlying heart failure without overt symptoms.[3]

In elderly people, heart failure is a common reason for seeing their general practitioner and a common cause of hospital admission, with a longer than average length of stay.[1,3] The cost of heart failure to the Australian health care system was estimated to be greater than $1 billion in the year 2000 and is predicted to continue to rise.[3] This is because of the ageing of the population, the increase in people suffering from high blood pressure, and improved survival rates for people who experience heart attacks – all of which are known risk factors for the later development of heart failure.[4]

The National Institute of Clinical Studies has chosen heart failure as one of its clinical priority areas because published data suggest there is a gap between evidence and current practice, particularly in the use of angiotensin-converting enzyme (ACE) inhibitor and beta-blocker therapies.

Best available evidence

The term ‘heart failure’ or ‘chronic heart failure’ is used here in preference to the term ‘congestive heart failure’ because symptoms of congestion are not always present.[5]

The definition includes either systolic or diastolic dysfunction of the ventricle(s) or a combination of both.[4] Systolic heart failure is defined as the inability of the heart to pump normally and is the most common form of heart failure. Diastolic heart failure refers to impairment of filling of the ventricle(s). It should be noted that most of the good quality evidence about heart failure relates to patients with documented systolic ventricular dysfunction.[4]

Numerous clinical practice guidelines on the management of patients with chronic heart failure have been published in recent years, including guidelines for Australia and New Zealand.[4–7] These guidelines recommend that all patients with heart failure due to left ventricular systolic dysfunction should be started on treatment with an ACE inhibitor, regardless of whether the patient’s symptoms are mild, moderate or severe, or even when the patient suffers no symptoms at all. The recommendations are based on evidence that ACE inhibitors improve symptoms of heart failure, improve heart function, decrease admissions to hospital and enable patients to live longer.[8,9] ACE

Some heart failure morbidity and mortality could be prevented through the more widespread use of ACE inhibitor and beta-blocker therapies.

inhibitor therapy has also been shown to stop patients with left ventricular dysfunction from later developing symptoms of heart failure.[10,11]

Beta-blockers are recommended therapy for patients with heart failure due to left ventricular systolic dysfunction after stabilisation with diuretic and ACE inhibitor therapy, regardless of whether or not symptoms persist.[7] Evidence shows that beta-blocker therapy can improve survival, decrease hospitalisation and improve left ventricular function.[2,12–15]

Current practice

The Cardiac Awareness Survey and Evaluation (CASE) study found that ACE inhibitors were under-prescribed by GPs in Australia. It found that ACE inhibitors were prescribed by GPs in 58 per cent of patients aged 60 years and over with chronic heart failure and in 71 per cent of patients in whom ventricular dysfunction had been objectively documented.[1] Alternatives to ACE inhibitors, in patients who cannot tolerate this medication or who have contraindications, were prescribed in five per cent of chronic heart failure patients and seven per cent of systolic heart failure patients. Similarly, studies of patients with congestive heart failure in hospital suggest that ACE inhibitors are under-prescribed by hospital medical staff.[16] These findings are consistent with those of similar international studies.[17]

The CASE study also reported under-prescribing of beta-blocker therapy by medical specialists. It found that beta-blockers approved for heart failure use were prescribed for less than six per cent of chronic heart failure patients. At the time of the study, only specialists were permitted to prescribe beta-blockers approved for heart failure use in Australia.

Evidence supporting the benefits of beta-blockers in all severities of heart failure due to left ventricular systolic dysfunction has been published since the CASE study, and GPs in Australia are now permitted to prescribe two of the beta-blockers approved for heart failure. Studies of GPs indicate that there are a number of barriers to beta-blocker therapy in community settings.[18] Underutilisation of beta-blocker therapy has also been reported in patients hospitalised with heart failure.[16]

Implications

- The prognosis and quality of life for people with heart failure is poor, with only 50 per cent surviving 12 months in severe cases, and 50 per cent surviving five years in asymptomatic cases.[19] Patients diagnosed with heart failure have a three times higher chance of dying within three years than patients diagnosed with breast cancer.[20]
- While there are documented barriers to the effective assessment and management of heart failure patients, some of this morbidity

and mortality could be prevented through the more widespread use of ACE inhibitor and beta-blocker therapies in all patients in whom ventricular dysfunction has been objectively documented.[18]

- Echocardiography is the preferred investigation for the assessment of ventricular function.[4–7] Several Australian and overseas studies have reported that echocardiography is not routinely used by doctors when diagnosing heart failure.[1,17,21] Increased awareness of the appropriate use of echocardiography is needed to improve the assessment of people with heart failure.
- Quality improvement programs are needed that address clinicians' practical concerns about applying research findings to their daily practice. Systems of care that better support the complex needs of people with chronic conditions like heart failure are also required.

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Measuring glycated haemoglobin in diabetes management

Why is this important?

Diabetes is the seventh leading cause of death in Australia and affects one million Australians, half of whom may be unaware they have it.[1] The aim of diabetes management is about achieving near normal blood glucose levels, because better diabetes control is associated with improved outcomes and a reduction in the development and progression of complications, such as eye, kidney and nerve disease.

Best available evidence

In two major trials, the UK Prospective Diabetes Study and the Diabetes Control and Complications Trial, improved diabetes control was assessed by glycated haemoglobin (HbA1c) measurement. HbA1c concentration, which gives an indication of the average blood glucose level over the past two to three months, is accepted as the gold standard for measuring 'long-term' diabetes control.

The American Diabetes Association recommends that HbA1c testing be performed at least once every six months for people with diabetes who have stable blood glucose levels and every three months in those whose therapy has changed or who are not meeting blood glucose goals.[2–4] National Health and Medical Research Council guidelines are currently being developed.

Current practice

Using Medicare data, it is estimated that only 27 per cent of people with diabetes met the minimum testing frequency for HbA1c tests in 1999–2000.[1] The graph opposite shows the percentages for men and women in each age group.

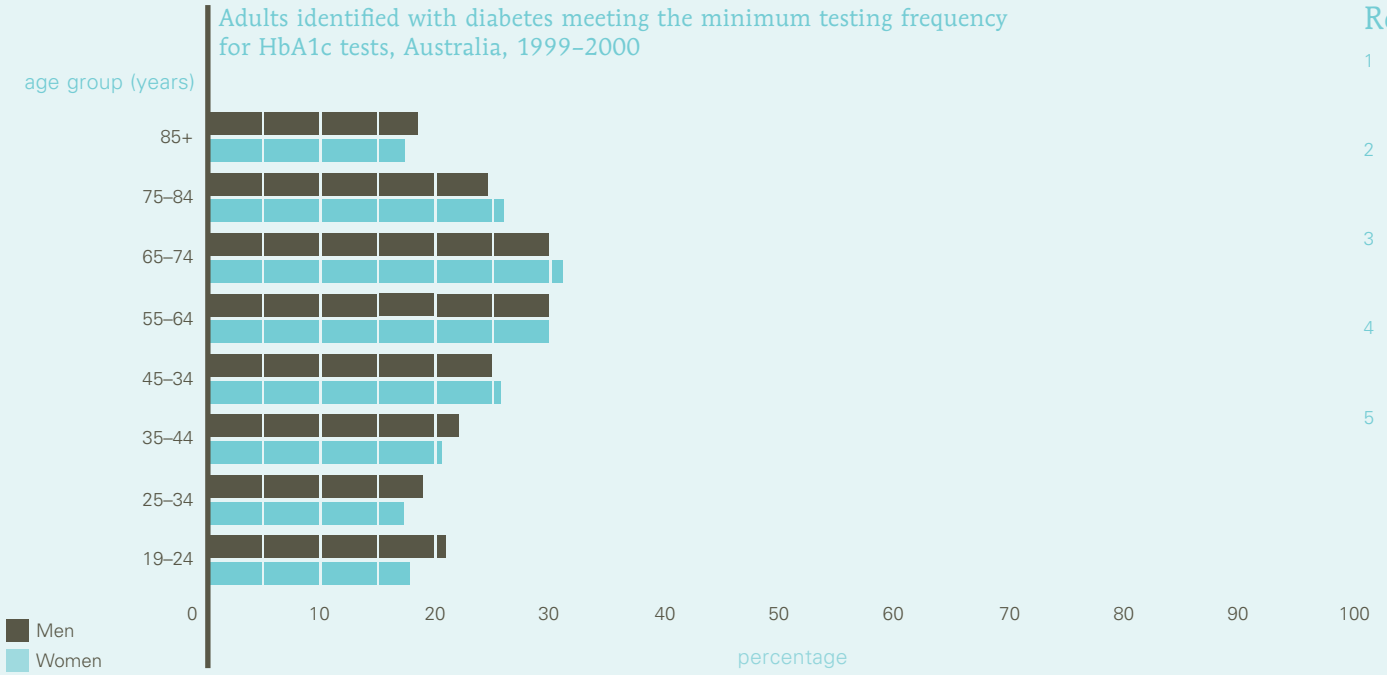
Data from other sources also suggest that many Australians with diabetes are not having HbA1c tests as often as recommended, and there may be considerable interstate variation.[5]

Implications

- HbA1c testing is not being performed as frequently as the guidelines recommend, and this is likely to have an impact on achieving target blood glucose control.
- Increased consumer and health professional awareness of the guideline recommendations regarding HbA1c measurement is required to help improve management of diabetes.

It is estimated that almost three-quarters of people with diabetes are not having glycated haemoglobin tests performed as frequently as recommended.

Adults identified with diabetes meeting the minimum testing frequency for HbA1c tests, Australia, 1999–2000



Source: Australian Institute of Health and Welfare (2002)

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Prescribing antibiotics for the common cold and acute bronchitis

Why is this important?

The common cold and acute bronchitis are among the most common illnesses seen in general practice in Australia.[1] Mostly, they are self-limiting viral infections with symptoms that clear up over a week or two. For the majority of patients presenting with these problems, antibiotics will provide little or no benefit and may cause side effects such as nausea, vomiting, diarrhoea and rash. There is also the issue of cost and the potential for inducing antibiotic resistance.

Best available evidence

Recent reviews have looked at the use of antibiotics for the common cold and acute bronchitis.[2,3] For the common cold, the reviewers found that patients receiving antibiotics did no better than those taking placebo and had significantly more side effects. For acute bronchitis, antibiotics were found to have a modest beneficial effect, but the magnitude of this benefit was similar to the detriment from potential adverse effects.

However, in certain circumstances, for example when a patient is immunosuppressed, it may be appropriate to prescribe antibiotics.[4]

Current practice

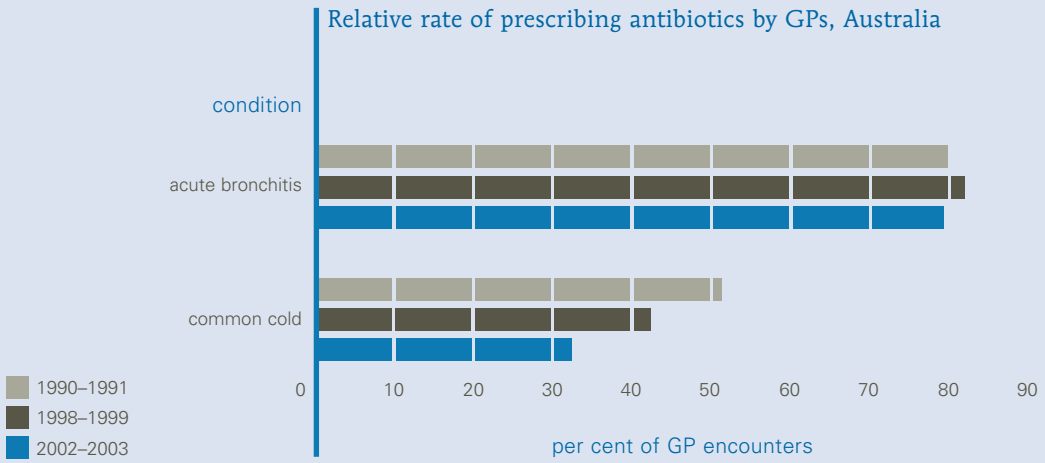
Acute bronchitis is the most common problem managed with antibiotics in Australia.[1] There has been little change in the rate of antibiotic prescribing for this condition since the beginning of the 1990s.[5]

The common cold represents the second most common problem managed with antibiotics in Australian general practice. The rate of antibiotic prescribing for this condition has declined from over half to less than a third of GP encounters between 1990–91 and 2002–03.

Implications

- There is no mandatory need for early *routine* prescription of antibiotics for colds or acute bronchitis.
- Although antibiotic use for colds has decreased substantially in Australia, it remains high.
- There has been no apparent decrease in antibiotic prescribing for acute bronchitis which remains very high.
- Side effects from antibiotics are common.
- Unnecessary use of antibiotics adds to the problem globally of the development of resistant bacteria which may be difficult to treat.[6]

Four out of five patients diagnosed with acute bronchitis are prescribed antibiotics, although there is no mandatory need for their early routine prescription.



Source: AIHW General Practice Statistics and Classification Unit, University of Sydney (2003)

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Preventing venous thromboembolism in hospitalised patients

Why is this important?

There are two common types of thromboses that can occur in a person's veins – deep vein thrombosis (DVT) and pulmonary embolism (PE). These are different manifestations of the same disease process, venous thromboembolism (VTE).

The incidence of VTE has been found to be around 135 times greater among hospitalised patients compared to those in the community.[1] Recent research suggests that close to a quarter of those with VTE had recently been hospitalised for surgery and another quarter for a medical illness. Some 75 per cent of fatal PEs in hospitals struck high-risk medical patients.[2]

The prevention of VTE in hospitals has been identified internationally as a stand-out opportunity to improve patient safety. Not only is there a strong evidence base for VTE preventive measures, but they are relatively cheap and straightforward to implement.[3,4]

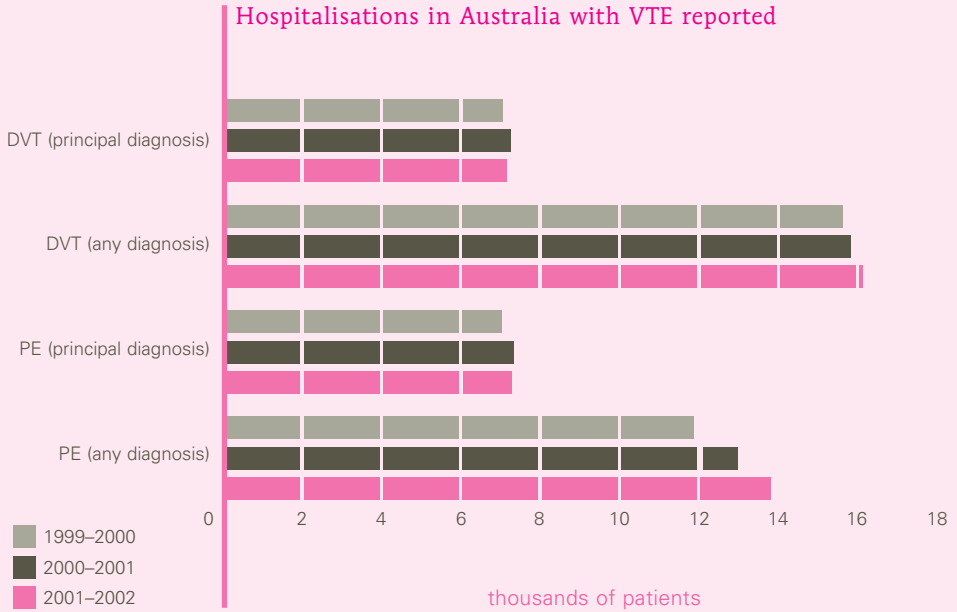
In Australia, each year there are approximately 16,000 hospitalisations where DVT is among the conditions reported. For PE, the number is almost 14,000. Assuming a case fatality rate of 15 per cent for PE,[5] there would be 2000 deaths from this cause annually across Australia. PE is one of the single most common preventable causes of hospital death, accounting for or contributing to 10 per cent of all deaths in hospital.

The National Institute of Clinical Studies has identified the underuse of preventive measures for VTE as a clinical priority. Published clinical audits suggest there is a large gap between evidence and practice.

The prevention of venous thromboembolism in hospitals has been identified internationally as a stand-out opportunity to improve patient safety.

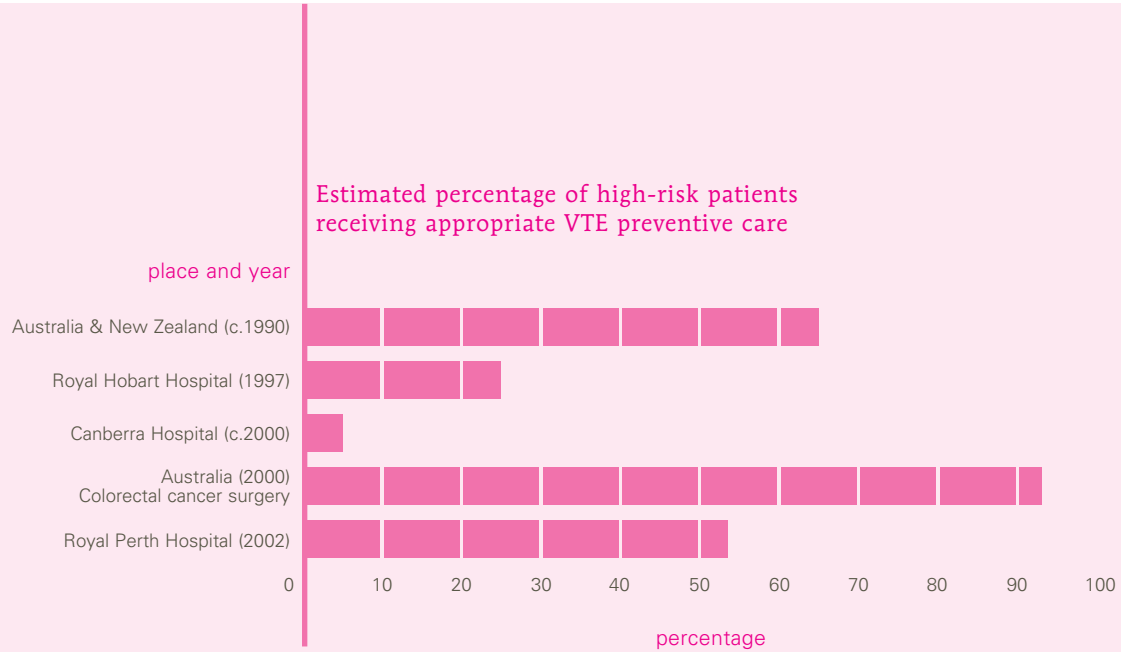
Best available evidence

Various pharmacological and mechanical methods are used to prevent VTE, including the use of heparin (both unfractionated and low molecular weight), warfarin, aspirin, elastic compression stockings and intermittent pneumatic compression. Numerous clinical guidelines on prevention have been published in recent years, including two editions of guidelines for Australia and New Zealand.[6–11] There are also two other Australian clinical practice guidelines that make recommendations for patients with specific conditions.[12,13]



DVT: ICD-10-AM code I80.2; PE: ICD-10-AM codes I26.0 and I26.9

Source: Australian Institute of Health & Welfare (S. Halpin, pers. comm., 28 Jul 2003)



Sources: Fletcher et al. 1992; Peterson et al. 1999; Wan et al. 2003; Ahmad et al. 2002; McGrath & Spigelman 2003

Current practice

Various reports have presented data on prevention of VTE among high-risk, mainly orthopaedic surgery patients, in an Australian setting.[14–17] In patients with colorectal cancer, preventive care for VTE is more likely in capital city hospitals.[18] At the same time, a rural-based study of surgeons has identified prevention of VTE as an area requiring further education.[19]

Implications

- VTEs occur and are sometimes the cause of death among a proportion of hospital patients either while they are inpatients or within a few months of their discharge. Much of this morbidity and mortality could be prevented.
- Widespread use of preventive measures could be introduced to surgical and medical patients who are identified as being at risk.
- The opportunity exists to provide appropriate evidence-based, cost-effective thrombosis prevention to all at-risk patients, both during their hospital stay and during their outpatient care, if necessary.

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Preparing for elective colorectal surgery

Why is this important?

In Australia, the majority of patients who are about to undergo elective colorectal surgery are first treated to cleanse their bowels.[1] For about 100 years, this has been considered essential in minimising the chance of postoperative complications.[2] However, there is no evidence that routine bowel preparation improves patient outcomes.[1] It may even lead to an increased rate of wound infection.[3]

Best available evidence

A recent review compared bowel preparation with no preparation in 1159 patients undergoing elective colorectal surgery.[2] The results did not show that bowel preparation reduced the rate of postoperative complications. It is therefore worth questioning its routine use. The National Health and Medical Research Council guidelines published in 1999 noted that there is no evidence of a benefit from routine bowel preparation.[1]

Current practice

According to the National Colorectal Cancer Care Survey (2000), current practice is not in line with the NHMRC guidelines.[4] This survey reported that 93 per cent of patients having elective colorectal surgery received some form of bowel preparation.

Implications

Not using bowel preparation would avoid the potential complications associated with this procedure, including:

- nausea, bloating and cramps;
- electrolyte disturbance; and
- fluid overload.[2]

It could also mean a shorter hospital stay for the patient, saving valuable health dollars.

Nine out of ten patients having elective colorectal surgery receive some form of bowel preparation, yet there is no evidence it improves patient outcomes.

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Using colonoscopy in colorectal cancer surgery follow-up

Why is this important?

Colorectal cancer is the most commonly diagnosed internal cancer. It is the second leading cause of cancer death in Australia. In 2000, there were 12,405 new cases and 4718 deaths from colorectal cancer. As with many other cancers, people are more likely to suffer from this particular type as they age. Recent data show a significant improvement in the survival of those with colorectal cancer, compared to figures from a decade earlier. Some 58 per cent of men and women diagnosed with colon cancers are alive five years later. For those with rectal cancer, 61 per cent of women and 57 per cent of men were still alive five years after diagnosis.[1]

The number of people in Australia being diagnosed with colorectal cancer is growing due to the ageing of the population, but with improved treatment and earlier diagnosis, it is expected we will see more people being successfully treated. We also hope to see substantial progress in the prevention of the disease.

People with a personal history of colorectal cancer are at risk of a recurrence of the cancer as well as development of new cancers and pre-cancerous adenomas ('polyps'). Identification at an early stage – either as an adenoma or a curable cancer – is vital to long-term survival.[2] Colonoscopy can detect cancer recurrence and is especially appropriate for the detection of new cancers and polyps, which generally occur later in follow-up.[3] However, too frequent use of colonoscopy when following up patients after colorectal cancer surgery is costly and ties up valuable resources.

Best available evidence

The National Health and Medical Research Council guidelines recommend that most patients with colorectal cancer have pre-operative colonoscopy to detect additional (synchronous) polyps and cancers that may be present, or if this is not possible, then within six months of surgery.

A recent study reported better survival after surgery for colorectal cancer among patients who had intensive follow-up using techniques such as computed tomography and frequent measurements of cancer-related antigen levels in the blood.[4] In apparent contrast, other studies of intensive follow-up examination including colonoscopy aiming to detect recurrences have shown little effect on patient outcomes.[4,5] This is because many recurrences of the original cancer have already spread beyond the bounds of surgical cure by the time they are detectable by a colonoscope.[2]

The rate of death within five years of colorectal cancer surgery has been shown to be 43 per cent lower among patients who had at least one colonoscopy performed over that time relative to those who had no follow-up colonoscopy.[6] Clearly, colonoscopic surveillance is advantageous when performed at the recommended interval of three to five years. There is no evidence of additional benefit when performed more frequently than this.

A recent Australian study found that colonoscopic follow-up examinations are being done too frequently.

Current practice

It appears that follow-up colonoscopy is being performed too frequently relative to the NHMRC recommendations. For example, one investigation in Perth studied the patterns of postoperative colorectal cancer surveillance.[7] It was found that 75 per cent of the patients had a colonoscopy 12 months after surgery and 48 per cent of these cases underwent a further examination within 12 months. Only 23 per cent of these examinations concurred with NHMRC guidelines, which currently recommend a colonoscopy at an interval of three to five years for patients who have had colorectal cancer surgery.[2,3] This is mainly to detect the development of new cancers and polyps, rather than a recurrence of the original cancer.

Recently it was shown that the supervised application of the NHMRC guidelines to a colorectal cancer surveillance program reduced the number of colonoscopies performed, bringing practice more into line with the recommended screening interval.[8]

Implications

- More and more people are being diagnosed with and successfully treated for colorectal cancer. It is recommended that such individuals have colonoscopic follow-up every three to five years.
- The frequency of examination using colonoscopy after surgery for colorectal cancer exceeds current NHMRC and North American recommendations.
- Excessive testing has financial and resource implications for health services and exposes patients to unnecessary risks.[9]

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Managing acute and cancer pain in hospitalised patients

Why is this important?

Pain is justifiably feared by patients undergoing surgery and those with a diagnosis of cancer. Unrelieved pain can interfere with sleep, general activity, mood and relationships with other people.[1,2] Poorly managed postoperative pain may slow recovery and be a risk factor for some complications.

Published data on postoperative pain suggests moderate to severe pain occurs in 62, 36 and 21 per cent of post-surgical patients treated with intramuscular analgesia injections, intravenous patient-controlled analgesia and epidural analgesia, respectively.[3]

The International Association for the Study of Pain collected data on pain in 1095 cancer patients across 24 countries, including Australia. These patients were already prescribed opioid analgesics yet 53 per cent of patients rated their average pain as moderate to severe and 65 per cent were experiencing breakthrough pain.[4]

While there is little published data on the prevalence of pain in Australian hospitals, available figures suggest similarity with other countries. In one Brisbane hospital, 77 per cent of 204 medical and surgical inpatients reported pain and of those, a third had moderate to severe pain.[5] Of 114 oncology patients in two Brisbane hospitals, 48 per cent reported pain and 44 per cent of those had moderate to severe pain.[6] Another study of 93 cancer patients at a Sydney teaching hospital found that a third had moderate to severe pain,[2] and further calculations revealed that 15 per cent of the outpatients and 59 per cent of the inpatients were in moderate to severe pain.

Best available evidence

Postoperative and cancer pain can be well controlled in 80–90 per cent of patients when treatment is tailored to individual circumstances.[3,7,8] However, the increasing

Many patients continue to suffer unnecessarily.

availability of evidence-based guidance for the assessment and management of acute and cancer pain [9–13] has failed to overcome established attitudes, practices and beliefs that hinder effective pain relief [14,15] and many patients continue to suffer unnecessarily.

Current practice

The barriers to effective pain management in health care institutions have been well documented and isolated studies confirm their presence in the Australian context. They include attitudes that pain is inevitable and is merely a symptom that is not harmful in itself.[16] Stubborn misconceptions persist about tolerance, addiction and side-effects with the opioid analgesics used to treat significant pain.[2,6,17] Many health care organisations fail to ensure that effective pain management for all patients is core business.[18] Health care professionals outside specialist pain services do not routinely assess or document pain,[19] underestimate patients' levels of pain,[20,21] are inconsistent and conservative in their approach to pain relief medications,[17, 22–24] and many lack adequate knowledge or education about pain management.[17,23,25,27] Patients are often unwilling or unable to report their pain and may be reluctant to take prescribed medications.[2,5,6,17] It is not known what proportion of patients receive information about pain management.

In Australia, it is estimated that perhaps 10–20 per cent of hospital inpatients are under the care of specialist acute pain services, where those services exist, and the overwhelming majority are surgical patients. The proportion of cancer inpatients accessing specialist pain or palliative care services is not known, but pain and symptom control is a common reason for such referrals.[21,28]

Implications

There is little data available on the prevalence of pain in Australian hospitals and the clinical practices used for its assessment and management. Barriers to effective practice are, however, consistent with international literature, making it likely that pain is significantly and widely undertreated. Specialist pain and palliative care services have limited resources and therefore limited reach to patients in pain.

Organisation-wide quality improvement programs to implement generic pain management standards have been advocated to reduce barriers, improve practice and lessen the burden of pain in hospitals. While evidence of their success is mixed,[29,30] some initiatives based on Institute for Healthcare Improvement Collaborative methods show promise.[31]

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Glossary

Glossary

ACE inhibitors

Medications that widen blood vessels and lower blood pressure by blocking the production of angiotensin II. ACE stands for angiotensin-converting enzyme.

Acute

Of short duration, but may be relatively severe.

Adenoma

A benign tumour that starts in gland tissue or has a gland-like appearance. It may become cancerous if not treated.

Analgesia

Absence or relief of pain.

Analgesic

Acting to relieve pain.

Antenatal

Before birth.

Antibiotic

A substance that inhibits the growth of or kills micro-organisms.

Anticoagulant

A substance that slows or stops blood clotting.

Antigen

A substance that induces an immune response in the body, especially the production of antibodies.

Asymptomatic

Showing no obvious symptoms of disease.

Atria

The two upper cavities of the heart (cf. ventricles).

Atrial fibrillation

A condition where there is disorganised electrical conduction in the atria of the heart, resulting in ineffective pumping of blood into the ventricles.

Beta-blockers

Medications that reduce the workload of the heart and lower blood pressure. They are used to treat high blood pressure, angina and heart failure.

Bowel preparation

A cleansing of the intestines from faecal matter and secretions.

Breakthrough pain

A brief increase in pain that occurs on a background of otherwise stable pain.

Bronchitis

Inflammation of one or more of the larger air passages of the lungs.

Chronic heart failure

see heart failure

Colonoscopy

An examination of the large intestine (colon and rectum) using a flexible fibre-optic instrument inserted through the anus.

Colorectal

Relating to or affecting the large intestine (colon and rectum).

Computed tomography

A radiographic technique that uses a computer to assimilate multiple X-ray images into a two-dimensional cross-sectional image. This can reveal many soft tissue structures not shown by conventional X-rays.

Deep vein thrombosis (DVT)

The formation of a blood clot in a major vein, usually in the lower leg or thigh. Occasionally the clot may occur in other areas such as the upper arm, abdomen or pelvic region.

Diastolic

Refers to the phase of the heartbeat when the heart muscle relaxes and allows the chambers to fill with blood (cf. systolic).

Diuretic

Causing increased excretion of urine.

Echocardiography

A diagnostic tool that uses ultrasound waves to produce a moving image of the patient's beating heart on a video screen and allows the physician to study the heart's thickness, size and function, as well as the motion pattern and structure of the four heart valves.

Elective (surgery or medical treatment)

Chosen by the patient and/or doctor rather than required as an emergency.

Electrolyte disturbance

An inappropriate level of an electrolyte (such as sodium, potassium or chloride) in the bloodstream.

Epidural (injection)

Introduced into the space around the dura mater (tough fibrous outer membrane) of the spinal cord.

Glycated haemoglobin (HbA1c)

Component of blood haemoglobin to which glucose molecules become attached. Its measure reflects the average blood glucose levels over the past two to three months and thus provides a good method of assessing overall diabetic control.

Haemorrhage

Bleeding from a ruptured blood vessel.

HbA1c

Abbreviation for glycated haemoglobin.

Heart failure

A chronic condition in which at least one chamber of the heart is not pumping well enough to meet the body's needs. This leads to congestion in the lungs or pulmonary blood vessels and may cause fluid backup or swelling in the lungs, legs and ankles.

Helical computed tomography

Computed tomography in which the X-ray tube continuously revolves around the patient, who is simultaneously moved longitudinally. It provides three-dimensional images displaying the entire volume of organs and vessels.

Heparin

A naturally occurring substance which prevents blood clotting.

Hypertension

Higher than normal blood pressure (the force or tension of the blood in the walls of the arteries). Hypertension stresses the heart and can contribute to coronary artery disease, heart attack and stroke.

Immunisation

A technique used to induce immune resistance to a specific disease in a person or animal.

Morbidity

Ill-health in an individual or levels of ill-health in a group.

Mortality
Death rate.

Opioid
A drug with similar properties or physiological effects to opium.

Orthopaedic surgery
Surgery to remedy disorders in bones, muscles, tendons, ligaments and related structures.

Palliative care
Care for the terminally ill and their families.

Pharmacotherapy
Medical treatment using drugs.

Intermittent pneumatic compression
Periodic compression of the calf and/or thigh muscles by a mechanical device, applied immediately before or during surgery.

Polyp
A small growth, usually benign, that protrudes from a mucous membrane such as the lining of the intestines.

Pre-cancerous
Likely to develop into cancer if untreated.

Prognosis
A prediction of the likely course of a disease or ailment.

Psychosocial treatment
Treatment designed to address psychological and social needs.

Pulmonary embolism (PE)
Occurs when a segment of a blood clot within a major vein breaks off, travels to the lungs and lodges within the arteries there.

Stroke
Occurs when an artery supplying blood to the brain suddenly becomes blocked or bleeds. Often causes speech problems or paralysis of parts of the body.

Synchronous
Occurring at the same time.

Systolic
Refers to the phase of the heartbeat when the heart muscle contracts and pumps blood from the chambers into the arteries (cf. diastolic).

Thrombosis
Coagulation or clotting of the blood, frequently causing obstruction of the blood vessel.

Venous thromboembolism
Refers to blockage within the venous system. It includes deep vein thrombosis (DVT) and pulmonary embolism.

Ventricles
Pumping chambers: the lower two chambers of the heart are called ventricles (cf. atria).

Warfarin
An oral medication which prevents blood clotting.

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