Acknowledgements

This report was produced by the National Institute of Clinical Studies (NICS) and consultant, Paul Ireland.

We value the generous assistance received from many recognised experts in clinical care and data analysis. We are particularly indebted to the following for critically reviewing draft material and providing information on data sources and details of initiatives taking place in relation to their areas of expertise:

Ralph Audehm, Melanie Benson, Chris Bladin, Helena Britt, Stephen Colagiuri, Peter Colman, Ruth Comish, Jeff Flack, John Fletcher, Martin Gallagher, Alex Gallus, Melina Gattellari, Andrew Gilbert, Nicholas Glasgow, Stacy Goergen, Chris Gordon, Debra Gordon, Jane Grimm, Mark Harris, Kelvin Hill, Nancy Huang, Shane Jackson, Christopher Levi, John Litt, Judith Lumley, Judith Mackson, Penny Marshall, Danielle Mazza, Kyle McIntosh, Ying Pan, Indrani Pieris-Caldwell, Cameron Platell, Tom Reeve, Robyn Richmond, Stephan Schug, Michael Solomon, Nigel Stocks, Robert Thomas, Graeme Young.

© Australian Government 2008

Paper-based publications

This work is copyright. Apart from any use as permitted under the Copyright Act 1968, no part may be reproduced by any process without prior written permission from the Commonwealth available from the Attorney General’s Department. Requests and inquiries concerning reproduction and rights should be addressed to the Commonwealth Copyright Administration, Attorney General’s Department, Robert Garran Offices, National Circuit, Canberra, ACT, 2600 or posted at: www.ag.gov.au/cca.

ISBN print 1864964391

© Australian Government 2008

Electronic documents

This work is copyright. You may download, display, print and reproduce this material in unaltered form only (retaining this notice) for your personal, non-commercial use or use within your organisation. Apart from any use as permitted under the Copyright Act 1968, all other rights are reserved. Requests for further authorisation should be directed to the Commonwealth Copyright Administration, Attorney General’s Department, Robert Garran Offices, National Circuit, Canberra, ACT, 2600 or posted at: www.ag.gov.au/cca

ISBN online 1864964456

Suggested citation


For copies of this document please contact:

Email: nhmrc.publications@nhmrc.gov.au
Phone: Toll Free 13 000 NHMRC (13 000 64672) or call 02 6217 9000
Website: www.nhmrc.gov.au

NICS is an institute of the National Health and Medical Research Council (NHMRC) and works to improve health care by getting the best available evidence from health and medical research into everyday practice.
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgements</td>
<td>ii</td>
</tr>
<tr>
<td>Preface</td>
<td>iv</td>
</tr>
<tr>
<td>Advising on smoking cessation</td>
<td>2</td>
</tr>
<tr>
<td>Advising on smoking cessation in pregnancy</td>
<td>6</td>
</tr>
<tr>
<td>Screening for lung cancer with chest X-rays</td>
<td>8</td>
</tr>
<tr>
<td>Preventing stroke in patients with atrial fibrillation</td>
<td>10</td>
</tr>
<tr>
<td>Using ACE inhibitor and beta-blocker therapies in heart failure</td>
<td>14</td>
</tr>
<tr>
<td>Measuring glycated haemoglobin in diabetes management</td>
<td>18</td>
</tr>
<tr>
<td>Prescribing antibiotics for upper respiratory tract infections and acute bronchitis</td>
<td>20</td>
</tr>
<tr>
<td>Preventing venous thromboembolism in hospitalised patients</td>
<td>24</td>
</tr>
<tr>
<td>Preparing for elective colorectal surgery</td>
<td>28</td>
</tr>
<tr>
<td>Using colonoscopy in colorectal cancer surgery follow-up</td>
<td>30</td>
</tr>
<tr>
<td>Managing acute and cancer pain in hospitalised patients</td>
<td>32</td>
</tr>
</tbody>
</table>
Preface

What happens to evidence-practice gaps over time?

When the National Institute of Clinical Studies first published its report on important evidence-practice gaps in the Australian health care system, its aim was to raise awareness of the gaps between what is known from the best available research and what is actually done in current daily practice.

Best practice recommendations should be reviewed every three to five years because the evidence may change as a result of advances in research; and change is an ever-present reality in the way health care is delivered. Now, more than three years since the release of its Evidence-Practice Gaps Report, Volume 1, NICS has taken a fresh look at the evidence, data on current practice, and new policies and initiatives; and has provided an update for each identified evidence-practice gap to address the question posed above.

Reviewing the evidence for each of the 11 topic areas in Volume 1 was relatively straightforward. Reassuringly, what was recommended as best practice in 2003 still applies in most cases.

Establishing whether progress has occurred in clinical practice and quantifying how much improvement is occurring requires reliable and timely sources of data. In Volume 1, NICS highlighted the need for more widespread and effective use of data; and it is pleasing to see that significant developments in data availability and usage have taken place in a number of key areas.

We all know how hard it can sometimes be to bring about change in clinical practice. There is an impressive amount of activity going on that is directed towards closing the identified gaps, although the report has highlighted some challenges which are still to be addressed. By raising awareness of these problems, I am confident this report will provide a useful foundation for developing new policies and programs directed towards narrowing these important gaps.

Professor Warwick Anderson AM
Chief Executive Officer
National Health and Medical Research Council
The difference between what we know from the best available research evidence and what actually happens in current practice.
Advising on smoking cessation

In 2003,[1] we reported that:
Smokers were more likely to quit smoking if they received advice on smoking cessation from their GPs.
GPs were generally unaware of the smoking status of a third of their patients who were smokers, and provided smoking cessation advice to only half of those whom they knew to be smokers.

Now

A review of developments from 2004 to 2007 has found that:
There has been no significant change in the level of self-reported daily smoking in Australia.
Smoking cessation advice provided by nurses in primary care settings has the potential to increase the likelihood of smokers quitting.
Initiatives such as the Smoking cessation guidelines for Australian general practice and Lifescripts help GPs to provide better smoking cessation advice more often, and may have played a part in the substantial increase in calls to Quitline services in 2006.
Without current data on rates of smoker identification or the provision of smoking cessation advice by GPs, it is difficult to determine whether the evidence-practice gap for advising on smoking cessation is being closed.

What has changed since Volume 1?

Best available evidence
A Cochrane review on physician advice for smoking cessation had found a small but significant increase in the proportion of patients who successfully gave up smoking following advice from their GP, compared with those who received no advice. When this review was updated in 2004, the conclusions remained the same.[2]
Another Cochrane review published in 2004 found that provision of brief smoking cessation advice by nurses across a variety of settings, including primary care, can also increase the likelihood of smokers quitting, and can have similar levels of effectiveness as advice provided by GPs.[3]
Evidence is also emerging on the impact of other initiatives in increasing uptake of effective smoking cessation strategies and quit rates. These include quit lines (telephone smoking cessation services),[4,5] and subsidised nicotine replacement therapy linked with use of a quit line.[4,6,7]

Current practice
As cited in Evidence-Practice Gaps Report, Volume 1 (the Gaps Report 1), GPs identify around two thirds of smokers, and only half of these are given smoking cessation advice or counselling (Figure 1).[1]
Since then, the proportion of smokers identified by GPs and who receive smoking cessation advice or counselling has not changed;[8,9] and figures are similar for a number of other countries.[10–12] However, it has been found that advice rates are higher where clinicians have received feedback or incentives to become involved in smoking cessation.[7]
Guidelines

In 2004, the first Smoking cessation guidelines for Australian general practice were developed and distributed to all GPs nationally.[16] The guidelines use an evidence-based approach to providing smoking cessation advice, and are based on the 5As framework (Ask, Assess, Advise, Assist, Arrange). They build upon the clinical approach of the Smokescreen program,[17–19] and integrate GP advice with Australian state and territory Quitline services.[20] They give GPs the option to manage smoking cessation themselves, refer to Quitline, or use a combination of the two. A small study of 42 general practice staff found that three months after a two-hour training session on how to use the guidelines, there was a high rate of continuing use of the guidelines and a self-reported increase in confidence in smoking cessation counselling skills.[21] An earlier study found that GPs who received reinforcement contact after a training workshop for the Smokescreen program, were more likely to still be using the program at six months compared with those who received no follow-up after the training.[18]

Tools and resources

In 2004, the Department of Health and Ageing commissioned Lifescrpts, a range of Lifestyle Prescription resources. In 2005, the Australian Divisions of General Practice began rolling out implementation of Lifescrpts. The Lifescrpts initiative aims to provide GPs with tools for helping patients make healthier lifestyle choices, particularly in the areas of smoking, nutrition, alcohol and physical activity.[22]

Centre for Excellence in Indigenous Tobacco Control

In September 2003, the Centre for Excellence in Indigenous Tobacco Control (CEITC) was established with funding of $1 million over three years from the Commonwealth Department of Health and Ageing under the National Tobacco Strategy.[23] The CEITC is part of a capacity building project, that also includes work around smoking and Indigenous health workers and development of culturally appropriate Indigenous tobacco control resources.[24]

Initiatives to help close the gap

In the Gaps Report 1, it was reported that of those Australians who visit a GP, more than 1 in 5 smoke.[13] Between 2000–01 and 2004–05 there was no significant change in the prevalence of self-reported daily smoking.[14] In 2006 however, Quitline (a nationwide telephone smoking cessation service) reported that calls had doubled, from just over 80,000 in 2005 to 165,140 in 2006.[15]
References


Advising on smoking cessation in pregnancy

Best available evidence

Cigarette smoking during pregnancy carries increased health risks for both mother and baby. There is a greater risk of low birthweight for the baby, spontaneous abortion, premature birth, stillbirth, sudden infant death syndrome (SIDS), cleft lip and palate, and childhood cancers.[1]

A Cochrane review of interventions for promoting smoking cessation during pregnancy was updated in 2004. It confirms the conclusions of the original review that smoking cessation programs can be effective in reducing smoking rates among pregnant women, in reducing preterm birth and low birthweight, and in increasing mean birthweight. It recommends that smoking cessation programs should be implemented in all maternity care settings as a routine part of antenatal care.[2]

Results from the Australian Longitudinal Study on Women's Health have reconfirmed that pregnancy is a time when women may be particularly motivated to quit smoking. The study found current pregnancy to be the most powerful predictor for quitting, with pregnant women being 3.8 times more likely to quit smoking than women who were not pregnant. The most powerful predictor for resuming smoking was no longer being pregnant.[3]

What has changed since Volume 1?

There is an increasing recognition of the need to focus on relapse prevention during or following pregnancy,[2,3] but there is currently insufficient evidence on how best to do this.[4]

Current practice

There is still limited information on whether antenatal care providers in Australia are identifying and counselling pregnant women who smoke.

According to the Perinatal Data Collection,[5] rates of maternal smoking during pregnancy in Australia appear to have fallen slightly from 19.2 to 16.7 per cent between 2001 and 2004. Similarly, the rate of smoking during pregnancy and/or breastfeeding in Australia fell from 23 to 20 per cent between 2001 and 2004, according to the National Drug Strategy Household Survey.[6] In 2004, roughly half of pregnant Aboriginal and Torres Strait Islander women reported smoking during pregnancy.[5]

It is currently estimated that around 20 to 30 per cent of women quit smoking when they fall pregnant. However, around 70 per cent of these relapse either while still pregnant or after the baby is born.[7]
In 2004, the first Smoking cessation guidelines for Australian general practice were developed and distributed to all GPs nationally.[8] These guidelines,[9] which include advice, an intervention algorithm, and a list of resources specifically tailored for pregnant and lactating women who smoke, were due to be evaluated in 2007.

Government-funded initiatives

In the 2005–06 Budget, the Australian Government committed $4.3 million over three years for programs to help women – particularly Indigenous women – stop smoking during and after pregnancy by encouraging doctors, midwives and Indigenous health workers to give advice to pregnant women about the damage caused by smoking. A National Advisory Group on Smoking and Pregnancy (the Advisory Group) was formed to advise and assist the Department of Health and Ageing on effective initiatives to stop smoking by pregnant women.[10] As the Smoking and Pregnancy funding has now been allocated, the Advisory Group is no longer active.

The Advisory Group recommended a number of activities, which have been completed or are underway.

These include:

- A scoping study to inform the development of priority areas for funding.
- Qualitative research to explore smoking policies and smoking and pregnancy cessation interventions.
- Adoption of the National clinical guidelines for the management of drug use during pregnancy, birth and the early development years of the newborn[11] as the national guidelines for smoking and pregnancy.
- A report by the Australian Institute of Health and Welfare entitled Smoking and Pregnancy, which utilises National Perinatal Data.[12]
- Development of one or more national standard data elements on smoking during pregnancy by the National Perinatal Data Development Committee, to facilitate nationally consistent and comparable data on smoking in pregnancy.[12]
- Development of a Pregnancy Lifescripts Kit focusing on smoking, alcohol use and nutrition. The Smoking and Pregnancy Lifescript was launched in December 2006.[13]
- Many State Government initiatives (such as the inclusion of smoking cessation interventions in maternity performance indicators) are underway, in addition to those funded by the Australian Government.

References

Screening for lung cancer with chest x-rays

In 2003,[1] we reported that:
Evidence did not support annual chest x-ray screening of current or former smokers to detect lung cancer. Despite the evidence, 22 per cent of GPs who responded to a national survey in 1996 reported that they recommended an annual chest x-ray as a screening test for asymptomatic heavy smokers.

Now

A review of developments from 2004 to 2007 has found that:
There is no up-to-date, local information on the practice of annual chest x-ray screening of asymptomatic individuals for the early detection of lung cancer. Consequently, there is insufficient justification to consider chest x-ray screening for lung cancer as a current evidence-practice gap.

What has changed since Volume 1?

Best available evidence
Lung cancer is still the leading cause of cancer death in Australia and the leading cause of death before the age of 79 years due to cancer. Although there was an improvement during the 1980s and 1990s in the five-year relative survival ratio for lung cancer, lung cancer still has the lowest likelihood of survival (less than 1 in 8) of all the national priority cancers.[2]

Smoking is responsible for around 80 per cent of all lung cancer deaths in Australia. In 2004–05, 23 per cent of Australian adults were current smokers and 30 per cent were ex-smokers.[3] Clearly, an identifiable segment of the population is at elevated risk of developing this life-threatening cancer.

While screening for the early detection of lung cancer has logical appeal, substantial evidence has accumulated over many years showing that screening high-risk groups with chest x-rays and/or sputum cytology can be ineffective or even harmful.[4]

Some clinicians advocate computed tomography (CT) screening for lung cancer because it has the capacity to detect cancers at an early stage with better prospects for survival.[5] However, the evidence for CT screening is incomplete and annual screening of high risk patients is not recommended practice.[6]

There has been no change to the evidence-based recommendation that screening for lung cancer with chest x-ray should not be used because there is no evidence that it decreases lung cancer mortality.[7,8] This advice is consistent with the findings of the US Preventive Services Task Force (USPSTF) which found that the strength of overall evidence was poor that any screening strategy for lung cancer decreased mortality.[9] Despite this, the USPSTF concluded that the evidence was insufficient to recommend for or against screening asymptomatic persons for lung cancer.[10]

The large Prostate, Lung, Colorectal and Ovarian (PLCO) cancer screening trial in the USA is investigating, among other things, whether there is a small mortality benefit associated with chest x-ray screening for lung cancer in men and women. Results of the baseline screen found that nearly half of the lung cancers detected were Stage I, but there is no information available at present on mortality rates.[11]

Current practice
The 1999 paper by Sladden and Ward[12] cited in the Evidence-Practice Gaps Report, Volume 1[11] provided indirect evidence of inappropriate use of chest x-rays for lung cancer screening of asymptomatic heavy smokers and referred to a point in time that is now 10 years old. There is no new information that indicates whether deviation from best practice is occurring now.
Initiatives to help close the gap

Policies
No new policies have been instigated in Australia since 2004 for improving practice in the early diagnosis of lung cancer.

Guidelines
In November 2005, a two-page summary general practice version of the National Health and Medical Research Council (NHMRC) lung cancer guidelines, prepared by the Australian Cancer Network, NHMRC, Royal Australian College of General Practitioners and the Australian Lung Cancer Foundation, was sent to GPs across Australia.[13]

References
Preventing stroke in patients with atrial fibrillation

Best available evidence

AF is the most common form of arrhythmia. Rapid and irregular atrial activity occurs as the upper chambers of the heart only quiver, causing a loss of atrial contraction so that the heart does not completely empty of blood. This increases the risk of blood clots and potential obstruction of a blood vessel in the brain, which can cause a stroke. Among patients with non-valvular AF, the risk of ischaemic stroke is about three to five times that of people in sinus rhythm.[3]

The prevalence of AF increases with advancing age and is usually associated with some form of cardiopulmonary disease such as long-standing high blood pressure, coronary artery disease, heart failure or rheumatic heart disease. AF may be chronic, with irregular beating present all the time; paroxysmal (intermittent) with repeated episodes of irregular beating; or it may occur as a single episode. Lone AF refers to the situation where no particular underlying cause for AF can be identified in a younger patient, often defined as less than 60 years of age.[3]

In terms of long-term risk for stroke and death, intermittent AF is equivalent to chronic AF.[4] Adjusted dose oral anticoagulant (warfarin) treatment reduces the risk of stroke by about two-thirds. The reduction is similar for primary and secondary prevention, and for disabling and non-disabling strokes. [5–7] Thirty-two patients need to be treated with warfarin for one year to prevent one stroke.[8] Warfarin is not indicated for patients with lone AF who are less than 60 years of age or who have no risk factors.[9]

A Cochrane systematic literature review concludes that 25 strokes (12 of which would be disabling or fatal) could be prevented annually for every 1,000 AF patients given warfarin.[5] While the review found that the benefits were not substantially offset by increased bleeding among the participants in the randomised controlled trials (RCTs) analysed, major bleeding events, principally intracranial and gastrointestinal haemorrhage, are known to occur more often among people taking warfarin.[10]

Numerous studies and reports have documented the relative underutilisation of anticoagulation in stroke prevention points to a growing awareness of this evidence-practice gap among health services researchers. Varying estimates of the prevalence of appropriate anticoagulant prescribing for AF patients at high risk of stroke make it difficult to conclude whether progress is being made in closing this particular evidence-practice gap. Currently, we don’t have a system in place that enables the timely reporting of reliable, national data for many important aspects of routine clinical care. The National Stroke Foundation’s (NSF) voluntary national audit is a welcome development.

This particular evidence-practice gap remains a challenging one because it involves balancing competing risks. We need to know more about the reasons why warfarin is under-prescribed from both the perspective of at-risk patients and clinicians. Patients and health professionals often experience uncertainty and frustration about the information available to help them with day-to-day warfarin management.[2]
agents and carotid endarterectomy.[14] They have not been updated or replaced. The two Cochrane reviews cited in the Evidence-Practice Gaps Report, Volume 1 (the Gaps Report 1) have been substantively updated.[5,6] A recent meta-analysis has confirmed that warfarin, which is considered standard therapy, is superior to single and combination antiplatelet therapy in the prevention of embolic events.[15] This meta-analysis includes recent studies that evaluated warfarin against newer antiplatelets such as clopidogrel. A large RCT comparing warfarin and aspirin in an elderly patient population with AF (mean age 81 years) found that warfarin was superior to aspirin in preventing stroke (1.8 versus 3.8 per cent, per year). There was no evidence of harm compared with aspirin.[16] The evidence base continues to grow, and the results of ongoing trials[17] may influence best practice guideline recommendations in due course.

In recent years, ximelagatran, an oral direct thrombin inhibitor, was emerging as the agent of choice for stroke prevention in AF because of suggestions that it was as efficient as warfarin in preventing embolic events while having a lower risk for major bleeding.[8] In 2006, the drug’s manufacturer withdrew ximelagatran from the European market, withdrew regulatory applications elsewhere, and terminated further development of this product following receipt of trial data associating it with severe liver injury.[18,19]

Current practice

A national survey assessed the attitudes of Australian doctors towards the use of antithrombotic drug therapy for preventing stroke in patients with AF. In particular, the survey investigated the barriers to prescribing warfarin.[20] It concluded that there was considerable scope for improvement in doctors’ knowledge about the appropriate use of antithrombotic drug therapy for AF and awareness of the results of recent clinical trials. It also identified a need for improving accurate assessment of an individual’s risk of stroke.

Data from southern Tasmania collected in 2003 revealed that approximately 53 per cent of patients admitted to the Royal Hobart Hospital with a diagnosis of AF with a high risk of stroke and no contraindications to warfarin (eligible patients) were receiving warfarin on admission. At discharge, approximately two-thirds of eligible patients were receiving warfarin. An intervention utilising locally produced guidelines and academic detailing targeting general practitioners significantly improved the prescribing of antithrombotics to eligible patients.[21]

A 12-month study of consecutive acute stroke patients aged 65 years or older admitted to a NSW hospital found that of those with AF, 46 per cent were taking warfarin if they were from an English-speaking background but only 5 per cent were doing so if they were from a non-English speaking background.[22] A study conducted at a major Sydney teaching hospital involving AF patients aged 65 years or older admitted consecutively over a six-month period found that 20.6 per cent were on warfarin prior to admission.[23] A pilot evaluation of a method for extracting patient data from electronic medical records for audit purposes in general practice reported that 82 per cent of high-risk patients with AF were prescribed warfarin.[24] However, only about one-third of the potential patients with AF were identified by the data extraction process, which is a limitation of these data.
Initiatives to help close the gap

NICS Fellowship

In 2004, the National Institute of Clinical Studies (NICS) funded pharmacist, Dr Shane Jackson, to undertake a two-year, part-time Fellowship to reduce the risk of stroke in patients with AF at the Royal Hobart Hospital. Dr Jackson's study aimed to implement and evaluate a system to improve the appropriate use of antithrombotics for stroke prevention in AF, utilising a pharmacist as a stroke risk assessor. This pharmacist-led assessment program resulted in 98 per cent of warfarin-eligible patients receiving warfarin on discharge from hospital compared with 74 per cent on admission.

National clinical audit of stroke services

Australia's NSF has developed the first national clinical audit of stroke services which will provide information about hospitalisation of people with stroke. The data will include risk factors such as AF, along with preadmission medications and discharge medications. These data were due to be reported on by the end of 2007.

CHADS2

Overseas, the American College of Cardiology, the American Heart Association and the European Society of Cardiology have jointly developed a new algorithm, the CHADS2 score, to successfully distinguish between patients at high risk and those at low risk of stroke.[25] CHADS2 is an acronym for Congestive heart failure, Hypertension, Age ≥ 75 years, Diabetes mellitus (1 point each), and prior Stroke or transient ischaemic attack (2 points.) For patients with valvular atrial fibrillation or a CHADS2 score ≥ 2, anticoagulation with warfarin is recommended (INR 2–3, higher for mechanical valves) unless contraindicated or annual major bleeding risk > 3%. Aspirin or warfarin may be used when the CHADS2 score = 1. Aspirin, 81–325 mg daily, is recommended in patients with a CHADS2 score of 0 or if warfarin is contraindicated. The CHADS2 score provides a ready means of stratifying risk, which can be incorporated into electronic decision support systems in primary and secondary care settings to identify at-risk patients.
References

Using ACE inhibitor and beta-blocker therapies in heart failure

Best available evidence

CHF is a common condition, particularly among older people.[2] People with CHF often experience diminished quality of life due to typical symptoms of shortness of breath and fatigue.[3] High rates of hospitalisation and readmission for those affected and its high case fatality rate demonstrate further evidence of the seriousness of CHF.[4,5]

It is estimated that over 335,000 Australians are living with CHF, and 30,000 new cases are diagnosed each year.[5,6] A disproportionate number of cases occur among people living outside the capital cities.[7] While it is projected that the prevalence and incidence of CHF will increase in Australia, mortality rates for heart failure are falling.[8,9] Age and sex-standardised rates of hospitalisation for heart failure are decreasing which is further evidence that the condition is being better managed.[8,10]

Among Indigenous Australians, rates of hospitalisation and death from CHF are currently about three times those of the broader community.[5] If we are to address these discrepancies in health outcomes, CHF will require more effective management among Aboriginal and Torres Strait Islander people, as well as achieving better control of CHF precursor conditions such as ischaemic heart disease, high blood pressure and diabetes.[11,12]

In 2006, an updated version of the Australian and New Zealand clinical practice guidelines for the management of CHF was published, including new sections on diastolic heart failure, multidisciplinary care, use of devices, and palliative care.[13,14]

Evidence continues to support pharmacotherapy in the ongoing care of people with CHF. Two key recommendations for practice are:

- To prevent disease progression, ACE inhibitors are recommended, unless not tolerated or contraindicated, for all patients with systolic CHF (LVEF <40%) whether symptoms are mild, moderate or severe. Every effort should be made to increase doses of ACE inhibitors to those shown to be of benefit in major trials. If this is not possible, a lower dose of ACE inhibitor is preferable to none at all.

- To prolong survival, specific beta-blocking agents are recommended, unless not tolerated or contraindicated, for all patients with systolic CHF (LVEF <40%) whether symptoms are mild, moderate or severe. Every effort should be made to increase doses of ACE inhibitors to those shown to be of benefit in major trials. If this is not possible, a lower dose of ACE inhibitor is preferable to none at all.

A number of initiatives have been put in place at a national and state level that appear to have contributed to the more widespread prescribing of ACE inhibitors and beta-blockers for patients with CHF.

A substantial disparity in outcomes and access to services exists between Indigenous and rural Australians compared with other Australians who have CHF.
Current practice

Since the release of the Evidence-Practice Gaps Report, Volume 1,[1] several papers have been published that bear on different aspects of ACE inhibitor and beta-blocker prescribing for patients with CHF. In outline, their results are:

• An audit conducted between late 1999 and early 2000 involving 450 consecutive patients admitted with CHF to Tasmania’s three major public hospitals reported that 50 per cent of patients were taking an ACE inhibitor, with most not reaching a target dose for heart failure. Twenty-two per cent were taking a beta-blocker.[15]

• A comprehensive quality improvement project involving in-hospital and after-hospital care was conducted between 2000 and 2002 in Brisbane.[4] Of the 455 patients discharged from hospital with congestive heart failure, the proportion prescribed an ACE inhibitor increased from 71 per cent in the pre-intervention period to 74 per cent in the post-intervention period. Beta-blocker prescribing in the same two groups increased from 35 per cent of patients to 52 per cent following the intervention.

• A multi-centre study conducted between late 2004 and early 2005 involving patients hospitalised for myocardial infarction found that among those with heart failure (n=116) just under three-quarters were discharged on an ACE inhibitor/angiotensin receptor blocker. An equal number of CHF patients were discharged on a beta-blocker.[16]

• A Supplementary Analysis of Nominated Data (SAND) from the Bettering the Evaluation and Care of Health (BEACH) general practice survey of 2002 showed that among 97 CHF patients, 31 (32 per cent) were taking ACE inhibitors, either as a single agent or in combination.[17]

• An analysis of 2005 SAND data on 112 CHF patients for whom medication data was provided, showed that 13.7 per cent were on beta-blockers.[18]

There is only limited value in analysing trends in the prescribing of ACE inhibitors because these agents have multiple indications, including blood pressure control, in addition to heart failure management. However, it is interesting to note that there has been a steady fall in the number of services under the Pharmaceutical Benefits Scheme (PBS) and the Repatriation Pharmaceutical Benefits Scheme (RPBS) for ACE inhibitors in each financial year from 2001–02 to 2005–06. Over that period, the overall fall in the number of ACE inhibitor reimbursements was 14 per cent.

The beta-blockers bisoprolol, carvedilol, and sustained release metoprolol are approved under the PBS/RPBS for patients with moderate to severe heart failure who are stabilised on conventional therapy, which must include an ACE inhibitor if tolerated. Figure 1 shows that there has been a four-fold increase in PBS/RPBS services for the heart failure approved beta-blockers over the period 2001–02 to 2005–07. Similarly, a highly statistically significant increase in beta-blocker prescribing for heart failure was shown in Medicines for cardiovascular health: are they used appropriately? based on BEACH data.[19]
Initiatives to help close the gap

Joint heart failure management program

At the time of its establishment in 2001, the National Institute of Clinical Studies (NICS) identified deficiencies in heart failure management as a priority area for action.[20,21] Tackling the under-prescribing of ACE inhibitors and beta-blockers was recognised as a key objective, along with efforts to improve the diagnosis of CHF using echocardiography.[22] NICS developed a partnership with the National Prescribing Service and the National Heart Foundation of Australia to promote evidence-based best practice in CHF management in general practice. Fifty-two divisions of general practice participated in the program between 2004 and 2006. Significant changes in knowledge and skills were observed in GPs who participated in the program. An evaluation of the impact of the program on prescribing of key heart failure drugs and use of echocardiography was due to be completed in 2007.

Government campaigns and initiatives

The Australian Government Department of Veterans’ Affairs’ Veterans’ Medicines Advice and Therapeutics Education Services (MATES) targeted the under-prescribing of beta-blockers in CHF management as an area for practice improvement, and published an evidence-based guide for use by GPs, *Therapeutic brief 2, Beta-blockers: take the next step for heart failure.*[23] Additionally, a patient information brochure, *Caring for your heart,* was sent to 13,000 veterans and to the 6,500 doctors providing their care. The brochure focused on new information available on medicines that can assist in managing heart failure and improving the quality of life for those in the veteran community with this condition.[24]

Between 2003 and 2006, the NSW Chronic Care Collaborative was developed by NSW Health in collaboration with the Clinical Excellence Commission.[25,26] The Collaborative was successful in achieving a saving of an estimated 9,000 inpatient bed days through decreased admissions of patients with heart failure. There was a 250 per cent increase in the performance measure relating to ensuring that “...patients with systolic heart failure who are euvolaemic and with no contraindications are prescribed an approved beta-blocker.”

The Victorian Government committed $150 million over 4 years (2001–02 to 2004–05) to the Hospital Admissions Risk Program (HARP), which identified CHF as one of its priority areas for targeting initiatives to alter care pathways experienced by people who have a high likelihood of hospitalisation. A working party recommended improved standards of care for people with CHF. Implementation of these standards of care led to a number of positive outcomes. For example, within the CHF cohort, there were fewer emergency admissions per patient each year that were caused by or involved CHF. Moreover, CHF-caused presentations fell as a proportion of total presentations from 18 per cent in 1999–2000 to 10 per cent in 2002–03.[27]
References


17. AIHW GP Statistics and Classification Unit. SAND abstract No. 38 from the BEACH program: Prevalence of chronic heart failure, management and control. Sydney: GPCSU University of Sydney; 2003.


Measuring glyated haemoglobin in diabetes management

**In 2003,[1] we reported that:**

Major trials showed that good diabetic control, which is measured by glyated haemoglobin (HbA1c), was associated with better health outcomes. It was recommended that HbA1c should be measured at least every six months.

An analysis of Medicare data from 1999–2000 showed that around 75 per cent of people with diabetes were not having their HbA1c measured as often as recommended.

**What has changed since Volume 1?**

**Best available evidence**

Attaining improved blood glucose control in people with diabetes is directly associated with lower rates of microvascular and macrovascular complications.[10,11] Laboratory-tested glyated (or glycosylated) haemoglobin (HbA1c) reflects average glycaemia over the previous two to three months. Regular monitoring of HbA1c provides a rational basis for amending treatment to optimise blood glucose control.[12,13]

The Diabetes Australia/Royal Australian College of General Practitioners guideline *Diabetes Management in General Practice 2006/7* recommends that people with diabetes have their HbA1c measured at least six-monthly.[2]

**Current practice**

The *Evidence-Practice Gaps Report, Volume 1* (the Gaps Report 1), released in early 2004, cited the Diabetes: Australian Facts 2002 report as the best available source of data on current practice.[1,3] This latter report summarised the Health Insurance Commission (now Medicare Australia) General Practice Statistics data for 1999–2000 on the proportion of people with diabetes having two HbA1c tests (one test in each six-month period). The data analysis has not been updated since that period. It is interesting that the HIC data, which are comprehensive, national and directly relevant because they refer to the actual reimbursement of claims for patient services, appear to be at odds with other published estimates of HbA1c testing frequency in Australia.

Since publication of the Gaps Report 1,[1] where HbA1c testing was estimated at 27 per cent of people with diabetes, reputable sources have published other varying estimates of frequency of HbA1c testing as outlined below. This makes it difficult to tell which estimate paints the most accurate picture of testing frequency in Australia.

**What has changed since Volume 1?**

In 2003,[1] we reported that:

Major trials showed that good diabetic control, which is measured by glyated haemoglobin (HbA1c), was associated with better health outcomes. It was recommended that HbA1c should be measured at least every six months.

An analysis of Medicare data from 1999–2000 showed that around 75 per cent of people with diabetes were not having their HbA1c measured as often as recommended.

**A review of developments from 2004 to 2007 has found that:**

There has been no change to the evidence for how often people with diabetes should have their HbA1c level monitored. The best practice recommendation is still that HbA1c testing should be performed at least once every six months.[2]

It has become less clear what proportion of people with diabetes are having their HbA1c monitored at least every six months, although numerous estimates were published for the period 1999 to 2005, ranging from 25 to 80 per cent. A key issue is that the patients on selected diabetes registers and those taking part in one-off surveys may not be typical or representative of the national population of people with diabetes.[3–8] To ensure the diabetes mellitus indicator set contains reliable information we need a consistent and timely means of sampling this population.

The annual cycle of care, which underpins the diabetes SIP payment, requires HbA1c testing only once a year. Thus, GPs may not heed recommendations to test every six months.

While monitoring HbA1c levels is only a means to an end for improving blood glucose control, it is an essential step.
- The Steering Committee for the Review of Commonwealth/State Service Provision (SCRCSSP) reported that in 1999, 48 per cent of registered patients had a glycaemic control test in a six-month period.[4] More recently, the Steering Committee for the Review of Government Service Provision (SCRGSP) reported that in 2002, 46 per cent of registered adults with type 2 diabetes with a known HbA1c measurement had undergone a glycaemic control assessment in the previous six months.[5]

- Data from 16 divisions of general practice show that over three-quarters of people with type 2 diabetes had HbA1c monitored at least every six months. In 2000, 76 per cent of patients complied with this best practice recommendation. Corresponding figures for 2001 and 2002 were 80.4 per cent and 75.5 per cent respectively.[6]

- A study conducted by the National Prescribing Service reported that over three-quarters of people with type 2 diabetes had HbA1c monitored at least every six months. In 2000, 76 per cent of patients complied with this best practice recommendation. Corresponding figures for 2001 and 2002 were 80.4 per cent and 75.5 per cent respectively.[6]

- Between 2002 and 2005, data were collected at 20 general practices in northern and western Melbourne for the Diabetes Co-management in General Practice project. Among 1,571 patients with diabetes, 74.8% were found to have had HbA1c measured six-monthly. The sample was over-represented by patients at risk of hospital presentation or admission.[9]

- Between 2002 and 2003, a clinical audit was conducted of diabetes registers in remote primary health care centres in the Torres Strait, Cape York and the Northern Territory. It reported that 60.6 per cent of adult Indigenous Australians with diabetes had their HbA1c level checked in the preceding 6 months.[9]

Initiatives to help close the gap

The proportion of people with diabetes tested for HbA1c level at least every six months is included in the National Health Priority Area–diabetes mellitus indicator set.[14]

References

Prescribing antibiotics for upper respiratory tract infections and acute bronchitis

In 2003,[1] we reported that:

Upper respiratory tract infection (URTI) and acute bronchitis/bronchiolitis are for the most part, self-limiting viral infections for which there is no cure. For most patients antibiotics provide little or no benefit, may cause side-effects, are costly, and have the potential for inducing resistance to antibiotics.

These conditions represent the two most common problems managed with antibiotics in Australian general practice. In 2002–03, GPs prescribed antibiotics for 4 out of 5 patients diagnosed with acute bronchitis and just under a third of patients presenting with an upper respiratory tract infection, although there was no mandatory need for early routine prescription of antibiotics for acute bronchitis or URTI.

What has changed since Volume 1?

Best available evidence

Recent evidence confirms that antibiotics are ineffective in the care of people with viral illnesses of the upper respiratory tract and lower respiratory tract, e.g. acute bronchitis. [4,5] Appropriate management involves relieving the symptoms of the illness, which usually lasts for one to three weeks.[6,7] For the symptom of purulent rhinitis (inflammation of the nose associated with nasal discharge containing pus), there is evidence that antibiotics can reduce its duration, but the benefit does not outweigh the adverse effects of antibiotic use.[8]

In relation to acute bronchitis, a Cochrane systematic review[9] and a subsequent randomised controlled trial[10] both report a modest beneficial effect (i.e. a slightly quicker recovery) for a minority of patients when antibiotics are prescribed immediately. However, other strategies, including no antibiotics or delayed antibiotic prescribing, avoid or reduce the adverse consequences of over-prescribing antibiotics when they are not indicated.[11]

Current practice

In 2004–05, respiratory conditions were the problems most frequently managed in Australian general practice. The two highest ranked individual problems managed were URTI and acute bronchitis/bronchiolitis.[12]

Acute bronchitis

A retrospective study covering the period 1999 to 2002 analysed prescribing data from the Bettering the Evaluation and Care of Health (BEACH) data collection and the General Practice Research Network (GPRN).[13] The BEACH data showed that in 2001–02, antibiotics were prescribed for 79.6 per cent of patients being managed for acute bronchitis.[13] In the GPRN data, the rate of antibiotic prescribing for acute bronchitis varied from year to year within the range 68.6 to 78.7 per cent.[13]

Unpublished BEACH data for the four-year period 2002–06 indicates that there was no significant change in the management rate of acute bronchitis among adults or children. Among children, the rate of antibiotic prescribing for acute bronchitis is significantly lower than it is for adults.

* In the Evidence-Practice Gaps Report, Volume 1, this gap was titled ‘Prescribing antibiotics for the common cold and acute bronchitis’. We have amended the title for this review to reflect more accurately the data reported here.
in all years (Figure 1). Among adults managed for acute bronchitis in general practice, there has been a steady increase in the percentage who were prescribed an antibiotic. In contrast, the rate of antibiotic prescribing for acute bronchitis among children has remained steady over the same period.

Figure 1. Rate of antibiotic prescribing in the management of acute bronchitis among adults and children (per 100 patients managed)

<table>
<thead>
<tr>
<th>BEACH survey period</th>
<th>Children (&lt;15 yrs)</th>
<th>Adults (15+ yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number managed</td>
<td>Management rate* (95% CI)</td>
</tr>
<tr>
<td>2002/03</td>
<td>490</td>
<td>3.81 (3.3–4.3)</td>
</tr>
<tr>
<td>2003/04</td>
<td>500</td>
<td>4.26 (3.7–4.8)</td>
</tr>
<tr>
<td>2004/05</td>
<td>384</td>
<td>3.54 (3.0–4.1)</td>
</tr>
<tr>
<td>2005/06</td>
<td>466</td>
<td>3.84 (3.4–4.3)</td>
</tr>
</tbody>
</table>

* = the management rate of acute bronchitis/bronchiolitis per 100 encounters with an ever-changing sample of Australian general practitioners

Prescribing rate: the number of prescriptions for an antibiotic per 100 acute bronchitis/bronchiolitis problems managed

Upper respiratory tract infection

Between 1990 and 2003, there is evidence to show a substantial reduction in the rate of antibiotic prescribing for URTI.[14,15] However, unpublished BEACH data presented in Figure 2 shows that the management rate of URTI has not changed over the period 2002 to 2006. The rate of antibiotic prescribing for patients being managed for URTI is lower among children than among adults.

Figure 2. Rate of antibiotic prescribing in the management of upper respiratory tract infections among adults and children (per 100 patients managed)

<table>
<thead>
<tr>
<th>BEACH survey period</th>
<th>Children (&lt;15 yrs)</th>
<th>Adults (15+ yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number managed</td>
<td>Management rate* (95% CI)</td>
</tr>
<tr>
<td>2002/03</td>
<td>2110</td>
<td>16.40 (15.4–17.4)</td>
</tr>
<tr>
<td>2003/04</td>
<td>1796</td>
<td>15.29 (14.3–16.3)</td>
</tr>
<tr>
<td>2004/05</td>
<td>1716</td>
<td>15.44 (14.4–16.5)</td>
</tr>
<tr>
<td>2005/06</td>
<td>2056</td>
<td>16.94 (15.9–18.0)</td>
</tr>
</tbody>
</table>

* = the management rate of upper respiratory tract infections per 100 encounters with an ever-changing sample of Australian general practitioners

Prescribing rate: the number of prescriptions for an antibiotic per 100 upper respiratory tract infections managed
For several years, the NPS has been running the *Common Colds Need Common Sense* campaign. The campaign includes a children’s book, *Harvey Catches a Cold*, that is distributed to doctors’ surgeries and child care centres.[16] The target audience for the campaign is the parents of children aged from two to five years.

*Common Colds Need Common Sense* is an adjunct to a series of major health professional programs conducted since 1999, targeting GPs and pharmacists. Educational interventions to improve antibiotic prescribing and selection of antibiotics have included printed educational materials, prescribing feedback for GPs, hypothetical case scenarios with feedback, clinical audit with feedback for GPs, academic detailing, patient information leaflets, and a ‘prescription’ pad to prescribe symptom management.

While the consumer campaign has focused on the single illness ‘common colds’, education for GPs has included a range of upper and lower respiratory tract infections (rhinosinusitis, acute sinusitis, acute otitis media, acute bronchitis and acute sore throat). Other programs have addressed antibiotic use in exacerbations of chronic obstructive pulmonary disease and mammalian bites (Mackson J, personal communication, 8 May 2007).
Preventing venous thromboembolism in hospitalised patients

In 2003,[1] we reported that:

There are two common types of thromboses that can occur in a person’s veins – deep vein thrombosis (DVT) and pulmonary embolism (PE). DVT is the formation of a clot in the deep vein in the leg or pelvis that can block blood flow. PE occurs when part of this clot breaks off, travels through the circulation and lodges in a pulmonary artery, causing a life-threatening disturbance to respiratory function. Venous thromboembolism (VTE) encompasses both DVT and PE.

Hospitalised patients are at increased risk of developing VTE. Various pharmacological and mechanical methods can be used to prevent this, including heparin, warfarin, aspirin, elastic compression stockings and intermittent pneumatic compression.

Despite the availability of VTE prevention methods, they were found to be often underused. A study in 2000 estimated that only 5 per cent of high-risk patients at a Canberra hospital received appropriate prophylaxis, while another study in Perth in 2002 reported a figure of 55 per cent.

Now

A review of developments from 2004 to 2007 has found that:

While it is possible to provide evidence-based thrombosis prophylaxis to all at-risk patients, both during their hospital stay and, if necessary, through their subsequent outpatient care, providing such care to outpatients is significantly more challenging in the current health system.

Effecting change in VTE prophylaxis practice requires clinical leadership, improved clinician knowledge of risk assessment and appropriate prescribing, and a supportive hospital system that embeds VTE prophylaxis into routine care processes. Hospital managers, surgeons, physicians, nurses, pharmacists, physiotherapists and patients all have a role to play in minimising the risk of deep vein thrombosis and pulmonary embolism in every patient admitted to hospital.

Individual studies show variations in practice, and it is difficult to obtain sound evidence of widespread improvement in VTE prophylaxis practice. However, awareness of the issue has been raised by NICS and state-based quality and safety agencies, and stakeholder engagement is happening across the country. People are learning more about the barriers to best practice and how to overcome them. The development of practical hospital-specific implementation tools and resources, combined with the embedding of VTE prophylaxis into routine clinical indicators, are major achievements. While variations in practice are still occurring, there is reason to be optimistic that progress is being made in closing this evidence practice gap.

What has changed since Volume 1?

Best available evidence

Among patients admitted to hospital for surgery or medical conditions we can identify the groups at heightened risk of developing VTE.[2–4] Fortunately, there are effective measures available that can be used to reduce the likelihood of these at-risk patients developing VTE while in hospital or in the few months following their discharge from hospital.[5,6]

In 2003, the National Institute of Clinical Studies (NICS), commissioned researchers from the Australian Safety and Efficacy Register of New Intervventional Procedures – Surgical (ASERNIP-S) to produce a systematic literature review of strategies to improve the uptake of VTE prophylaxis in hospitalised patients.[7] The review concluded that effective implementation requires multiple strategies that incorporate a system for reminding clinicians to assess patients for VTE risk, and for assisting in the selection of appropriate prophylaxis.

Over the past few years clinical practice guidelines have been updated regularly and systematic literature reviews have been published.[2,5,6,8,9]
In 2005, the third edition of the *Prevention of Venous Thromboembolism: Best Practice Guidelines for Australia and New Zealand* was released, replacing the 2001 second edition cited in the *Evidence-Practice Gaps Report, Volume 1*. The best practice recommendation for the optimal duration of prophylaxis has been revised from 7–10 days to a minimum of 10 days. This change is based on efficacy demonstrated in recent clinical trials of 14 days duration.

In 2004, fondaparinux – a new type of anticoagulant – received authority listing on the Schedule of Pharmaceutical Benefits for VTE prevention in patients undergoing major surgery of the lower limbs such as hip fracture, major knee or hip replacement surgery.

Current practice

Despite the availability of evidence-based VTE prophylaxis measures, their use is frequently suboptimal, with variations in practice occurring both across and within hospitals. The underuse of VTE prophylaxis is not just a problem for Australia. In the United Kingdom, the high number of preventable deaths associated with VTE among hospitalised patients has been investigated by a Parliamentary Committee, which has led to a major undertaking on behalf of the Health Department to bring practice into line with best practice recommendations.

In Australia there is a lack of systematically collected data to monitor current practice or practice improvements related to VTE prophylaxis. Several single-centre studies exist, which provide valuable information, but their results may not be representative of clinical practice generally. Various sources of information showing different aspects of current practice include:

- The Western Australian Audit of Surgical Mortality (WAASM), which was established in 2001, found that failure to use adequate DVT prophylaxis was a deficiency of care leading to death in a number of patients under surgical care. This finding was disseminated to surgeons through reports on individual management relative to that of their de-identified peers (feedback), regular case-note review booklets, seminars and newsletters. Additionally, two symposia specifically addressed this issue. These combined interventions led to a significant increasing linear trend over time (2002–2004) in the appropriate use of thromboprophylaxis.

- A study conducted in two teaching hospitals in Western Australia in 2002 reported that only 51.5 per cent of patients admitted for elective hip or knee arthroplasty (joint replacement surgery) were receiving chemoprophylaxis in accordance with evidence-based guideline recommendations, namely low molecular weight heparin (LMWH) or warfarin.

- At the Mater Hospital in Sydney, all 5,999 patients admitted for total hip replacement, total knee replacement or bilateral knee replacement between 1995 and 2001 received LMWH or warfarin plus mechanical prophylaxis in the form of graduated compression stockings (GCS) and/or intermittent calf compression.

- Pharmaceutical Benefits Scheme data for the six year period 2000 to 2006 show a large increase in prescriptions for the recommended prophylactic dose (40 mg) of the LMWH enoxaparin sodium (see figure 1). This increase, which largely reflects practice for inpatients in private hospitals, does not appear to have occurred at the expense of other pharmacological agents used for VTE prophylaxis, such as dalteparin, unfractionated heparin or fondaparinux, because their usage has also increased or remained relatively unchanged (data not shown).
Initiatives to help close the gap

Since November 2005, NICS has led a national clinical practice improvement program aimed at improving VTE prophylaxis in Australian public hospitals. The program involves 32 hospital teams and covers 45 metropolitan and regional hospitals from all States and Territories. The program, which adopts a whole-of-hospital approach, helps multidisciplinary teams to improve compliance with best practice VTE prophylaxis guideline recommendations by implementing new systems for reminding clinicians to risk assess patients on admission and provide appropriate prophylaxis to patients identified as at risk. This program has demonstrated that trained and supported multidisciplinary hospital teams can achieve an average 53 per cent improvement in compliance with best practice VTE prophylaxis guidelines using a whole of hospital approach combined with multiple targeted interventions over a two year period. The teams will continue to monitor the sustainability of their improvements during 2008.

In May 2007, NICS released a *Stop the Clot* guide offering practical advice and resources to help clinical teams improve VTE risk assessment and management processes in their own institutions. The guide is based on findings from NICS' national VTE Prevention Program and the published literature. Additional patient-centred resources were produced to encourage greater consumer awareness of the risk of VTE associated with hospitalisation and information on what patients can do to ensure they receive appropriate prophylaxis.

The NICS VTE Prevention Program has been boosted by the inclusion of additional teams sponsored by the Victorian Quality Council, Queensland Health Clinical Practice Improvement Centre, South Australian Health Department and NSW Clinical Excellence Commission. The Commission’s interest in VTE prevention is further evidenced by its recent development of a diagnostic tool, the Medication Safety Self Assessment for Antithrombotic Therapy in Australian Hospitals (MSSA-AT), which was due for release in electronic form in mid-2007. This tool is designed to heighten awareness of items related to the safe use of antithrombotic agents and is part of a larger Medication Self-Assessment program designed to create a baseline of hospital efforts to enhance medication safety and evaluate these efforts over time.

The Western Australian Health Department’s Office of Safety and Quality in Healthcare has established the Safety and Quality Investment for Reform (SQuIRe) program, which includes funding for WA hospitals to improve practice in a number of key areas including VTE prophylaxis.

The newly established Queensland Health Quality and Complaints Commission has developed quality and safety standards, which became mandatory for Queensland hospitals from July 2007 and include a new surgical standard to reduce the risk of VTE. A similar medical standard to reduce the risk of VTE in at risk medical patients is planned for 2008.

In 2007, the Australian Council on Healthcare Standards (ACHS) added three new clinical indicators that highlighted the importance of appropriate thromboprophylaxis in two key areas.[24,25] In conjunction with the Royal Australian and New Zealand College of Obstetricians and Gynaecologists, the ACHS developed two new indicators for women aged over 40 years undergoing gynaecological surgery associated with a moderate to high risk of VTE, namely hysterectomy and pelvic floor surgery.[25]

From 2007, hospitals are encouraged to report the number of patients who receive prophylaxis as a proportion of the total number of patients determined to be at risk as per the Australian and New Zealand guidelines.[8] Additionally, the Royal Australasian College of Medical Administrators and ACHS introduced a new hospital-wide clinical indicator to ensure that high risk medical patients receive appropriate prophylaxis.[24] This new clinical indicator involves recording the proportion of admitted high risk medical patients who receive appropriate VTE prophylaxis, which is defined as the use of drugs or other protective therapies to reduce thrombosis or blood clots.
References


Preventing for elective colorectal surgery

Then

In 2003,[1] we reported that:
Since the 1970s, evidence began to emerge that with the routine use of antibiotics in colorectal surgery there appeared to be no additional benefit from bowel preparation in reducing rates of surgical complications. A systematic review and a subsequent Cochrane systematic review were cited.[2,3]

A national survey in 2000 found that 9 out of 10 patients having elective colorectal cancer surgery received some form of bowel preparation, yet there was no evidence that it improved patient outcomes.

Now

A review of developments from 2004 to 2007 has found that:
There is increasing evidence that routine mechanical bowel preparation (MBP) has no benefit and may actually increase the likelihood of surgical complications associated with elective intra-abdominal colorectal surgery.

However, in the absence of up-to-date data on what is happening in clinical practice in Australia we cannot conclude whether the identified evidence-practice gap is being closed.

What has changed since Volume 1?

Best available evidence

MBP before elective colorectal surgery has been the standard of care for decades. MBP aims to reduce total faecal mass to facilitate operative manipulation of the colon and enhance the action of oral antibiotics. Most often, whole-gut lavage with polyethylene glycol (PEG)-electrolyte solution or sodium phosphate is used on the day before the operation. This may be combined with dietary restriction and cathartics over two days.[4]

Since publication of the Evidence-Practice Gaps Report, Volume 1 (the Gaps Report 1), the Cochrane systematic review has been updated as additional randomised controlled trials (RCTs) have been published.[5] Two meta-analyses have also arrived at similar conclusions, namely that “there is good evidence to suggest that mechanical bowel preparation using PEG should be omitted before elective colorectal surgery”[6] and “there is no evidence to support the use of MBP in patients undergoing elective colorectal surgery.”[7] Available data tend to suggest that MBP could be harmful with respect to the incidence of anastomotic leak and does not reduce the incidence of septic complications.[7]

More recently, further studies have shown that intra-abdominal surgery without pre-operative MBP is safe for colon[8,9], rectal[10] and colorectal surgery.[11,13] Several evidence-based reports have drawn attention to the fact that not only is there level I evidence that demonstrates no benefit from MBP when compared with no preparation, there is level I evidence that demonstrates a higher incidence of anastomotic dehiscence (leakage) in patients undergoing MBP.[14–16]

However, with high risk anastomoses, no preparation may carry an increased penalty. A recently-published RCT found an association between severe, symptomatic anastomotic leaks and a bowel loaded with faeces.[18,19] This was the first RCT sufficiently powered to define benefit or risk associated with MBP in patients having high risk anastomoses below the peritoneal reflection.

Current practice

A search of the published literature did not locate any information on the frequency of use of MBP in the pre-operative care of patients requiring elective colorectal surgery in Australia.
Guidelines

The Australian clinical practice guidelines cited in the Gaps Report 1 were updated in 2005 by the Australian Cancer Network Colorectal Cancer Guidelines Revision Committee.[20,21] These guidelines state that “Bowel preparation is current standard practice before elective colorectal operations. However, recent randomised controlled trials have not demonstrated any conclusive benefit from this procedure. Accordingly, the previous guideline has been revised as follows: Mechanical bowel preparation is not indicated in elective colorectal operations unless there are anticipated problems with faecal loading that might create technical difficulties with the procedure, e.g. laparoscopic surgery, low rectal cancers.”

These guidelines state that routine pre-operative bowel preparation is not recommended practice.

References

Using colonoscopy in colorectal cancer surgery follow-up

Then

In 2003,[1] we reported that:

For patients who had undergone colorectal cancer surgery, a follow-up colonoscopy was recommended every three to five years to detect new cancers and polyps.

A 2002 study reported that less than one in four patients had their first follow-up colonoscopy at the recommended interval, with three-quarters having it at 12 months after surgery.

Now

A review of developments from 2004 to 2007 has found that:

While the most authoritative Australian clinical practice guidelines on this topic still recommend that colonoscopy be performed three to five years after the initial operation,[8] the more recent publication by the American Cancer Society and the US Multi-Society Task Force on Colorectal Cancer advocates for surveillance colonoscopy 12 months after surgical resection.[2]

With different recommendations on what constitutes best practice, the existence of this evidence-practice gap becomes less certain.

What has changed since Volume 1?

Best available evidence

Colonoscopy is an accurate, safe diagnostic and therapeutic procedure. However, as with any scarce resource, it must be used appropriately to ensure that maximum health benefit is achieved for at-risk groups.[3]

After resection for colorectal cancer, colonoscopic follow-up (surveillance colonoscopy) is essential for:

1. identifying any recurrence of the initial primary cancer at a stage that would allow curative treatment; and
2. detecting metachronous tumours (pre-malignant adenomas or second primary cancers) at an early, treatable stage because people with a personal history of colorectal cancer are at increased risk of developing a second primary colorectal cancer.[4]

The natural history of disease progression in colorectal carcinogenesis is believed to occur over several years. Surveillance colonoscopy at three- to five-yearly intervals has been regarded as sufficient to detect and remove adenomas that have developed since the previous colonoscopy (including the one done around the time of the original surgery), and any new cancers found are likely to be at an early, non-fatal stage.[5,6] Studies that have investigated surveillance colonoscopy in people with a personal history of colorectal cancer more frequently than every three to five years have failed to demonstrate a reduction in metachronous cancer mortality.[7] However, more frequent endoscopic checkups may be needed for some people with rectal cancer[8] or Hereditary Non-Polyposis Colorectal Cancer (HNPPC).[9]

Current clinical practice guidelines offer varying recommendations for how soon and how often surveillance colonoscopy is required in the period following surgery or after a clearing colonoscopy (which occurs six-months post surgery if an obstruction had prevented this from being performed earlier to exclude the presence of other primary bowel tumours).[2,9–11] Despite inconsistent recommendations, international clinical practice guidelines concur that annual surveillance colonoscopy does not improve patient survival, or increase the resectability of recurrent disease from the original primary tumour.[2,9]

Some clinical practice guidelines, particularly from the United States, are recommending that a surveillance colonoscopy be performed at 12 months post surgery.[2,7] The evidence for this recommendation comes from a review of the incidence of apparently metachronous advanced neoplastic lesions in the first two years after resection among participants in RCTs on surveillance colonoscopy.

The two sources of ‘best available evidence’ cited in the Evidence-Practice Gaps Report, Volume 1 (the Gaps Report 1)[12,13] have since been updated[9,14] and continue to recommend surveillance colonoscopy at three- to five-yearly intervals.

Current practice

Each year, increasing numbers of Australians are diagnosed with colorectal cancer. The figure projected for 2007 (15,075 new cases)[15] represents an increase of more than 20 per cent over the 12,844 new cases diagnosed in 2000.[1] This rising incidence will place substantially greater demands on diagnostic and treatment services.

A study at Sir Charles Gairdner Hospital in Perth[16] found that 75 per cent of patients underwent colonoscopy at 12 months after surgery. Among these 89 patients the prevalence of advanced adenomas was only 1 per cent. A more recent study at the Fremantle Hospital in Western Australia has reported a much higher prevalence (79 per cent) of advanced adenomas among 263 patients undergoing a 12-month follow-up colonoscopy after curative surgery for colorectal neoplasia.[17] Together, these contrasting snapshots do not give a precise national estimate of advanced adenoma prevalence 12 months post surgery.
Initiatives to help close the gap

National Bowel Cancer Screening Program

The National Bowel Cancer Screening Program[18] commenced in August 2006, and people turning 55 or 65 years of age were invited to participate. Because there is limited capacity to meet expected demand for colonoscopy services, the program is being phased in over several years. The increased demand on colonoscopy services in the initial phase of this program will be evaluated in 2008.

Bowel cancer screening aims to find cancers at an early, treatable stage and to discover pre-cancerous lesions that may be removed by colonoscopy. It is possible that over time the number of new cases of colorectal cancer may reduce if the national screening program is implemented successfully.

References

Managing acute and cancer pain in hospitalised patients

In 2003,[1] we reported that:

Postoperative and cancer pain can be well controlled in 80 to 90 per cent of patients when treatment is tailored to individual circumstances.

The barriers to effective pain management in health care institutions have been well documented, and isolated studies confirm their presence in the Australian context. A study at a Sydney teaching hospital found that 6 out of 10 cancer inpatients were in moderate to severe pain.

What has changed since Volume 1?

Best available evidence

Inadequate pain management in hospitals has long been recognised as an important, and largely avoidable problem in Australia and around the world.[2] Many barriers to effective routine pain management exist at the system, organisational, clinician and patient levels.[3]

In 1999, when the National Health and Medical Research Council (NHMRC) published its first acute pain management guidelines, Acute pain management: scientific evidence,[4] the US Agency for Health Care Policy and Research (now the AHRQ) was the only other organisation worldwide to have produced evidence-based documents on the treatment of acute pain.[5]

Knowledge about acute pain management has grown rapidly in recent years. The Australian and New Zealand College of Anaesthetists (ANZCA) and ANZCA's Faculty of Pain Medicine established a working party to produce a revision of the NHMRC's 1999 acute pain guidelines to incorporate the substantial amount of new evidence published since 1999. The revised guidelines[6] were launched at the World Pain Congress in Sydney in August 2005 and have been formally endorsed by the International Association for the Study of Pain (IASP) and the Australian Pain Society. There are plans for the guidelines to be revised again in 2010.[5] ANZCA has also released a guide for patients. Similarly, in 2005 the American Pain Society (APS) revised and expanded its 1995 Quality Improvement Guidelines for the Treatment of Acute Pain and Cancer Pain on the basis of a systematic review of published studies. The revised recommendations encourage structured, multilevel, system approaches (sensitive to the type of pain, population and care setting) encompassing prompt recognition and treatment of pain, involvement of patients and families in the pain management plan, improved treatment patterns, regular reassessment and adjustment of the pain management plan as necessary, and measurement of processes and outcomes of pain management.[7]

In 2005, the APS also released a new evidence-based clinical practice guideline, Guideline for the management of cancer pain in adults and children.[8]

Many of the recommendations in this guideline continue to be based on B, C or D levels of evidence or consensus due to the lack of a stronger evidence base for cancer pain management.[9] This updated guideline departs from traditional cancer pain management approaches in regard to pharmacological management, where the use of an
algorithm is recommended, rather than the World Health Organization (WHO) analgesic ladder. The reasoning behind this decision is that "cancer pain rarely progresses in the stepwise fashion that the WHO ladder implies."[9]

Areas of cancer pain management in which new evidence has recently emerged include the potential for opioids to produce neurotoxicity;[10] the potential for opioid rotation to help some patients;[10] the importance of differentiating between persistent and breakthrough cancer pain (a temporary flare of pain that happens in addition to relatively well controlled baseline pain);[11] and the importance of including both types of pain, where appropriate, in cancer pain management plans.[9]

The evidence base for pharmacological management of cancer pain is growing, with several new reviews being published in The Cochrane Library, including titles such as: Methadone for cancer pain;[12] NSAIDS or paracetamol, alone or combined with opioids, for cancer pain;[13] Opioids for the management of breakthrough (episodic) pain in cancer patients;[14] and Comparative efficacy of epidural, subarachnoid, and intracerebroventricular opioids in patients with pain due to cancer.[15]

In the area of postoperative pain, the PROSPECT working group has developed a methodological tool for producing procedure-specific recommendations for post-operative pain management.[16] PROSPECT’s recommendations, along with supporting evidence from systematic literature reviews, are published on its website, www.postoppain.org.

Current practice

Estimates of the prevalence of unrelieved or undertreated pain vary, depending on how pain is quantified and analysed. Australian studies within institutional settings have found that 25 to 33 per cent of patients had significant pain (i.e. >3/5 or >5/10) despite effective medications and therapies being available.[3]

Pain is one of the most feared consequences of cancer for patients and their families.[10] Moderate to severe cancer pain occurs in around 50 per cent of patients who are receiving active cancer treatment, and in 80 to 90 per cent of patients with advanced disease. These statistics are well documented in numerous epidemiological studies around the world, and have not changed in the past 30 years. At least 1 in 2 cancer patients who walk into an outpatient setting experience unrelieved pain.[9]

Barriers to adequate pain management have been well documented in the literature, and remain similar to those mentioned in the NICS Evidence Practice Gaps Report, Volume 1.[1] Examples include:

**System barriers**

- Lack of institutional commitment[2] or resources;[17] regulatory concerns;[2] insufficient access to or reimbursement for interdisciplinary care;[2] and issues around professional territory.[17]

**Clinician barriers**

- Inadequate assessment or underestimation of patients’ pain by clinicians;[3] inappropriate prescribing or under-administering of analgesia;[3] lack of awareness and education of health care professionals;[2,3,17] and misconceptions about analgesic side effects (particularly with opioids).[3]

**Patient barriers**

- Inadequate knowledge;[2] cognitive or language communication barriers;[3,18] patient reluctance to report pain[3] or to take analgesia;[3] fear of addiction, side effects from analgesics or injections;[3,18] misconception that pain indicates disease progression[3,18] or that pain is inevitable;[3] and patients not wanting to complain or interrupt staff[3,18] or distract the clinician from treating the disease.[3,18]

An Australian study used the Ward and colleagues tool[19] (a validated, self-report questionnaire) to assess patient-related barriers to adequate pain management to see which of the patient-related factors included in the tool are important in an Australian population receiving comprehensive oncology management. This study found that one-third of patients had clinically significant pain that interfered with daily activities, despite analgesic use. Important concerns for this group were related to fear of addiction (76 per cent), fear that pain signals disease progression (71 per cent) and concern about side effects of medication (67 per cent). These concerns correlate closely with those identified in the original US study.[18,19]

Our knowledge of just how well pain is managed and whether it is improving, remains inconsistent at best.[2] There is little data on the frequency of assessment and documentation of pain scores, or on the adequacy of pain management practices.

A 2007 systematic review of institutional interventions designed to improve assessment and management of cancer pain in hospitalised patients identified effective interventions that improved both nursing knowledge and assessment of pain. However, it was unable to identify any systematic, hospital-wide intervention that resulted in improvements in patients’ pain severity.[20]
Initiatives to help close the gap

Increasing awareness of the problem of inadequate pain management has been demonstrated by a number of high level activities both in Australia and abroad.

Pain management pilot program

In early 2004, the National Institute of Clinical Studies (NICS) initiated a pilot program. This program took an institution approach to pain management, with the aim of improving pain management by integrating routine observation, scoring and management of pain into the day-to-day system of care in hospitals (treating pain as the 5th vital sign). The program was run in eight hospitals nationally, with a focus on cancer services; and used a variety of interventions adapted to local circumstances. The interventions were targeted mainly towards nurses, and to medical staff and allied health staff to a lesser degree.[3]

Over the year, the proportion of patients with documented pain scores on admission to the wards improved from typically less than 20 per cent at baseline, to 60 to 100 per cent. Improvements were also seen at most sites in the proportion of patients with documented daily pain scores.[3] This program has helped raise the profile of the issue of pain management at hospital executive level and through organisational governance interventions. Awareness has also been raised at a national level through consultation with peak pain bodies and other general publicity.[3]

NICS Emergency department pain initiative

In 2007, the NICS Emergency Care Program undertook a national audit to identify the practice gap in emergency department (ED) pain management with reference to the specific ED pain management recommendations in the NHMRC approved guidelines Acute pain management: Scientific evidence (2nd edition).[6] Results of the audit will be published in 2008.

In 2008, the NICS Emergency Care Program, in consultation with the emergency care field, will coordinate the implementation phase of the national pain initiative with a focus on interventions targeting identified barriers to ED pain management.

Examples of other recent activities and initiatives in Australia and worldwide include:

- Resources developed by the Victorian Quality Council (VQC), such as an Acute Pain Management Measurement Toolkit,[20] which includes VQC’s Operational principles for acute pain management.[21] The toolkit is based on evidence of current best practice in pain assessment, and aims to help health services to measure the effectiveness of acute pain management at both individual patient and wider system levels. The toolkit was disseminated to all Victorian health services in March 2007, with regional orientation and training sessions planned to follow. The VQC also planned to fund a limited number of Victorian health services to demonstrate the application of the toolkit.[20]

- The 3rd edition of IASP’s Core curriculum for professional education in pain[22] includes a section on acute and postoperative pain based on the revised NHMRC acute pain management guidelines. This curriculum is freely available online, and is used in pain education in many countries around the world.[5]

- The National Prescribing Service (NPS) established the Acute Postoperative Pain (APOP) Project – a quality improvement initiative targeting acute postoperative pain management. The project focuses on pain assessment and safe, effective prescribing of analgesics (including those prescribed on discharge). It will include a baseline audit followed by an educational intervention and a further audit.[23] Sixty-three hospitals across Australia are participating in APOP. The baseline audit is complete, with data analysis ongoing.[24]

- In June 2006, the Australia Government provided seed funding to support the development of the Palliative Care Clinical Studies Collaborative (PaCCSC). Many medicines used for pain relief within hospitals are not currently registered by the Therapeutic Goods Administration (TGA) for use in palliative care, which means they cannot be listed on the PBS for use in palliative care. The PaCCSC’s role is to generate the scientific evidence needed to list medicines on the PBS for palliative care indications.[25]
References
