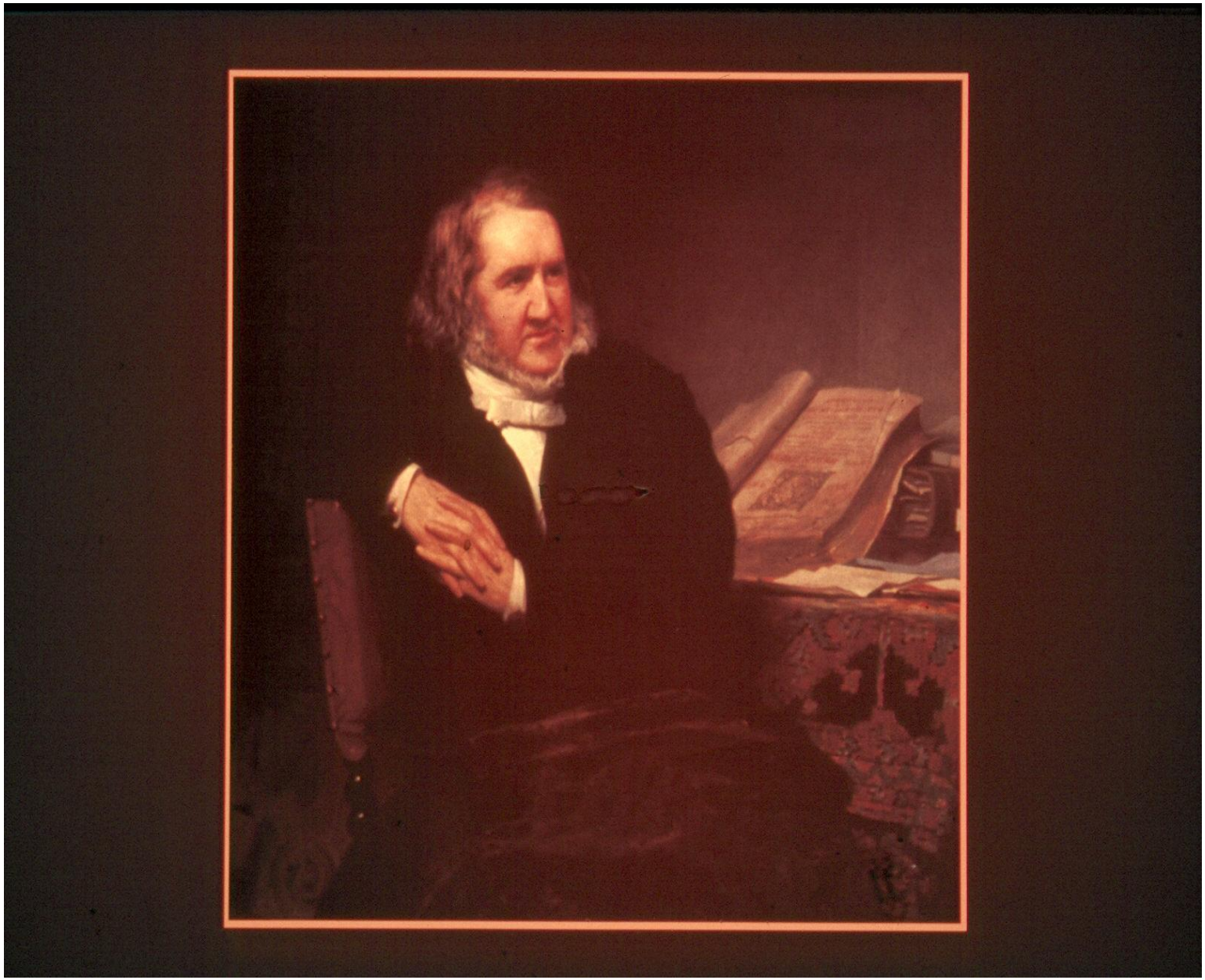
Best practices in pain management

Ian Power

Anaesthesia, Critical Care and Pain Medicine

www.anaes.med.ed.ac.uk/

The Royal Infirmary of Edinburgh, Little France



How *effective* is postoperative pain therapy?

- Review of published data
- Major surgery
- Incidence of moderate-severe and severe pain
- i.m. *v* PCA *v* epidural analgesia

Dolin SJ, Cashman JN, Bland JM.

British Journal of Anaesthesia 2002; 89(3);409-423

Effectiveness of acute postoperative pain management

	% Severe pain
Intramuscular analgesia	29.1
PCA	10.4
Epidural analgesia	7.8

Dolin SJ, Cashman JN, Bland JM.

BJA Sept 2002

How *safe* is postoperative pain therapy?

Respiratory and haemodynamic effects of acute postoperative pain management: evidence from published data.

Cashman, J.N. and Dolin, S.J.

British Journal of Anaesthesia, 93 (2004) 212-223.

How *safe* is postoperative pain therapy?

"Whereas the incidence of respiratory depression decreased over the period 1980-99, ***the incidence of hypotension did not"***

Cashman JN, Dolin SJ.

BJA Aug 2004

Effectiveness of acute postoperative pain management

Postoperative pain experience: results from a National Survey suggest postoperative pain continues to be undermanaged

Apfelbaum J L *et al*

Anesth Analg 2003; 97:534-540

Chronic pain after surgery (%)

	Perkins & Kehlet	Macrae
Mastectomy	11-49	23-49
Thoracotomy	22-67	5-67
Cholecystectomy	3-56	3-27
Inguinal hernia	0-37	15-63
Vasectomy	-	0-37

Wilson JA, Colvin LA, Power I

RCoA Bulletin Sept 2002

Pain - a persistent problem

"*… it remains a common misconception amongst clinicians that acute postoperative pain is a transient condition involving physiological nociceptive stimulation, with a variable affective component, that differs markedly in its pathophysiological basis from chronic pain syndromes.*"

Cousins MJ, Power I, and Smith G.

Regional Analgesia and Pain Medicine, 25 (2000) 6-21

Pain - a persistent problem

"… it is now known that clinical pain differs markedly from physiological pain and that acute, chronic and cancer pains share common mechanisms."

Cousins MJ, Power I, and Smith G.

Regional Analgesia and Pain Medicine, 25 (2000) 6-21

Pain *before* elective surgery

	%	Severity (mm)	Duration (months)
Orthopaedic	98	80 (60-90)	48 (24-120)
General	75	40 (0-80)	9 (0.2-24)

Lang S, Power I, Wilson J 2005

Analgesia *before* elective surgery

	Paracetamol	NSAID	Opioid
Orthopaedic	26%	36%	67%
General	14%	15%	25%

Lang S, Power I, Wilson J 2005

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

THE COLLEGE OF ANAESTHETISTS

COMMISSION ON THE PROVISION OF SURGICAL SERVICES

Report of the Working Party on

PAIN AFTER SURGERY

September 1990

Acute pain management: scientific evidence

NHMRC
National Health and Medical Research Council

The Royal College *of* Anaesthetists

The Pain Society

The British Chapter of the International Association for the Study of Pain

Pain Management Services

Good Practice

May 2003

Australian and New Zealand College of Anaesthetists
and Faculty of Pain Medicine

Acute Pain Management: Scientific Evidence

Second edition 2005

Approved by

Australian Government

National Health and Medical Research Council

Acute Pain Management: Scientific Evidence (2nd Edition) 2005

- ANZCA *Faculty of Pain Medicine* Working Party 2003-5
- NHMRC Australia
- IASP
- Royal College of Anaesthetists

Pam Macintyre, Adelaide (Chair)

Stephan Schug, Perth

David Scott, Melbourne

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Ian Power, Edinburgh

Douglas Justins, London (RCoA Consultant)

+ Guideline Assessment Consultants, NHMRC Secretariat, and Editors

www.anzca.edu.au

Acute Pain Management: Scientific Evidence (2nd Edition)

1. Physiology and Psychology of Acute Pain
2. Assessment and Measurement
3. Provision of safe and effective management
4. Systemically administered analgesic drugs
5. Regionally and locally administered analgesic drugs
6. Routes of systemic drug administration
7. Techniques of drug administration
8. Non-pharmacological techniques

Levels of evidence

I Evidence obtained from a systematic review of all relevant randomised controlled trials.

II Evidence obtained from at least one properly designed randomised controlled trial

III-1 Evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method)

NHMRC 1999

Levels of evidence

III-2 Evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-controlled studies or interrupted time series with a control group

III-3 Evidence obtained from comparative studies with historical control, 2 or more single-arm studies, or interrupted time series without a parallel control group

IV Evidence obtained from case series, either post-test or pre-test and post-test

NHMRC 1999

SUMMARY OF KEY MESSAGES

A description of the levels of evidence and associated symbols can be found in the introduction (see page vi).

1. Physiology and psychology of acute pain

Psychological aspects of acute pain

1. Preoperative anxiety, catastrophising, neuroticism and depression are associated with higher postoperative pain intensity (**Level IV**).
2. Preoperative anxiety and depression are associated with an increased number of patient-controlled analgesia (PCA) demands and dissatisfaction with PCA (**Level IV**).

☑ Pain is an individual, multifactorial experience influenced by culture, previous pain events, beliefs, mood and ability to cope.

Progression of acute to chronic pain

1. Some specific early analgesic interventions reduce the incidence of chronic pain after surgery (**Level II**).
2. Chronic postsurgical pain is common and may lead to significant disability (**Level IV**).
3. Risk factors that predispose to the development of chronic postsurgical pain include the severity of pre and postoperative pain, intraoperative nerve injury and psychological vulnerability (**Level IV**).
4. Many patients suffering chronic pain relate the onset to an acute incident (**Level IV**).

Pre-emptive and preventive analgesia

1. The timing of a single analgesic intervention (preincisional versus postincisional), defined as pre-emptive analgesia, does not have a clinically significant effect on postoperative pain relief (**Level I**).
2. There is evidence that some analgesic interventions have an effect on postoperative pain and/or analgesic consumption that exceeds the expected duration of action of the drug, defined as preventive analgesia (**Level I**).
3. NMDA (n-methyl-D-aspartate) receptor antagonist drugs in particular may show preventive analgesic effects (**Level I**).

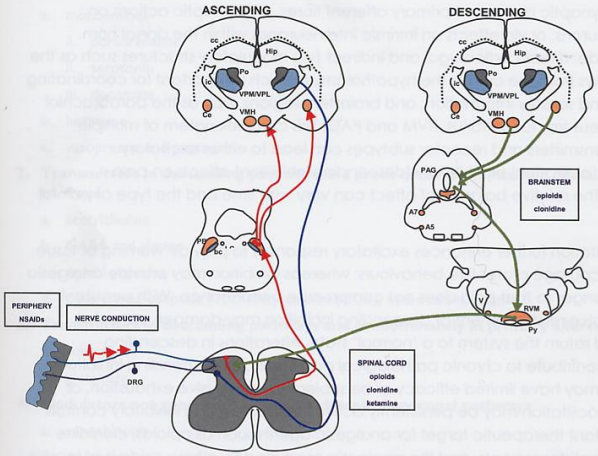
2. Assessment and measurement of acute pain and its treatment

Measurement

1. Regular assessment of pain leads to improved acute pain management (**Level III-3**).
2. There is good correlation between the visual analogue and numerical rating scales (**Level IV**).

☑ Self-reporting of pain should be used whenever appropriate as pain is by definition a subjective experience.

Figure 1.1 The main ascending and descending spinal pain pathways



Notes: (a) There are 2 primary ascending nociceptive pathways. The spinoparabrachial pathway (red) originates from the superficial dorsal horn and feeds areas of the brain concerned with affect. The spinothalamic pathway (blue) originates from deeper dorsal horn (lamina V) after receiving input from the superficial dorsal horn and predominantly distributes nociceptive information to areas of the cortex concerned with discrimination.

(b) The descending pathway highlighted originates from the amygdala and hypothalamus and terminates in the periaqueductal grey (PAG). Neurons project from here to the lower brainstem and control many of the antinociceptive and autonomic responses that follow noxious stimulation.

Other less prominent pathways are not illustrated.

The site of action of some commonly utilised analgesics are included.

Legend A: adrenergic nucleus; bc: brachium conjunctivum; cc: corpus collosum; Ce: central nucleus of the amygdala; DRG: dorsal root ganglion; Hip: hippocampus; ic: internal capsule; LC: locus coeruleus; PAG: periaqueductal grey; PB: parabrachial area; Po: posterior group of thalamic nuclei; Py: pyramidal tract; RVM: rostroventrmedial medulla; V: ventricle; VMH: ventral medial nucleus of the hypothalamus; VPL: ventral posterolateral nucleus of the thalamus; VPM: ventral posteromedial nucleus of the thalamus

Source: Modified from Hunt & Mantyh (2001).

Currently the use of antidepressants for acute neuropathic pain is mainly based on extrapolation of the above data. However, amitriptyline (Kalso et al 1996, **Level II**) and venlafaxine (Tasmuth et al 2002, **Level II**) are effective in the treatment of established neuropathic pain following breast surgery. In addition there is a possible preventive effect — given before and continued after surgery, venlafaxine significantly reduced the incidence of chronic pain at 6 months (Reuben et al 2004, **Level II**), and amitriptyline given to patients with acute herpes zoster reduced the incidence of postherpetic neuralgia at 6 months (Bowsher 1997, **Level II**).

Clinical experience in chronic pain suggests that tricyclic antidepressants (TCAs) should be started at low doses (eg amitriptyline 5–10mg at night) and subsequent doses increased slowly if needed, in order to minimise the incidence of adverse effects.

There are very limited data on the use of TCAs in acute nociceptive pain. Desipramine given prior to dental surgery increased and prolonged the analgesic effect of a single dose of morphine but had no analgesic effect in the absence of morphine (Levine et al 1986, **Level II**). However, when used in experimental pain, desipramine had no effect on pain or hyperalgesia (Wallace et al 2002, **Level II**). Amitriptyline given prior to dental surgery (Levine et al 1986, **Level II**) or after orthopaedic surgery (Kerrick et al 1993, **Level II**) did not improve morphine analgesia.

Key messages

1. Tricyclic antidepressants are effective in the treatment of chronic neuropathic pain states, chronic headaches and chronic back pain (**Level I**).
2. In neuropathic pain, tricyclic antidepressants are more effective than selective serotonergic re-uptake inhibitors (**Level I**).
3. Antidepressants reduce the incidence of chronic neuropathic pain after acute zoster and breast surgery (**Level II**).

The following tick boxes ☑ represent conclusions based on clinical experience and expert opinion.

☑ Based on the experience in chronic neuropathic pain states, it would seem reasonable to use tricyclic antidepressants in the management of acute neuropathic pain.

☑ To minimise adverse effects, particularly in elderly people, it is advisable to initiate treatment with low doses.

4.3.4 Anticonvulsant drugs

There are only limited data on the treatment of acute neuropathic pain with anticonvulsant medications. However, anticonvulsants have been used to treat chronic neuropathic pain and various systematic reviews have shown their efficacy in a variety of neuropathic pain states. (McQuay et al 1995, **Level I**; Sindrup & Jensen 1999, **Level I**; Collins et al 2000, **Level I**; Wiffen et al 2000, **Level I** ;Jensen 2002, **Level I**; McQuay 2002, **Level I**).

Australian and New Zealand College of Anaesthetists
and Faculty of Pain Medicine

Acute Pain Management: Scientific Evidence

Second edition 2005

Approved by

Australian Government

National Health and Medical Research Council

1. Physiology and psychology of acute pain

1.1 Applied physiology of acute pain

1.2 Psychological aspects of acute pain

1.3 Progression of acute to chronic pain

1.4 Pre-emptive and preventive analgesia

1.5 Adverse physiological and psychological aspects of pain

1.2 Psychological aspects of acute pain

1. Preoperative anxiety, catastrophising, neuroticism and depression are associated with higher postoperative pain intensity (Level IV).
2. Preoperative anxiety and depression are associated with an increased number of patient-controlled analgesia demands and dissatisfaction with PCA (Level IV).

1.3 Progression of acute to chronic pain

1. Some specific early analgesic interventions reduce the incidence of chronic pain after surgery (Level II).
2. Chronic postsurgical pain is common and may lead to significant disability (Level IV).
3. Risk factors that predispose to the development of chronic postsurgical pain include the severity of pre and postoperative pain, intraoperative nerve injury and psychological vulnerability (Level IV).
4. Many patients suffering chronic pain relate the onset to an acute incident (Level IV).

1.4 Pre-emptive and preventive analgesia

1. The timing of a single analgesic intervention (preincisional versus postincisional), defined as pre-emptive analgesia, does not have a clinically significant effect on postoperative pain relief (Level I).
2. There is evidence that some analgesic interventions have an effect on postoperative pain and/or analgesic consumption that exceeds the expected duration of action of the drug, defined as preventive analgesia (Level I).
3. NMDA (n-methyl-D-aspartate) receptor antagonist drugs in particular may show preventive analgesic effects (Level I).

3.2 Organisational requirements

1. Preoperative education improves patient or carer knowledge of pain and encourages a more positive attitude towards pain relief (Level II).
2. Implementation of an acute pain service may improve pain relief and reduce the incidence of side-effects (Level III-3).
3. Staff education and the use of guidelines improve patient assessment, pain relief and prescribing practices (Level III-3).
4. Even ‘simple’ methods of pain relief can be more effective if attention is given to education, documentation, patient assessment and provision of of appropriate guidelines and policies (Level III-3).

Levels of evidence

III-2 Evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-controlled studies or interrupted time series with a control group

III-3 Evidence obtained from comparative studies with historical control, 2 or more single-arm studies, or interrupted time series without a parallel control group

IV Evidence obtained from case series, either post-test or pre-test and post-test

NHMRC 1999

3.2.2 Acute pain services

"Although systematic reviews have been attempted, the poor quality of the studies looking at the effectiveness or otherwise of acute pain services means that a proper meta-analysis cannot be performed and that the evidence for any benefit of acute pain services remains mixed"

7.1 Patient-controlled analgesia

1. Intravenous opioid PCA provides better analgesia than conventional parenteral opioid regimens (Level I).
2. Patient preference for iv PCA is higher when compared with conventional regimens (Level I).
3. Opioid administration by iv PCA does not lead to lower opioid consumption, hospital stay or lower adverse effects(Level I).
4. The addition of ketamine to PCA morphine does not improve analgesia or reduce the incidence of opioid-related adverse effects (Level I).
5. PCEA for pain in labour results in the use of lower doses of LA, less motor block and fewer anaesthetic interventions (Level I).

8. Non-pharmacological techniques

8.1 Psychological interventions

8.2 TENS

8.3 Acupuncture

8.4 Physical therapies

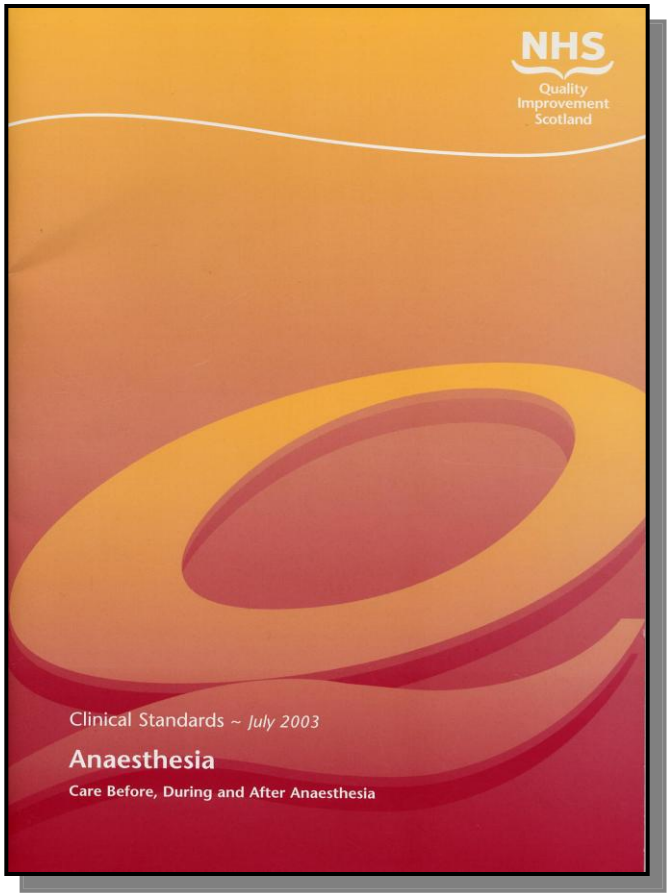
9. Specific clinical situations

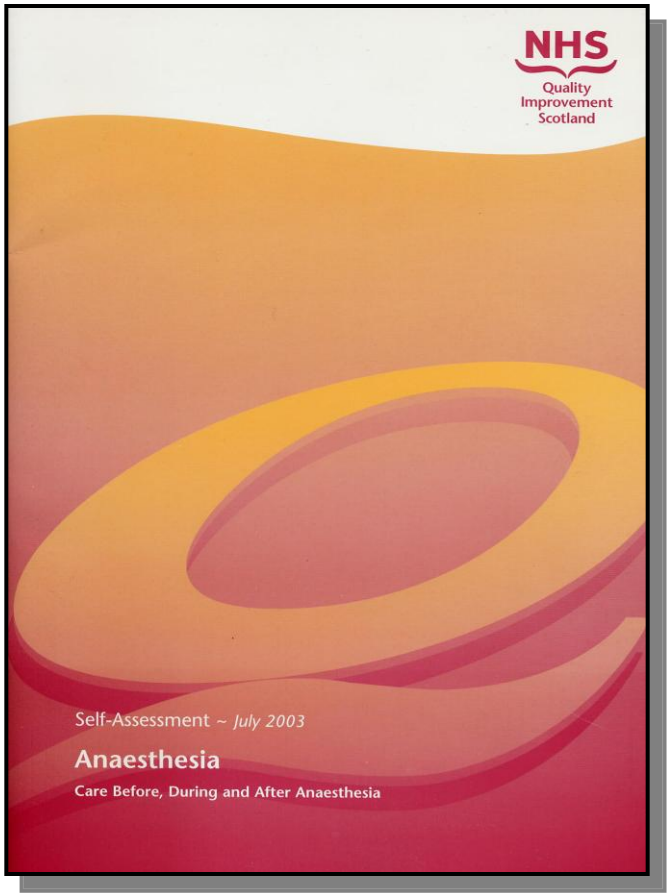
9.1 Postoperative pain
9.2 Acute spinal cord injury pain
9.3 Acute burns injury pain
9.4 Acute back pain
9.5 Acute musculoskeletal pain
9.6 Acute medical pain
9.7 Acute cancer pain
9.8 Acute pain management in intensive care
9.9 Acute pain management in emergency departments

10. Specific patient groups

10.1 The paediatric patient
10.2 The pregnant patient
10.3 The elderly patient
10.4 Aboriginal and Torres Strait Islander patients
10.5 Other ethnic groups and non-English speakers
10.6 The patient with obstructive sleep apnoea
10.7 The patient with concurrent hepatic or renal disease
10.8 The opioid-tolerant patient
10.9 The patient with a substance abuse disorder

NHS Quality Improvement Scotland




NHS
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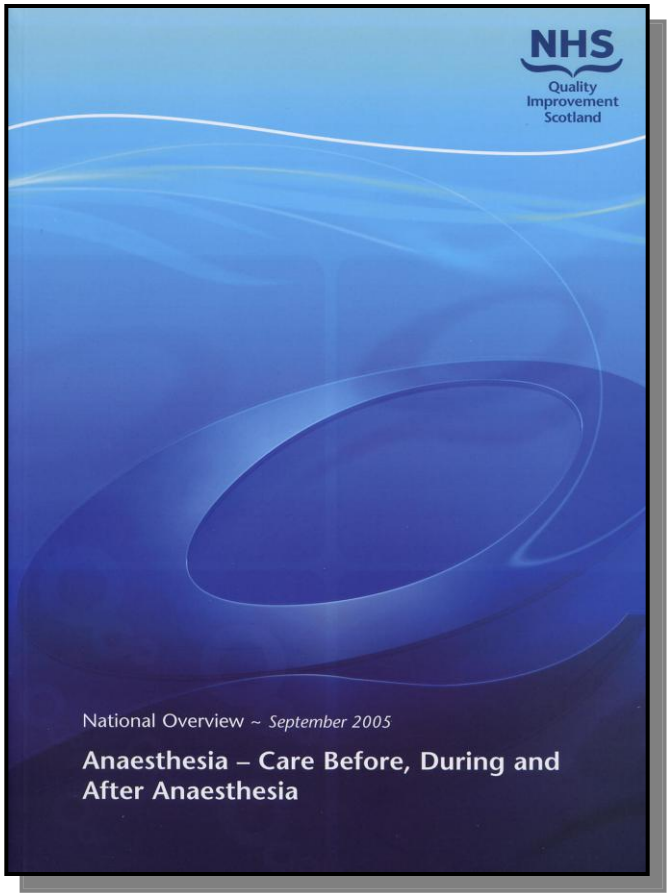
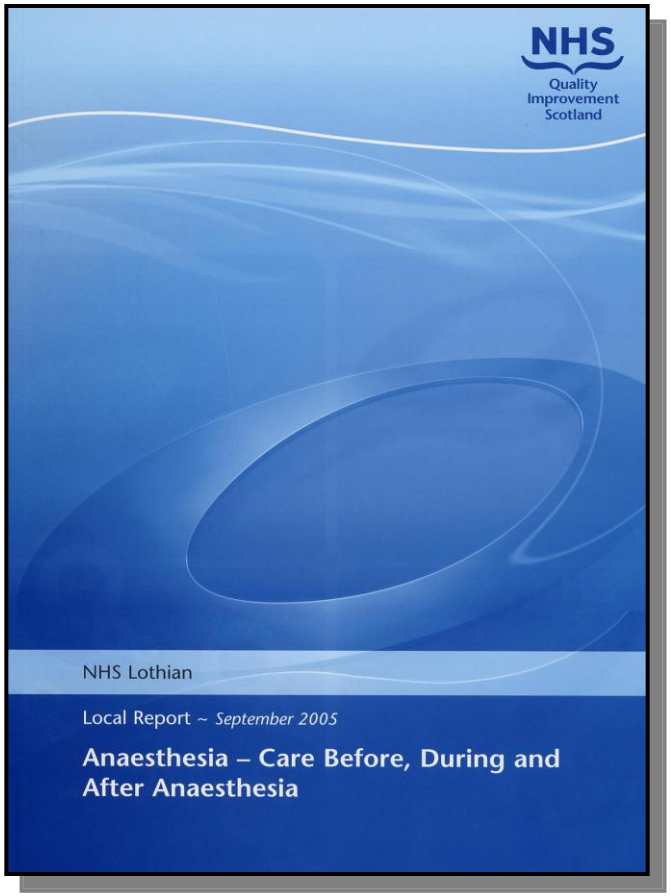
Scotland
Self-Assessment ~ July 2003
Anaesthesia
Care Before, During and After Anaesthesia

National Results



Lothian Results



The Acute Pain Service

1.10.1 Each hospital has a multidisciplinary acute pain service

Met	*8*
Not met	*11*
Insufficient evidence	*0*
Not applicable	*0*

The Acute Pain Service

1.10.2 There is a named consultant, with a designated sessional commitment, responsible for management of the acute pain service

Met	*6*
Not met	*13*
Insufficient evidence	*0*
Not applicable	*0*

The Acute Pain Service

1.10.3 The acute pain service provides continuing education of hospital staff and patients

Met	*7*
Not met	*12*
Insufficient evidence	*0*
Not applicable	*0*

The Acute Pain Service

1.10.4 There is cover for the acute pain service on a 24-hour basis

Met	*8*
Not met	*11*
Insufficient evidence	*0*
Not applicable	*0*

The Acute Pain Service

1.10.5 There is liaison between the acute and chronic pain services

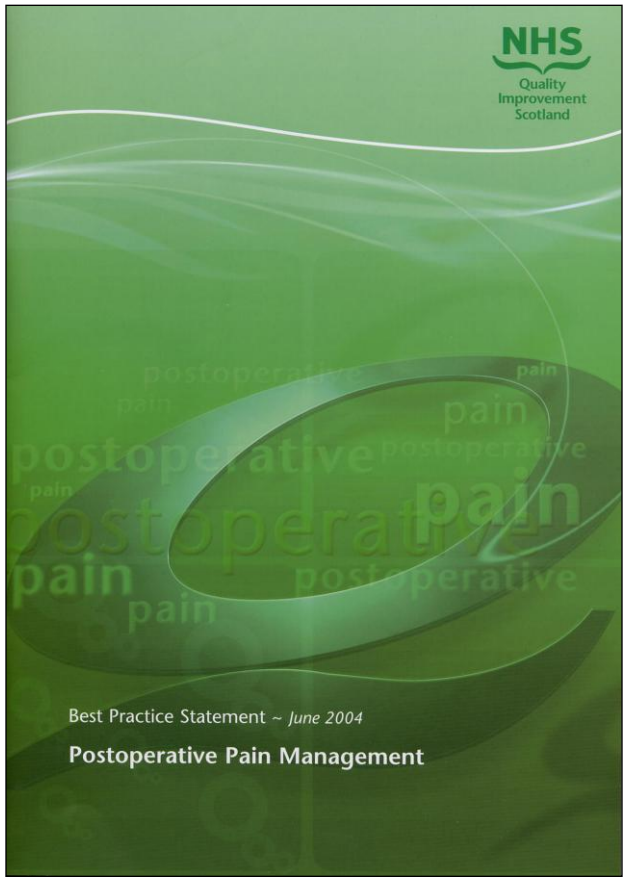
Met	*7*
Not met	*11*
Insufficient evidence	*0*
Not applicable	*1*

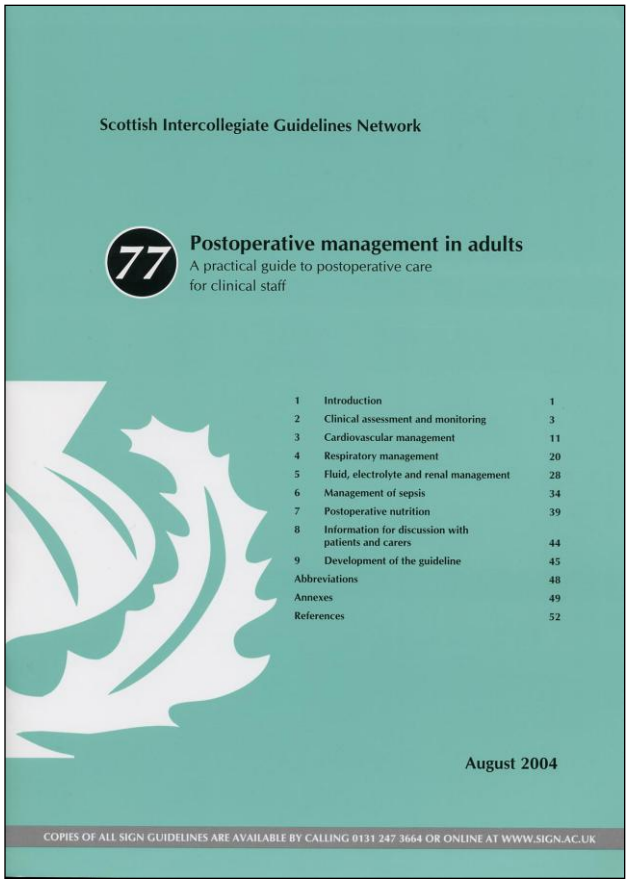
The Acute Pain Service

1.10.6 There is audit of the safety and efficacy of analgesic therapies to promote continuous quality improvement

Met	*17*
Not met	*1*
Insufficient evidence	*1*
Not applicable	*0*

SIGN


NHS
Quality Improvement Scotland
Best Practice Statement ~ June 2004
Postoperative Pain Management


Scottish Intercollegiate Guidelines Network
77
Postoperative management in adults
A practical guide to postoperative care for clinical staff
1 Introduction 1
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4 Respiratory management 20
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8 Information for discussion with patients and carers 44
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Abbreviations 48
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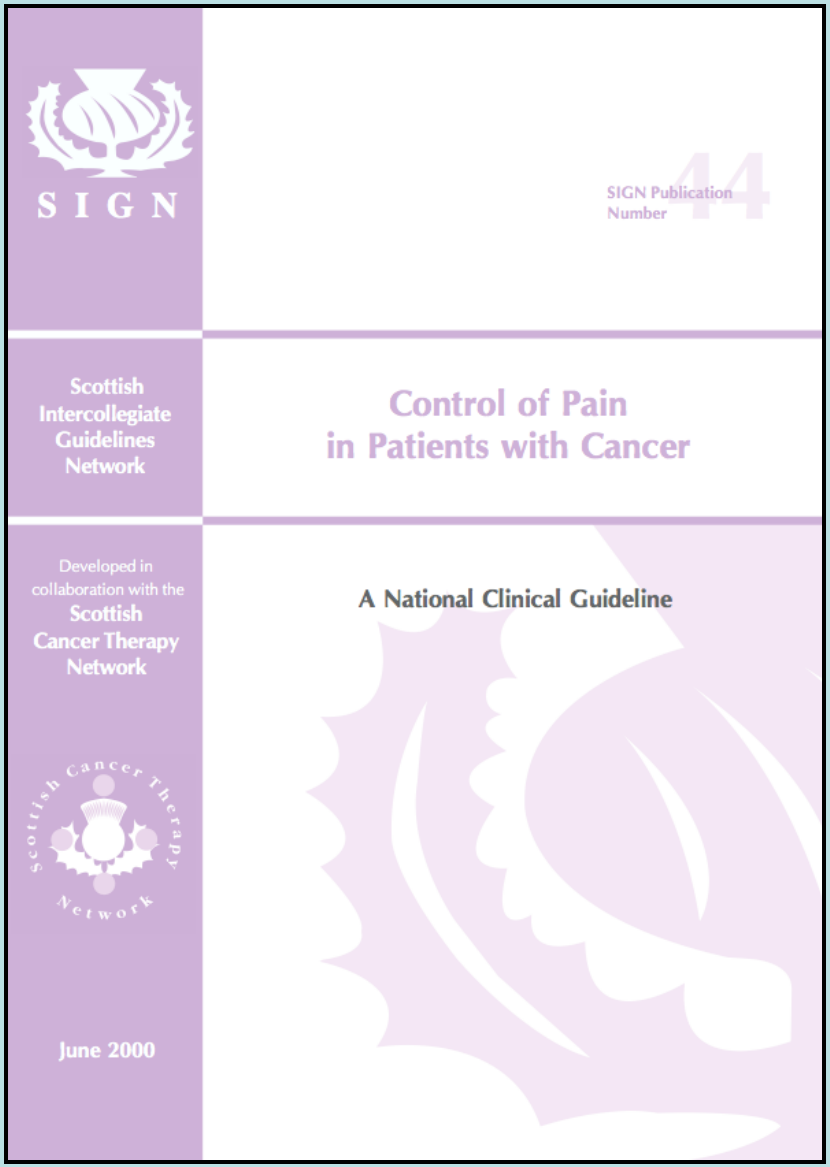
August 2004
COPIES OF ALL SIGN GUIDELINES ARE AVAILABLE BY CALLING 0131 247 3664 OR ONLINE AT WWW.SIGN.AC.UK

NHS QIS 2006


QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.


SIGN
SIGN Publication Number 44
Scottish Intercollegiate Guidelines Network
Control of Pain in Patients with Cancer
Developed in collaboration with the Scottish Cancer Therapy Network
A National Clinical Guideline
Scottish Cancer Therapy Network
June 2000

Education

- Undergraduate
- Trainees
- Public
- Continuing - *‘Us’*

MBChB

- *Portfolio Vertical Theme - "Pain"*
- *Therapeutics*
- *General Practice*
- *Anaesthetics, Critical Care, Surgery, AE*
- *Integrated teaching and assessment*


CORPUS CURARE
SPIRITUALQUE

Faculty of Pain Medicine

"*The establishment of the Faculty of Pain Medicine within the College of Anaesthetists, incorporating true multidisciplinary representation from other medical specialties, is an important and innovative advance in dealing with the management of acute, chronic non-malignant and cancer pain which collectively remain one of society's major problems*"

www.fpm.anzca.edu.au/

"Patients in pain require a specialty that is unencumbered by the boundaries of traditional disciplines, one that is able to assimilate diverse knowledge and treatments in order to provide sound care.

… and to produce role models, teachers, and researchers as the science and practice of pain medicine continues to expand".

The Case for Pain Medicine

Fishman S *et al*

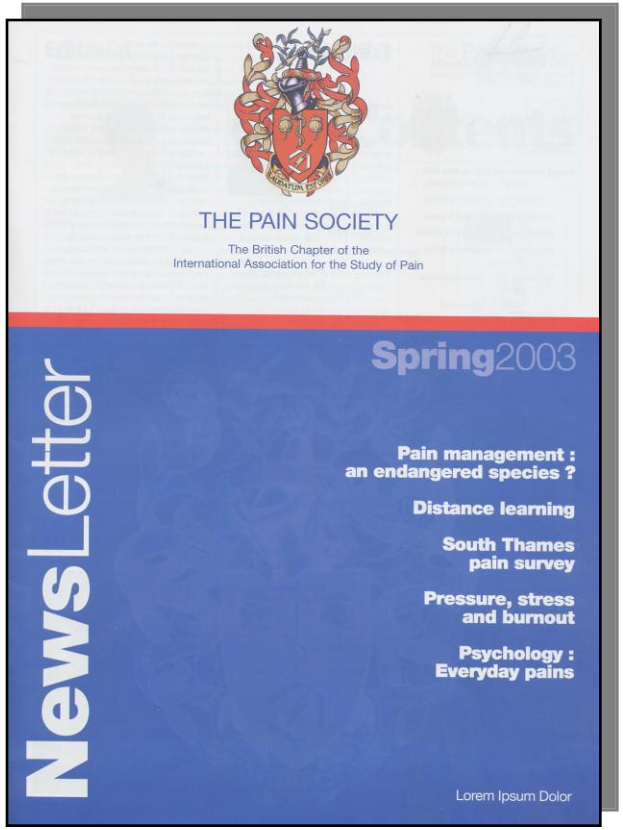
Pain Medicine 2004, 5:281-286

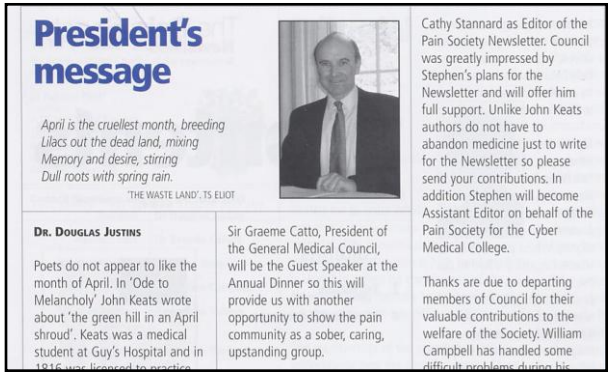
Pain Medicine Recognised as a Specialty in Australia

- Patients
- Practitioners
- Public Policy

Milton Cohen and Roger Goucke

Pain Medicine 2006,7:473





President's message

April is the cruellest month, breeding
Lilacs out the dead land, mixing
Memory and desire, stirring
Dull roots with spring rain.
'THE WASTE LAND'. TS ELIOT

Dr. Douglas Justins

Poets do not appear to like the month of April. In 'Ode to Melancholy' John Keats wrote about 'the green hill in an April shroud'. Keats was a medical student at Guy's Hospital and in

Sir Graeme Catto, President of the General Medical Council, will be the Guest Speaker at the Annual Dinner so this will provide us with another opportunity to show the pain community as a sober, caring, upstanding group.

Cathy Stannard as Editor of the Pain Society Newsletter. Council was greatly impressed by Stephen's plans for the Newsletter and will offer him full support. Unlike John Keats authors do not have to abandon medicine just to write for the Newsletter so please send your contributions. In addition Stephen will become Assistant Editor on behalf of the Pain Society for the Cyber Medical College.

Thanks are due to departing members of Council for their valuable contributions to the welfare of the Society. William Campbell has handled some

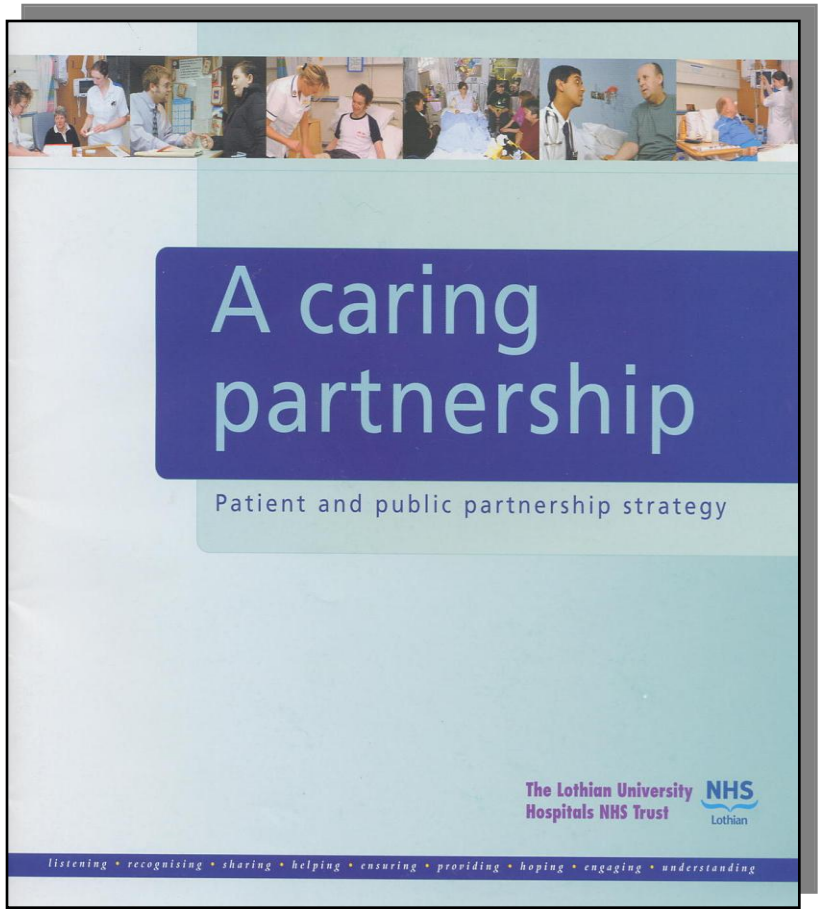
Royal College of Anaesthetists

- Competency in pain management: SHO, SpR 1-5
- *Plus*, 12 months of advanced training in Pain Medicine
- Edinburgh - "Pain Medicine" committee from 2003

Royal College of Anaesthetists

"FFPMRCA" - 2nd April 2007

Lothian



Our main aims

Patients here and elsewhere have told us that there are seven main aims, relating to clinical care and clinical outcomes, which they want us to concentrate on.

The seven main aims

1 **Respect for patients' values, preferences and needs.**

2 **Good-quality information, communication and education.**

3 **Freedom from pain and discomfort.**

4 **Co-ordinated care within the hospital and between the hospital and other organisations.**

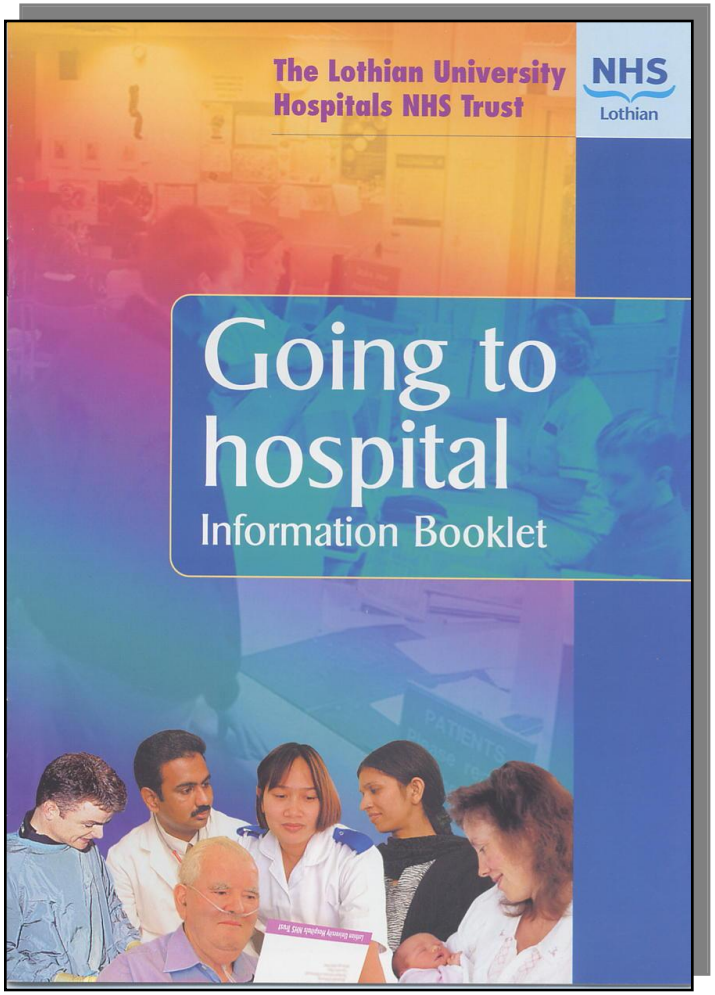
5 **Continuity of care and easy transfer between different services.**

6 **Emotional support from staff for patients and their family and friends.**

7 **Involvement of family and friends.**

Aim 1 is the central aim and the others support it.

Lothian



Our promise to patients

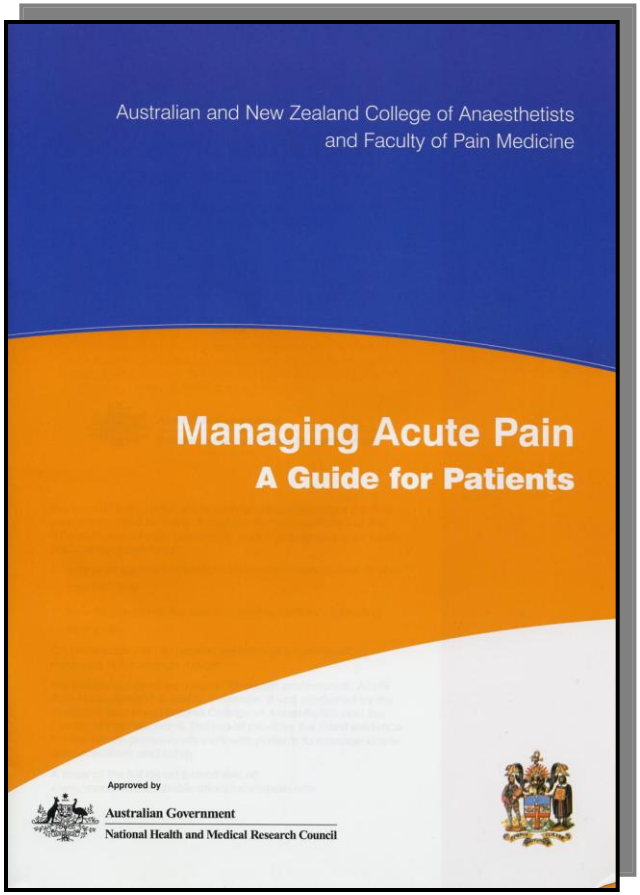
We understand that illness is worrying for patients and their families. It affects not only a person's body but also their family life, work life and social life, for a long or short time. With this in mind, we promise we will work with you to provide and plan the best possible care and treatment by:

- recognising you as an individual, with your own needs;
- listening to, and trying to understand, your hopes and fears, and those of your family;
- sharing good, honest information with you about what we do know and what we don't know;
- helping you, wherever possible, to make informed choices and shared decisions about what treatment you agree to receive;
- making sure that you are physically comfortable and free from pain, as far as possible;
- helping you manage your illness or condition;
- providing education for you and your family about how to help with your recovery, especially when you return home;
- expecting you to treat our staff with the same consideration and respect we give to you, to help us keep our promise to you; and
- involving you as an equal partner at all times.

If you feel we break our promise at any time please tell the staff caring for you or, if you prefer, phone Dr Pat Straw on 0131 536 3241 or ask to see her.

A CARING PARTNERSHIP

Patients


Australian and New Zealand College of Anaesthetists
and Faculty of Pain Medicine
Managing Acute Pain
A Guide for Patients
Approved by
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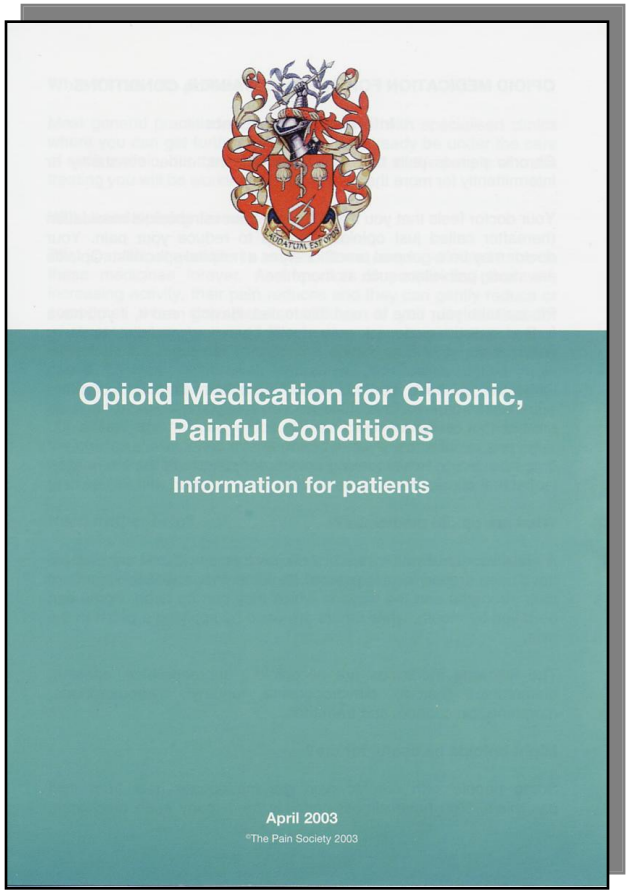
National Health and Medical Research Council



"Your doctor feels that you might benefit from using opioid medication to help reduce your pain.

Only after you have read this leaflet will you really know whether opioids are the right choice for you."

*e*MSc Pain Management

MSc/Diploma/Certificate
in **Pain Management**

www.mvm.ed.ac.uk/gradschool

THE UNIVERSITY OF EDINBURGH

eMSc Pain Management

Admission requirements

Admission requirements are set by each institution. In general, applicants are required to have a primary undergraduate degree in a health discipline and must demonstrate English language proficiency.

- European students enrol through the University of Edinburgh
- North American students enrol through the University of California, San Francisco
- All other students enrol through the University of Sydney

Further information

University of Sydney
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Website: www.pmri.med.usyd.edu.au/education/degree_program.php

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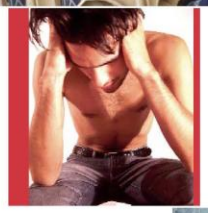
International Pain Education Program

Postgraduate Studies in Pain Management



The University of Sydney

UCSF

e-MSc in Pain Management

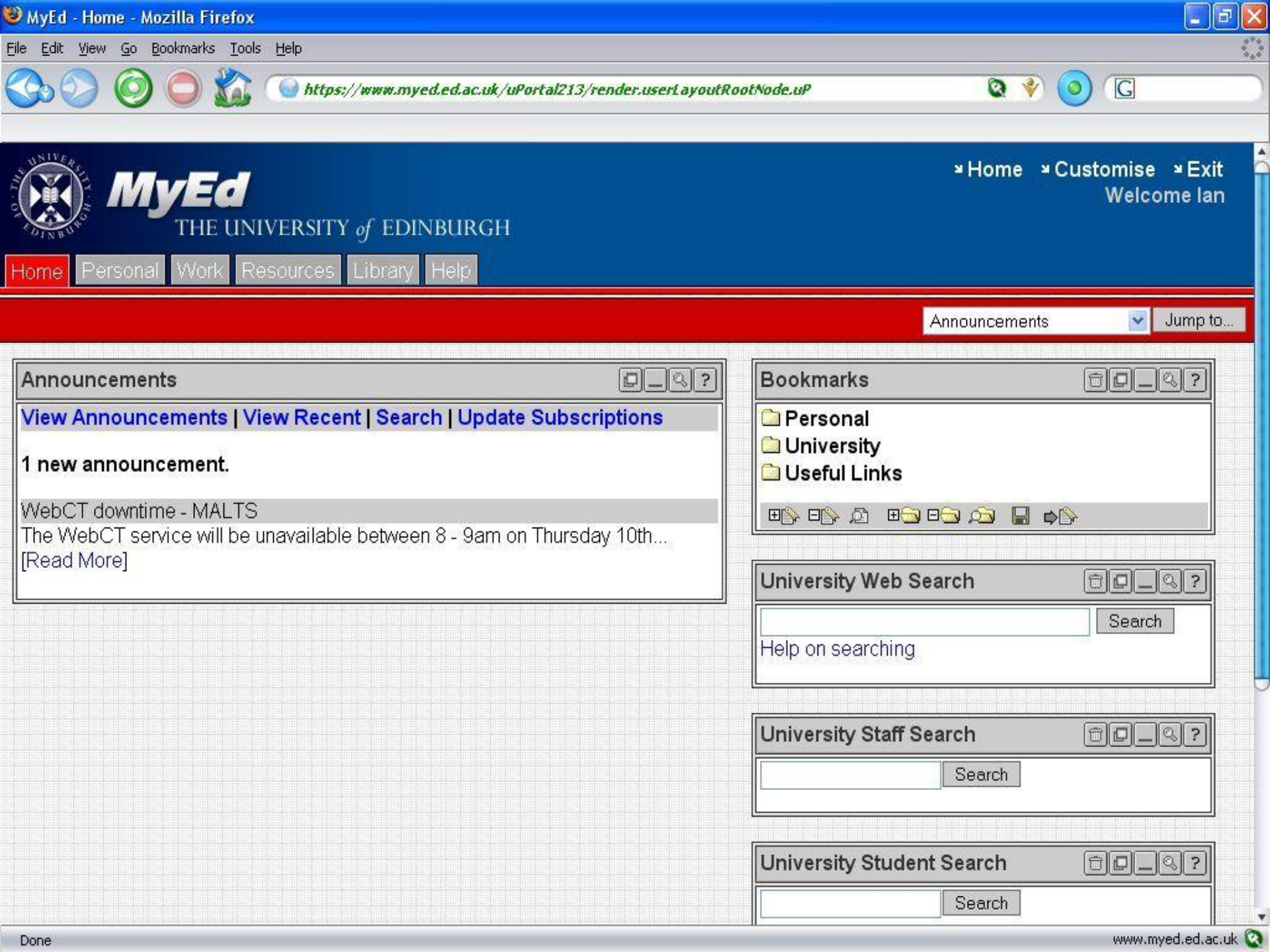
Educational aims

- Integrated program of theory and practice
- Graduates with a deep understanding of the principles and practice of pain management
- Graduates who can improve outcomes for patients
- Allow graduates to focus on a specific area of interest

e-MSc in Pain Management
(Certificate/Diploma/ MSc)

Structure

- Part-time, 2 years
- Two semesters of 11 weeks per year (March - June; September - December)
- Online tuition
- Peer to peer discussion
- Independent study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View Announcements | View Recent | Search | Update Subscriptions
1 new announcement.
WebCT downtime - MALTS
The WebCT service will be unavailable between 8 - 9am on Thursday 10th...
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Useful Links
University Web Search
Search
Help on searching
University Staff Search
Search
University Student Search
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Done
www.myed.ed.ac.uk

Homepage

Introduction to Pain Management

Note: Use of this site requires Adobe Reader 7.0. See Orientation CD-ROM.