Field Fisher Waterhouse

FFW/ 128/02

GENERAL MEDICAL COUNCIL

-and-

DR JANE BARTON

PANEL BUNDLE

DOCUMENTS

1

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DR JANE BARTON

PANEL BUNDLE INDEX – MISCELLANEOUS DOCUMENTS

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1

GLOSSARY OF DRUG TERMINOLOGY AND MEDICAL TERMS.

ACTIVITIES OF DAILY LIVING (ADL) *PHYSICAL ACTIVITIES SUCH AS WASHING, DRESSING ETC*

ALBUMIN *PROTEIN THAT IS SOLBLE IN WATER, SOMETIMES GIVEN INTRAVENOUSLY TO TREAT SHOCK*

ALLOPURINAL *DRUG USED TO TREAT GOUT*

ANALGESIA *MEDICINES PRESCRIBED TO RELIEVE PAIN*

ANGINA *INTERMTTENT HEART PAIN*

ANTI EMITICS *DRUG USED TO TREAT VOMITING*

AORTIC VALVE SCLEROSIS *THICKENING OF ONE OF THE HEART VALVES*

APYREXIAL *HAVING NO FEVER*

ASCITES *COLLECTION OF FLUID AROUND INTERIOR OF ABDOMINAL CAVITY*

AST *ASPARTATE AMINOTRANSFERASE, IS AN ENZYME PRESENT IN LIVER FORMING ACID WHICH IS ASSOCIATED WITH INFLAMMATION OF THE LIVER*

ATRIAL FIBRILLATION *DISORGANISED ELECTRICAL FUNCTION, WITH INEFFECTIVE PUMPING OF BLOOD TO THE HEART.*

AUGMENTIN *AN ANTIBIOTIC, BROAD SPECTRUM PENICILLIN*

BARTEL SCORE *A SCORE SHEET USED TO MEASURE PHYSICAL DISABILITY*

BELAVIC DRAINS *SUCTION DRAINS INSIDE WOUND TO REMOVE EXCESS FLUID*

BENDROFLUAZIDE *A DIURETIC*

BENZODIAZEPINE *A DIVERSE GROUP OF MEDICINES USED FOR A RANGE OF PURPOSES INCLUDING ANTI DEPRESSANT'S, SOME REDUCE ANXIETY, OTHERS FOR SLEEPING TABLETS*

BD *TWICE DAILY*

BILATERAL DUPYTHRENS *FINGERS PERMANENTLY CURL UP AND HELD IN PLACE BY BANDS OF FIBROUS TISSUE*

BILIRUBIN *THE BREAKDOWN PRODUCTS OF HAEMOGLOBIN*

BIOCLUSIVE *A DRESSING*

BOWELS OPEN (BO)

BOWELS NOT OPEN (BNO)

BOWELS WILL OPEN (BWO)

BRONCHOPNEUMONIA *TYPE OF PNEUMONIA WHICH IS LOCALISED TO BRONCIOLES AND SURROUNDING ALVIOLI*

BUMETANIDE *WATER TABLET*

CALCIPARINE *ANTI COAGULANT INJECTION*

CANDIDA *FUNGUS*

CARDIOMEGARY *ENLARGED HEART*

CARDIO VASCULAR EXAMINATION (CVS) *.FULL EXAMINATION OF THE HEART AND BLOOD VESSELS*

CATHETER *A HOLLOW TUBE PASSED INTO THE BLADDER TO REMOVE URINE*

CELLULITIS *.INFECTION OF SUBCUTANEOUS TISSUE- INFLAMMATION, REDNESS AND SOMETIMES SEVERE SWELLING*

CLEXANE *ANTI COAGULANT*

CODEINE PHOSPHATE- *AN OPIOID ANALGESIC RELATED TO MORPHINE BUT LESS POTENT WITH MILD SEDATIVE EFFECTS*

CO-CODAMOL *A DRUG CONSISTING OF PARACETAMOL AND CODEINE PHOSPHATE FOR THE RELIEF OF MILD TO MODERATE PAIN*

CO-DYDRAMOL *.A MEDICINE CONTAINING PARACETAMOL FOR USE IM MILD TO MODERATE PAIN*

CO-PROXIMAL *.A PAIN KILLER USED FOR MILD TO MODERATE PAIN, CONTAINING PARA CETAMOL*

CONTINUING CARE *.LONG PERIOD OF TREATMENT FOR PATIENTS WHO'S RECOVERY WILL BE LIMITED*

CIRROSIS *.DISEASE OF THE LIVER*

CITALOPRAM *.DRUG USED FOR DEPRESSION*

CHEST X RAY (CXR)

CHLORDIAZEPOXIDE *.ANTI NAUSEA DRUG*

CHRONIC ADENITIS *.LEGS SWOLLEN AND RETAINING FLUID LONGSTANDING*

CITALOPRAM *.A DRUG USED FOR DEPRESSION*

C/O *COMPLAINING OF*

CONGESTIVE CARDIAC FAILURE (CCF)

CREATININE *SERUM USED IN A KIDNEY FUNCTION TEST TO ESTABLISH IF THEY ARE WORKING CORRECTLY*

CREPITATIONS *.FLUID IN LUNGS (CRACKLES)*

CYCLIZINE *.DRUG USED TO PREVENT NAUSEA AND VOMITING*

DEMENTIA- *CONDITION ASSOCIATED WITH LOSS OF INTELLECT, MEMORY AND SOCIAL FUNCTIONING*

DIAMORPHINE *.POWERFUL OPIOID ANALGESIC*

DIGOXIN *DRUG USED FOR ATRIAL FIBRILLATION*

DISTRICT NURSE (DN)

DISARTHRIA *.UNCLEAR SPEECH*

DO NOT RESUSCITATE (DNR) *AN INSTRUCTION WHICH SAYS IF A PATIENT'S HEALTH SUDDENLY DETERIORATES TO NEAR DEATH, NO SPECIAL MEASURES WILL BE TAKEN TO REVIVE THEIR HEART.*

DOXAZOSIN *TREATMENT FOR HYPERTENSION*

DIARROHOEA & VOMITING (D & V)

DOMPERIDOLE *.A DRUG USED FOR SICKNESS AND NAUSEA*

DOPPLER ASSESSMENT *.ULTRSOLJND SCAN TO EXAMINE CARDI VASCULAR BLOOD FLOW*

DUTY HOUSE OFFICER (DHO)

ENOXAPARIN *AN ANTICOAGULANT*

FELODIPINE *TREATMENT FOR CARDIAC FAILURE OR HYPERTENSION*

FLUPENTHIXOL *TREATMENT FOR SCHIZOPHRENIA*

FORTISIP *HIGH PROTEIN REPLACEMENT DRINKS*

FRUSEMIDE *DURETIC*

FULL BLOOD COUNT (FBC) *THE DETERMINATION OF THE NUMBER OF RED AND WHITE BLOOD CELLS TOGETHER WITH PLATELETS IN PATIENT'S BLOOD*

GENTAMICIN *AN ANTIBIOTIC*

GLYCERYL TRINITRATE *TREATMENT FOR ANGINA*

GYNAECONESTION *THE DEVELOPMENT OF BREASTS IN A MAN WHO CONSUMES EXCESS ALCOHOL*

HAEMATOMA *ACCUMULATION OF BLOOD WITHIN TISSUE THAT CLOTS TO FORM A SOLID SWELLING*

HALOPERIDOL DRUG USED IN THE TREATMENT OF PSYCHOSES INCLUDING SCHIZOPHRENIA AND MANIA AND FOR SHORT TERM MANAGEMENT OF AGITATION, EXCITEMENT AND VIOLENT OR DANGEROUSLY IMPULSIVE BEHAVIOUR.

HEMIARTHOPLASTY A SURGICAL REMODELLING OF A PART OF THE HIP JOINT WHEREBY THE BONE END OF FEMUR IS REPLACED BY A METAL OR PLASTIC DEVICE TO CREATE A FUNCTIONING JOINT

HEPATIC ENCEPALOPATHY DEGENERATIVE DISEASE OF THE LIVER USUALLY ASSOCIATED WITH CHRONIC ALCOHOL ABUSE

HEPATITIS INFLAMMATION OF THE LIVER

HAEMAGLOBIN (HB) .THE SUBSTANCE IN THE RED BLOOD CELLS THAT TRANSPORTS OXYGEN AROUND THE BODY

HAEMORRHAGE .THE ESCAPE OF BLOOD FROM ARUPTURED BLOOD VESSEL

HYOSCINE HYDROBROMIDE .MEDICINE TO DRY UP SECRETIONS

HYPOKALEMIA .LOW POTASSIUM IN BODY

HYPOVOLEMIA .LOW CIRCULATION OF PLASMA IN BLOOD

HYPERTENSION *ELEVATION OF THE ARTERIAL BLOOD PRESSURE TO ABOVE THE NORMAL RANGE*

HYPERTROPHY .*ENLARGEMENT OF AN ORGAN*

HYPOTENSIVE *LOW BLOOD PRESSURE*

HUMERUS .*UPPER PART OF ARM*

INTERMEDIATE CARE *A SHORT PERIOD OF INTENSIVE REHABILITAION AND TREATMENT TO ALLOW PATIENTS TO RETURN HOME FOLLOWING HOSPITALISA TION*

ISCHAEMIC HEART DISEASE *AN INADEQUATE FLOW OF BLOOD TO THE HEART CAUSED BY CONSTRICTION OR BLOCKAGE OF THE BLOOD VESSELS SUPPLYING IT.*

LACTULOSE *PREPARATION TAKEN BY MOUTH TO RELEIVE CONSTIPATION*

LEFT BUNDLE BRANCH BLOCK (LBBB) .*ABNORMALITY OF HEART CONDUCTION*

LEFT VENTRICULAR FAILURE (LVF) .*WHERE LEFT SIDE OF HEART FAILS TO PUMP BLOOD EFFECTIVELY INTO LUNGS.*

LOCUM -A TEMPORARY PRACTITIONER WHO STANDS IN FOR A PERMANENT ONE

LOPERAMIDE *TREATMENT FOR DIARRHOEA*

MAGNESIUM HYDROXIDE *A LAXATIVE*

MANE *MORNING*

MELEANA *THE PASSAGE OF A BLACK STOOL*

METACLOPROMIDE *.DRUG USED TO PREVENT VOMITING*

MICROGRAM *.ONE MILLIONTH OF A GRAM*

MIDAZOLAM *SEDATIVE DRUG*

MINI STATE MENTAL EXAMINATION (MMSE) *.STANDARD MEMORY AND BRAIN FUNCTION TEST*

MORPHINE *.AN OPIOD ANALGESIC USED TO RELIEVE SEVERE PAIN*

MST *.MORHINE SULPHATE TABLETS*

MYOCARDIAL INFARCTION *.HEART ATTACK, WHERE THE BLOOD SUPPLY TO THE HEART IS OBSTUCTED*

NEUTROPHIL *.A TYPE OF WHITE BLOOD CELL THAT USUALLY FIGHTS BACTERIAL INFECTION*

NOCTURIA *.GETTING UP AT NIGHT TO PASS URINE*

OCCUPATIONAL THERAPIST- *A TRAINED PROFESSIONAL WHO WORKS WITH PATIENTS TO ASSESS AND DEVELOP DAILY LIVING AND SOCIAL SKILLS*

OD *.ONCE DAILY*

OEDEMA *BUILD UP OF FLUID IN BODY TISSUES, OFTEN CAUSING SWELLING*

OESOPHAGEAL INVOLVEMENT *.DIFFICULTY SWALLOWING*

ON EXAMINATION (OE)

OPIATES *.A GROUP OF MEDICINES CONTAINING OR DERIVED FROM OPIUM THAT RELIEVE SEVERE PAIN OR INDUCE SLEEP*

ORAMORPH *.DRUG USED IN TREATMENT OF CHRONIC PAIN. ITIS LIQUID AND CONTAINS MORPHINE*

OSTEOARTHRITIS (OA) *.DEGENERATIVE JOINT DISEASE*

PAGETS DISEASE *IRREGULARLY SHAPED TUMOR CELL.*

PALLIATIVE *.A TERM APPLIED TO THE TREATMENT OF INCURABLE DISEASES IN WHICH THE AIM IS TO MITIGATE THE SUFFERINGS OF THE PATIENT, NOT TO EFFECT A CURE*

PARACETAMOL *.MEDICATION USED IN TREATMENT OF MILD PAIN OR FEVER*

PASSING URINE (PU)

PATIENT CONTROLLED ANALGESIA (PCA) *.SELF ADMINISTRATION OF ANALGESICS BY A PATIENT OF INTRA VENOUS OPOID'S USUALLY MORPHINE BY MEANS OF A PROGRAMMABLE PUMP*

PER RECTUM (PR) *.VIA THE RECTUM*

PLETHORIC FACE *.RED FACE*

PRN *.AS REQUIRED*

PROHYLAXIS *.PREVENTION OF DISEASE*

PYREXIAL *RAISED TEMPERATURE*

QDS *.FOUR TIMES ADAY*

RANTINIDE *-AN ANTI ULCER DRUG*

RAYNAUD'S PHENOMENOM- *POOR CIRCULATION TO FINGERS*

RHEUMATOID ARTHRITIS (RA) *.INFLAMMATION OF THE JOINTS AND TISSUE AROUND THE JOINTS AND OTHER ORGANS*

SCLERODACTLY *.THIN FINGERS*

SCLEROUS SCLERDOMA *THICKENING OF THE SKIN*

SENNA *A LAXATIVE*

SEPTICAEMIA *.BLOOD POISONING*

SHORTNESS OF BREATH (SOB)

SICCA SYNDROME *.DRY EYES AND MOUTH*

SICK SINUS SYNDROME *.ABNORMALITY OF THE HEART*

SLOW K *.A POTASSIUM SUPPLEMENT*

SOCIAL WORKER (SW)

SPIRONOLACTONE *.DRUG TO REDUCE OEDEMA*

SUBCUTANEOUS *BENEATH THE SKIN*

SUB TROCHANTRIC FRACTURE *.FRACTURE OF HIP JUST BELOW NECK OF FEMUR*

SWELLING OF ANKLE (SOA)

SYRINGE DRIVER *MOTORISED PUMP DELIVERING A CONSTANY DOSAGE OF MEDICINE OVER A PERIOD OF TIME*

TACHYCARDIA .*FAST HEARTBEAT*

TDS .*THREE TIMES A DAY*

TEMAZEPAM *HYPNOTIC DRUG TO TREAT INSOMNIA*

TERMINAL CARE .*CARE GIVEN IN LAST WEEKS OF LIFE*

THIAMINE .*A VITAMIN B PREPARATION*

TRAMADOL .*AN OPIOID ANALGESIC FOR SEVERE PAIN*

TRAZEDONE .*DRUG USED IN DEPRESSIVE ILLNESS PARTICULARLY WHEN SEDATION IS REQUIRED*

UREA AND ELECTROLYTES (U'S & E'S) *A BLOOD TEST TO ASSESS THE BODY'S GENERAL CONDITION*

WARD ROUND (WR)

WESSEX PROTOCOLS .*GUIDELINES AS TO MEDICATION AS PER THE ANALGESIC LADDER*

WERNICKES ENCEPHALOPATHY .*A DEGENERATIVE DISEASE OF THE BRAIN ASSOCIATED WITH THIAMIN DEFICIENCY. THIS IS USUALLY ASSOCIATED WITH CHRONIC ALCOHOL ABUSE.*

2

PORTSMOUTH AND SOUTH EAST HAMPSHIRE HEALTH AUTHORITY

JOB DESCRIPTION FOR THE POST OF CLINICAL ASSISTANT
TO THE GERIATRIC DIVISION IN GOSPORT

LOCATION	GOSPORT WAR MEMORIAL HOSPITAL	11 PATIENTS
	NORTHCOTT ANNEXE	12 PATIENTS
	REDCLYFFE ANNEXE	23 PATIENTS

ACCOUNTABLE TO:- CONSULTANT PHYSICIANS IN GERIATRIC MEDICINE

LIAISES WITH:-

INTERNAL
- CONSULTANT PHYSICIANS IN GERIATRIC MEDICINE
- LOCAL MANAGER FAREHAM/GOSPORT
- HOSPITAL/PREMISES MANAGER GOSPORT
- WARD SISTERS
- MEDICAL RECORDS DEPARTMENT
- HEADS OF PARAMEDICAL SERVICES
- PHARMACY
- DIETICIANS

EXTERNAL
- GENERAL PRACTITIONERS
- SOCIAL SERVICES
- VOLUNTARY SERVICE ORGANISATIONS

JOB SUMMARY

This is a new post of 5 Sessions a week worked flexibly to provide a 24 hour Medical Cover to the Long Stay patients in Gosport. The patients are slow stream or slow stream rehabilitation, but holiday relief and shared care patients are admitted. An important aspect of this role is for the postholder to be seen not only as a medical adviser but as a friend and counsellor to patients, relatives and staff.

All Consultant Physicians in Geriatric Medicine have an equal right of Admission, but at present the beds in Gosport are under the control of Dr Wilkins and Dr Grumstein.

DUTIES

1. To visit the Units on a regular basis and to be available "On Call" as necessary.

2. To ensure that all new patients are seen promptly after Admission.

3. To be responsible for the day to day Medical Management of the patients.

4. To be responsible for the writing up of the initial case notes and to ensure that follow up notes are kept up to date and reviewed regularly.

5. To complete, upon discharge, the Discharge Summary and HRM 60.

6. To ensure the prompt preparation of death certificates and for cremation certificates where appropriate.

7. To take part in the weekly Consultant rounds.

8. To prescribe, as required, drugs for the patients under the care of the Consultant Physicians in Geriatric Medicine.

9. To participate wherever possible in multi-disciplinary case conferences and discussions related to the patients in the Unit.

10. To provide clinical advice and professional support to other Members of the Caring Team.

11. To identify opportunities to improve services so that a high level of care can be provided within the resources available.

12. To be available when required to advise and counsel relatives.

13. To be responsible for liaison with the General Practitioners with whom the patient is registered, and with other Clinicians and Agencies as necessary.

There may be a possibility that the sessions can be split between two separate General Practitioners, ideally from the same Practice.

HAMPSHIRE CONSTABULARY

C.51 1/99

Identification Ref. No. JAHG/1

Court Exhibit No.

R - v - BARTON J.

Description Application form, confirmation letter and letter of 19/4/91 to Dr. Jane A. Barton

Time/Date Seized/Produced
1620hrs 19/1/06

Where Seized/Produced
Police House, Cricketers, Silchester, Hants.

Seized/Produced by
Dr. J. A. H. Grimstone.

Signed

Code C

Incident/Crime No.

Major Incident Item No. X684

Laboratory Ref:

JAHG/CI

19th April 1991

To whom it may concern.

Dr Jane A. Barton

I write to confirm the above-named attended the Department of Geriatric Medicine for 10 half-day sessions from 27th - 31st November 1989. During this time Dr Barton attended clinical sessions, studied service management and preventative medicine for acute, rehabilitation and long stay patients together with geriatrics in the community.

Signed _____

Dr J A H Grunstein, FRCP
Consultant Physician in Geriatrics

Code A

Code A

PORTSMOUTH AND SOUTH EAST HAMPSHIRE HEALTH AUTHORITY

SAINT MARY'S HOSPITAL
MILTON ROAD
PORTSMOUTH
PO3 6AD

Portsmouth (0705) 822331 Ex Code A

Please ask for Code A

Our Ref. Code A

Your Ref.

19-4-88
File? in our personnel file

18 March 1988

Dr J Grunstein
Consultant Physician
Elderly Services
St Mary's General Hospital
Portsmouth

Dear Dr Grunstein

I enclose a copy of the sole application for the post of Clinical Assistant in Geriatrics at Gosport which was advertised recently.

Please let me know if you would like me to arrange an interview.

Yours sincerely

Code A

Code A

Enc

CC Mr W Hooper
Local Manager Fareham/Gosport

HAMPSHIRE CONSTABULARY

C.51 1/99

Identification Ref. No. D/JB/2

Court Exhibit No.

R - v -

Description Letter of Confirmation of appointment sent to Dr J Baxter 24/4/08 by Mrs P Banks

Time/Date Seized/Produced 2/08/08

Where Seized/Produced St James Hospital.

Seized/ Signed

Code A

Incident/Crime No.

Major Incident Item No. X 647

Laboratory Ref:

PORTSMOUTH AND SOUTH EAST HAMPSHIRE HEALTH AUTHORITY

St Mary's Hospital
Milton Road
PORTSMOUTH
Hants PO3 6AD

Telephone: Code A

28.4.88

Dr Jane Barton

Code A

Dear Dr Barton

I am instructed by the Portsmouth and South East Hampshire Health Authority to confirm the offer of appointment as Clinical Assistant in Geriatric Medicine for a period of one year commencing on 1 May 1988 and terminating on 30 April 1989. The post required attendance at Gosport War Memorial Hospital for five sessions per week.

The renumeration for this post will be £9375per annum as laid down in the Terms and Conditions of Service of Hospital Medical and Dental Staff (England and Wales). It is subject to amendment from time to time in the light of national agreement.

You are entitled to receive two months' notice of termination of employment and are required to give the Portsmouth and South East Hampshire Health Authority two months' notice.

The employing authority will require you to be a fully subscribed member of a recognised professional defence organisation, or if you have an objection to such membership on grounds of conscience, or on some other grounds approved by the Secretary of State, to take out and produce to the employing authority an insurance policy covering yourself in respect of any liability arising out of or in connection with your duties hereunder, and to produce to the employing authority forthwith and annually the receipts for the payment or renewal of subscriptions or premiums as the case may be.

You are required to have full registration with the General Medical Council.General Medical Council.

Please forward documentary evidence of your medical insurance and registration with the signed acceptance.

You will be entitled to annual leave with pay at a rate of six weeks per annum. Full details of both annual leave and sick leave and the conditions governing these allowances are set out in the Terms and Conditions of Service.

The Portsmouth and South East Hampshire Health Authority accepts no responsibility for damage to or loss of personal property, with the exception of small valuables handed to their officials for safe custody. It is, therefore, recommended that you take out an insurance policy to cover your personal property.

CONTD/

The employing authority undertakes that it will not make deductions from or variations to your salary other than those required by law without your express written consent.

Should you have any grievance relating to your employment you are entitled to discuss the matter in the first instance with the Consultant(s) to whom you are responsible and, where appropriate, to consult either personally or in writing with the Personnel Officer (Medical Staffing) in the Personnel Department, St Mary's Hospital

The agreed procedure for settling differences between you and the Portsmouth and South East Hampshire Health Authority where the difference relates to a matter affecting your conditions of service is set out in Section 32 of the General Whitley Council Conditions of Service.

A agreed disciplinary procedure is available in the Personnel Department, St Mary's Hospital. If you are dissatisfied with a disciplinary procedure application to appeal should be made to the District Personnel Manager, District Offices, St Mary's Hospital.

If you agree to accept the appointment on the terms specified above please sign the form of acceptance at the foot of this letter and return it to me. A second signed copy of this letter is attached which you should also sign and retain for your future reference.

Yours sincerely

Code C

Mrs P Danks(on behalf of the Portsmouth and South East Hampshire Health Authority)

Encs

PLEASE DO NOT DETACH

I hereby accept the offer of appointment mentioned in the foregoing letter on the terms and subject to the conditions referred to in it.

I enclose documentary evidence of my membership of a recognised professional defence organisation (or an insurance policy providing cover against liability) together with proof of my registration with the General Medical Council.

Signed..... Date .....

This offer, and the acceptance of it, shall together constitute a contract between the parties.

HAMPSHIRE CONSTABULARY

C.51 1/99

Identification Ref. No. CO/713/3

Court Exhibit No.

R - v -

Description Employee POT data form.

Time/Date Seized/Produced 2/8/05

Where Seized/Produced St James Hospital.

Seized

Signed

Code A

Incident/Crime No.

Major Incident Item No. X 648

Laboratory Ref:

3

BNF

BRITISH NATIONAL FORMULARY

Number 34 (September 1997)

A joint publication of the
British Medical Association and the
Royal Pharmaceutical Society of Great Britain

Prescribing in Palliative Care

In recent years there has been increased interest in providing better treatment and support for patients with terminal illness. The aim is to keep them as comfortable, alert, and free of pain as possible. It may also be necessary to direct attention to emotional, financial, social, or family problems. The patient's minister or the hospital chaplain may give invaluable help.

DOMICILIARY CARE. If they wish, whenever possible, patients should end their days in their own homes. Although families may at first be afraid of caring for the patient at home, they will usually do so if extra support from district nursing services, social services and voluntary agencies is provided. Families may be reassured if an assurance is given that the patient will be admitted to a hospital or hospice if they cannot cope.

HOSPITAL OR HOSPICE CARE. The most important lesson to be drawn from the experieuce of hospices is that both doctors and nurses must give time to listen to the patient. This gives great support and comfort to a patient who may otherwise suffer intolerable loneliness. Often problems come to light that can easily be dealt with—adjusting a blind in the late afternoon, an irritating noise to be avoided, drinks to be placed in easier reach, someone to read the newspaper, or the TV to be replaced by radio. The staff should not exclude the family from contributing to the patient's care; if prevented they may be resentful or subsequently suffer a feeling of guilt.

DRUG TREATMENT. The number of drugs should be as few as possible, for even the taking of medicine may be an effort. Oral medication is usually satisfactory unless there is severe nausea and vomiting, dysphagia, weakness, or coma, in which case parenteral medication may be necessary.

PAIN

Analgesics are always more effective in preventing the development of pain than in the relief of established pain.

The **non-opioid** analgesics **aspirin** or **paracetamol** given regularly will often make the use of opioids unnecessary. Aspirin (or other NSAIDs if preferred) may also control the pain of *bone secondaries*; naproxen, flurbiprofen, and indomethacin (see section 10.1.1) are valuable and if necessary can be given rectally. Radiotherapy, radioactive isotopes of **strontium** (Metastron® available from Amersham) and bisphosphonates (section 6.6.2) may also be useful for pain due to bone metastases.

Morphine is the most useful of the **opioid analgesics**. In addition to relief of pain, it confers a state of euphoria and mental detachment.

ORAL ROUTE. Morphine is given *by mouth* as an oral solution regularly every 4 hours, the initial dose depending largely on the patient's previous treatment. A dose of 5–10 mg is enough to replace a weaker analgesic (such as paracetamol or co-proxamol), but 10–20 mg or more is required to replace a strong one (comparable to morphine itself). If the first dose of morphine is no more effective than the previous analgesic it should be increased by 50%, the aim being to choose the lowest dose which prevents pain. Although a dose of 5–20 mg is usually adequate there should be no hesitation in increasing it stepwise according to response to 100 mg or occasionally up to 500 mg or higher if necessary. If pain occurs between doses the next dose due is increased; in the interim an additional dose is given. The dose should be adjusted with careful assessment of the pain and the use of other drugs (such as NSAIDs) should also be considered.

Modified-release preparations of morphine are an alternative to the oral solution. Depending on the formulation of the modified-release preparation, the total daily morphine requirement may be given in two equal doses or as a single dose.

Preparations suitable for twice daily administration include *MST Continus*® tablets or suspension and *Oramorph® SR* tablets. Preparations that allow administration of the total daily morphine requirement as a single dose include *MXL*® capsules. *Morcap SR*® capsules may be given either twice daily or as a single daily dose.

The starting dose of modified-release preparations designed for twice daily administration is usually 10–20 mg every 12 hours if no other analgesic (or only paracetamol) has been taken previously, but to replace a weaker opioid analgesic (such as co-proxamol) the starting dose is usually 20–30 mg every 12 hours. Increments should be made to the dose, not to the frequency of administration, which should remain at every 12 hours.

The effective dose of modified-release preparations can alternatively be determined by giving the oral solution of morphine every 4 hours in increasing doses until the pain has been controlled, and then transferring the patient to the same total 24-hour dose of morphine given as the modified-release preparation (divided into two portions for 12-hourly administration). The first dose of the modified-release preparation is given 4 hours after the last dose of the oral solution.[1]

Morphine, as oral solution or standard formulation tablets, should be prescribed for breakthrough pain.

PARENTERAL ROUTE. If the patient becomes unable to swallow, the equivalent intramuscular dose of morphine is half the oral solution dose; in the case of the modified-release tablets it is half the total 24-hour dose (which is then divided into 6 portions to be given every 4 hours). **Diamorphine** is preferred for injection because being more soluble it can be given in a smaller volume. The equivalent intramuscular (or subcutaneous) dose of diamorphine is only about a quarter to a third of the oral dose of morphine; *subcutaneous infusion via syringe driver* can be useful (for details, see p. 14).

1. Studies have indicated that administration of the last dose of the *oral solution* with the first dose of the *modified-release tablets* is not necessary.

RECTAL ROUTE. Morphine is also available for *rectal administration* as suppositories; alternatively **oxycodone** suppositories can be obtained on special order.

TRANSDERMAL ROUTE. Transdermal preparations of fentanyl are now available, see section 4.7.2. Careful conversion from oral morphine to transdermal fentanyl is necessary; a 25 micrograms/hr patch is equivalent to a total dose of morphine up to 135 mg/24 hours

GASTRO-INTESTINAL PAIN. The pain of *bowel colic* may be reduced by loperamide 2–4 mg 4 times daily. Hyoscine hydrobromide may also be helpful, given sublingually at a dose of 300 micrograms 3 times daily as Kwells® (Roche Consumer Health) tablets. For the dose by subcutaneous infusion using a syringe driver, see p. 14.

Gastric distension pain due to pressure on the stomach may be helped by a preparation incorporating an antacid with an antiflatulent (see section 1.1.1) and by domperidone 10 mg 3 times daily before meals.

MUSCLE SPASM. The pain of muscle spasm can be helped by a muscle relaxant such as diazepam 5–10 mg daily or baclofen 5–10 mg 3 times daily.

NERVE PAIN. Pain due to nerve compression may be reduced by a corticosteroid such as dexamethasone 8 mg daily, which reduces oedema around the tumour, thus reducing compression.

Dysaesthetic or stabbing pain resulting from nerve irritation may be reduced by amitriptyline 25–75 mg at night, or by carbamazepine 200 mg 3 times daily.

Nerve blocks may be considered when pain is localised to a specific area. **Transcutaneous electrical nerve stimulation** (TENS) may also provide useful relief of pain.

MISCELLANEOUS CONDITIONS

Non-licensed indications or routes

Several recommendations in this section involve non-licensed indications or routes.

RAISED INTRACRANIAL PRESSURE. Headache due to raised intracranial pressure often responds to a high dose of a corticosteroid, such as dexamethasone 16 mg daily for 4 to 5 days, subsequently reduced to 4–6 mg daily if possible.

INTRACTABLE COUGH. Intractable cough may be relieved by moist inhalations or may require regular administration of an oral morphine hydrochloride (or sulphate) solution in an initial dose of 5 mg every 4 hours. Methadone linctus should be avoided as it has a long duration of action and tends to accumulate.

DYSPNOEA. Dyspnoea may be relieved by regular oral morphine hydrochloride (or sulphate) solution in carefully titrated doses, starting at 5 mg every 4 hours. Diazepam 5–10 mg daily may be helpful; a corticosteroid, such as dexamethasone 4–8 mg daily, may also be helpful if there is bronchospasm or partial obstruction.

EXCESSIVE RESPIRATORY SECRETION. Excessive respiratory secretion (death rattle) may be reduced by subcutaneous injection of hyoscine hydrobromide 400–600 micrograms every 4 to 8 hours; care must however be taken to avoid the discomfort of dry mouth. For the dose by subcutaneous infusion using a syringe driver, see next page.

RESTLESSNESS AND CONFUSION. Restlessness and confusion may require treatment with haloperidol 1–3 mg by mouth every 8 hours. Chlorpromazine 25–50 mg by mouth every 8 hours is an alternative, but causes more sedation. Methotrimeprazine is also used occasionally for restlessness. For the dose by subcutaneous infusion using a syringe driver, see next page

HICCUP. Hiccup due to gastric distension may be helped by a preparation incorporating an antacid with an antiflatulent (see section 1.1.1). If this fails, metoclopramide 10 mg every 6 to 8 hours by mouth or by intramuscular injection can be added; if this also fails, chlorpromazine 10–25 mg every 6 to 8 hours can be tried.

ANOREXIA. Anorexia may be helped by prednisolone 15–30 mg daily or dexamethasone 2–4 mg daily.

CONSTIPATION. Constipation is a very common cause of distress and is almost invariable after administration of an opioid. It should be prevented if possible by the regular administration of laxatives; a faecal softener with a peristaltic stimulant (e.g. co-danthramer), or lactulose solution with a senna preparation should be used (see sections 1.6.2 and 1.6.3).

FUNGATING GROWTH. Fungating growth may be treated by cleansing with a mixture of 1 part of 4% povidone–iodine skin cleanser solution and 4 parts of liquid paraffin. Oral administration of metronidazole (see section 5.1.11) may eradicate the anaerobic bacteria responsible for the odour of fungating tumours; topical application (see section 13.10.1.2) is also used.

CAPILLARY BLEEDING. Capillary bleeding may be reduced by applying gauze soaked in adrenaline solution (1 in 1000).

DRY MOUTH. Dry mouth may be relieved by good mouth care and measures such as the sucking of ice or pineapple chunks or the use of artificial saliva (section 12.3.5); dry mouth associated with candidiasis can be treated by oral preparations of nystatin or miconazole (section 12.3.2); alternatively, fluconazole can be given by mouth (section 5.2). Dry mouth may be caused by certain medication including opioids, antimuscarinic drugs (e.g. hyoscine), antidepressants and some anti-emetics; if possible, an alternative preparation should be considered.

PRURITUS. Pruritus, even when associated with obstructive jaundice, often responds to simple measures such as emollients. In the case of obstructive jaundice, further measures include administration of cholestyramine or an anabolic steroid, such as stanozolol 5–10 mg daily; antihistamines can be helpful (see section 3.4.1).

CONVULSIONS. Patients with cerebral tumours or uraemia may be susceptible to convulsions. Prophylactic treatment with phenytoin or carbamazepine (see section 4.8.1) should be considered. When oral medication is no longer possible, diazepam as suppositories 10–20 mg every 4 to 8 hours, or phenobarbitone by injection 50–200 mg twice daily is continued as prophylaxis. For the use of midazolam by subcutaneous infusion using a syringe driver, see next page.

DYSPHAGIA. A corticosteroid such as dexamethasone 8 mg daily may help, temporarily, if there is an obstruction due to tumour. See also under Dry Mouth.

NAUSEA AND VOMITING. Nausea and vomiting are very common in patients with advanced cancer. The cause should be diagnosed before treatment with anti-emetics (see section 4.6) is started. Octreotide (see section 8.3.4.3), which stimulates water and electrolyte absorption and inhibits water secretion in the small bowel, can be used by subcutaneous infusion, in a dose of 300–600 micrograms/24 hours to reduce intestinal secretions and vomiting.

Nausea and vomiting may also occur in the initial stages of morphine therapy but can be prevented by giving an anti-emetic such as haloperidol 1.5 mg daily (or twice daily if nausea continues) or prochlorperazine (see section 4.6). An anti-emetic is usually only necessary for the first 4 or 5 days therefore fixed-combination opioid preparations containing an anti-emetic are not recommended since they lead to unnecessary anti-emetic therapy (often with undesirable drowsiness). For the administration of anti-emetics by subcutaneous infusion using a syringe driver, see below.

For the treatment of nausea and vomiting associated with cancer chemotherapy, see section 8.1.

INSOMNIA. Patients with advanced cancer may not sleep because of discomfort, cramps, night sweats, joint stiffness, or fear. There should be appropriate treatment of these problems before hypnotics are used. Benzodiazepines, such as temazepam, may be useful (see section 4.1.1).

HYPERCALCAEMIA. See section 9.5.1.2.

SYRINGE DRIVERS

Although drugs can usually be administered *by mouth* to control the symptoms of advanced cancer, the parenteral route may sometimes be necessary. If the parenteral route is necessary, repeated administration of *intramuscular injections* can be difficult in a cachectic patient. This has led to the use of a portable syringe driver to give a *continuous subcutaneous infusion*, which can provide good control of symptoms with little discomfort or inconvenience to the patient.

Indications for the **parenteral route** are:

- the patient is unable to take medicines by mouth owing to *nausea and vomiting, dysphagia, severe weakness,* or *coma;*
- there is *malignant bowel obstruction* in patients for whom further surgery is inappropriate (avoiding the need for an intravenous infusion or for insertion of a nasogastric tube);
- occasionally when the patient *does not wish* to take regular medication by mouth.

NAUSEA AND VOMITING. **Haloperidol** is given in a *subcutaneous infusion* dose of 2.5–10 mg/24 hours.

Methotrimeprazine causes sedation in about 50% of patients; it is given in a *subcutaneous infusion dose* of 25–200 mg/24 hours, although lower doses of 5–25 mg/24 hours may be effective with less sedation.

Cyclizine is particularly liable to precipitate if mixed with diamorphine or other drugs (see under Mixing and Compatibility, below); it is given in a *subcutaneous infusion dose* of 150 mg/24 hours.

Metoclopramide may cause skin reactions; it is given in a *subcutaneous infusion dose* of 30–60 mg/24 hours.

BOWEL COLIC AND EXCESSIVE RESPIRATORY SECRETIONS. **Hyoscine hydrobromide** effectively reduces respiratory secretions and is sedative (but occasionally causes paradoxical agitation); it is given in a *subcutaneous infusion dose* of 0.6–2.4 mg/24 hours.

Hyoscine butylbromide is effective in bowel colic, is less sedative than hyoscine hydrobromide, but is not always adequate for the control of respiratory secretions; it is given in a *subcutaneous infusion dose* of 20–60 mg/24 hours (**important:** this dose of *hyoscine butylbromide* must not be confused with the much lower dose of *hyoscine hydrobromide*, above).

RESTLESSNESS AND CONFUSION. **Haloperidol** has little sedative effect; it is given in a *subcutaneous infusion dose* of 5–30 mg/24 hours.

Methotrimeprazine has a sedative effect; it is given in a *subcutaneous infusion dose* of 50–200 mg/24 hours.

Midazolam is a sedative and an antiepileptic, and is therefore suitable for a very restless patient; it is given in a *subcutaneous infusion dose* of 20–100 mg/24 hours.

CONVULSIONS. If a patient has previously been receiving an antiepileptic *or* has a primary or secondary cerebral tumour *or* is at risk of convulsion (e.g. owing to uraemia) antiepileptic medication should not be stopped. **Midazolam** is the benzodiazepine antiepileptic of choice for *continuous subcutaneous infusion*, and is given in a dose of 20–40 mg/24 hours.

PAIN CONTROL. **Diamorphine** is the preferred opioid since its high solubility permits a large dose to be given in a small volume (see under Mixing and Compatibility, below). The table on the next page gives the approximate doses of *morphine by mouth* (as oral solution or standard tablets or as modified-release tablets) equivalent to *diamorphine by injection* (intramuscularly or by subcutaneous infusion).

MIXING AND COMPATIBILITY. The general principle that injections should be given into separate sites (and should not be mixed) does not apply to the use of syringe drivers in palliative care. Provided that there is evidence of compatibility, selected injections can be mixed in syringe drivers. Not all types of medication can be used in a subcutaneous infusion. In particular, **chlorpromazine, prochlorperazine** and **diazepam** are **contra-indicated** as they cause skin reactions at the injection site; to a lesser

extent **cyclizine** and **me**
sometimes cause local i
In theory injections di
tions are more likely
(possibly owing to thei
physiological saline (s
ever increases the likeli
more than one drug is us
infusion rates are so sl
pain is not usually a pro
a diluent.
Diamorphine can be
sion in a strength of
strength of 40 mg/mL ei
physiological saline (s
suitable diluent—above
injections is used (to avo
The following can be

Cyclizine[1]
Dexamethasone[2]
Haloperidol[3]
Hyoscine butylbromide
Hyoscine hydrobromide
Methotrimeprazine
Metoclopramide[4]
Midazolam

1. Cyclizine may precipitat
centration of diamorphine
cipitate after 24 hours.
2. Special care is needed t
3. Mixtures of haloperidol
2 mg/mL.
4. Under some conditions

Equivalent doses of r
modified-release table
subcutaneous infusion
These equivalences are

ORAL MO
Morphine sulphate oral solution or standard tablets
every 4 hours
5 mg
10 mg
15 mg
20 mg
30 mg
40 mg
60 mg
80 mg
100 mg
130 mg
160 mg
200 mg

If breakthrough pain
diamorphine equivalen
to give an intermittent
adverse effects at peak
butterfly needle).
To minimise the risk
longer than 24 hours.

extent **cyclizine** and **methotrimeprazine** may also sometimes cause local irritation.

In theory injections dissolved in **water for injections** are more likely to be associated with pain (possibly owing to their hypotonicity). The use of **physiological saline** (sodium chloride 0.9%) however increases the likelihood of precipitation when more than one drug is used; moreover subcutaneous infusion rates are so slow (0.1–0.3 mL/hour) that pain is not usually a problem when water is used as a diluent.

Diamorphine can be given by subcutaneous infusion in a strength of up to 250 mg/mL; up to a strength of 40 mg/mL either *water for injections* or *physiological saline* (sodium chloride 0.9%) is a suitable diluent—above that strength only *water for injections* is used (to avoid precipitation).

The following can be mixed with *diamorphine:*

Cyclizine[1]
Dexamethasone[2]
Haloperidol[3]
Hyoscine butylbromide
Hyoscine hydrobromide
Methotrimeprazine
Metoclopramide[4]
Midazolam

1. Cyclizine may precipitate at concentrations above 10 mg/mL *or* in the presence of physiological saline *or* as the concentration of diamorphine relative to cyclizine increases; mixtures of diamorphine and cyclizine are also liable to precipitate after 24 hours.
2. Special care is needed to avoid precipitation of dexamethasone when preparing.
3. Mixtures of haloperidol and diamorphine are liable to precipitate after 24 hours if haloperidol concentration is above 2 mg/mL.
4. Under some conditions metoclopramide may become discoloured; such solutions should be discarded.

Subcutaneous infusion solution should be monitored regularly both to check for precipitation (and discoloration) and to ensure that the infusion is running at the correct rate.

PROBLEMS ENCOUNTERED WITH SYRINGE DRIVERS. The following are problems that may be encountered with syringe drivers and the action that should be taken:

- if the subcutaneous infusion runs *too quickly* check the rate setting and the calculation;
- if the subcutaneous infusion runs *too slowly* check the start button, the battery, the syringe driver, the cannula, and make sure that the injection site is not inflamed;
- if there is an *injection site reaction* make sure that the site does not need to be changed—firmness or swelling at the site of injection is not in itself an indication for change, but pain or obvious inflammation is.

Syringe driver rate settings. Staff using syringe drivers should be **adequately trained** and different rate settings should be **clearly identified** and **differentiated**; incorrect use of syringe drivers is a common cause of drug errors.

Equivalent doses of morphine sulphate by mouth (as oral solution or standard tablets *or* as modified-release tablets) *or* of diamorphine hydrochloride by intramuscular injection *or by* subcutaneous infusion

These equivalences are approximate only and may need to be adjusted according to response

ORAL MORPHINE		PARENTERAL DIAMORPHINE	
Morphine sulphate oral solution or standard tablets	Morphine sulphate modified-release tablets	Diamorphine hydrochloride by intramuscular injection	Diamorphine hydrochloride by subcutaneous infusion
every 4 hours	**every 12 hours**	**every 4 hours**	**every 24 hours**
5 mg	20 mg	2.5 mg	15 mg
10 mg	30 mg	5 mg	20 mg
15 mg	50 mg	5 mg	30 mg
20 mg	60 mg	7.5 mg	45 mg
30 mg	90 mg	10 mg	60 mg
40 mg	120 mg	15 mg	90 mg
60 mg	180 mg	20 mg	120 mg
80 mg	240 mg	30 mg	180 mg
100 mg	300 mg	40 mg	240 mg
130 mg	400 mg	50 mg	300 mg
160 mg	500 mg	60 mg	360 mg
200 mg	600 mg	70 mg	400 mg

If breakthrough pain occurs give a subcutaneous (preferable) or intramuscular injection of diamorphine equivalent to one-sixth of the total 24-hour subcutaneous infusion dose. It is kinder to give an intermittent bolus injection *subcutaneously*—absorption is smoother so that the risk of adverse effects at peak absorption is avoided (an even better method is to use a subcutaneous butterfly needle).

To minimise the risk of infection no individual subcutaneous infusion solution should be used for longer than 24 hours.

Prescribing for the Elderly

Old people, especially the very old, require special care and consideration from prescribers.

POLYPHARMACY. Elderly patients are apt to receive multiple drugs for their multiple diseases. This greatly increases the risk of drug interactions as well as other adverse reactions. Moreover, symptoms such as headache, sleeplessness, and lightheadedness which may be associated with social stress, as in widowhood, loneliness, and family dispersal can lead to further prescribing, especially of psychotropics. The use of drugs in such cases can at best be a poor substitute for effective social measures and at worst pose a serious threat from adverse reactions.

FORM OF MEDICINE. Elderly patients may have difficulty swallowing tablets; if left in the mouth, ulceration may develop. They should always be encouraged to take their tablets or capsules with enough fluid, and in some cases it may be advisable to prescribe liquid if available.

MANIFESTATIONS OF AGEING. In very old subjects, manifestations of normal ageing may be mistaken for disease and lead to inappropriate prescribing. For example, drugs such as prochlorperazine are commonly misprescribed for giddiness due to age-related loss of postural stability. Not only is such treatment ineffective but the patient may experience serious side-effects such as drug-induced parkinsonism, postural hypotension, and mental confusion.

SELF-MEDICATION. Self-medication with over-the-counter products or with drugs prescribed for a previous illness (or even for another person) may be an added complication. Discussion with relatives and a home visit may be needed to establish exactly what is being taken.

SUSCEPTIBILITY. The ageing nervous system shows increased *susceptibility* to many commonly used drugs, such as opioid analgesics, benzodiazepines, and antiparkinsonian drugs, all of which must be used with caution.

PHARMACOKINETICS

While drug distribution and metabolism may be significantly altered, the most important effect of age is reduction in renal clearance, frequently aggravated by the effects of prostatism, nephrosclerosis, or chronic urinary tract infection. Many aged patients thus possess only *limited reserves of renal function, excrete drugs slowly,* and are *highly susceptible to nephrotoxic drugs*. Acute illness may lead to rapid reduction in renal clearance, especially if accompanied by dehydration. Hence, a patient stabilised on a drug with a narrow margin between the therapeutic and the toxic dose (e.g. digoxin) may rapidly develop adverse effects in the aftermath of a myocardial infarction or a respiratory tract infection.

The net result of pharmacokinetic changes is that tissue concentrations are commonly increased by over 50%, and aged and debilitated patients may show even larger changes.

ADVERSE REACTIONS

Adverse reactions often present in the elderly in a vague and non-specific fashion. *Mental confusion* is often the presenting symptom (caused by almost any of the commonly used drugs). Other common manifestations are *constipation* (with antimuscarinics and many tranquillisers) and postural *hypotension* and *falls* (with diuretics and many psychotropics).

HYPNOTICS. Many hypnotics with long half-lives have serious hangover effects of drowsiness, unsteady gait, and even slurred speech and confusion. Those with short half-lives should be used but they too can present problems (see section 4.1.1). Short courses of hypnotics are occasionally useful for helping a patient through an acute illness or some other crisis but every effort must be made to avoid dependence.

DIURETICS. Diuretics are overprescribed in old age and should **not** be used on a long-term basis to treat simple gravitational oedema which will usually respond to increased movement, raising the legs, and support stockings. A few days of diuretic treatment may speed the clearing of the oedema but it should rarely need continued drug therapy.

NSAIDs. Bleeding associated with *aspirin* and *other NSAIDs* is more common in the elderly who are more likely to have a fatal or serious outcome. NSAIDs are also a special hazard in patients with cardiac disease or renal impairment which may again place the elderly at particular risk.

Owing to the *increased susceptibilty of the elderly* to the *side-effects of NSAIDs* the following recommendations are made:

- for *osteoarthritis, soft-tissue lesions and back pain* first try measures such as weight reduction, warmth, exercise and use of a walking stick;
- for *osteoarthritis, soft tissue lesions, back pain and rheumatoid arthritis* avoid giving an NSAID unless *paracetamol* (alone or with a *low dose* of an opioid analgesic as in co-codamol 8/500 or co-dydramol 10/500) has failed to relieve the pain adequately;
- where a paracetamol preparation has failed to relieve the pain adequately *add a very low dose of an NSAID* to the paracetamol preparation (starting with ibuprofen).
- if an NSAID is considered necessary monitor the patient for gastro-intestinal bleeding for 4 weeks (and for a similar time on switching to another NSAID). For the management of NSAID-associated peptic ulcers, see section 1.3.
- do **not** give two NSAIDs at the same time.

OTHER DRUGS. Other drugs which c
adverse reactions are *antiparkinson*
hypertensives, psychotropics, and *di*
maintenance dose of digoxin in ver
125 micrograms daily (62.5 micro
inadequate, and toxicity is commo
250 micrograms).

Drug-induced blood disorders a
common in the elderly. Therefore d
dency to cause bone marrow depres
moxazole, mianserin) should be
there is no acceptable alternative.

The elderly generally require a
nance dose of *warfarin* than young
again, the outcome of bleeding te
serious.

GUIDELINES

First always question whether a dru
all.

LIMIT RANGE. It is a sensible poli
from a limited range of drugs and t
familiar with their effects in the elde

REDUCE DOSE. Dosage should gener
tially lower than for younger patient
mon to start with about 50% of
Some drugs (e.g. chlorpropamid
avoided altogether.

Cautionary label wordings, see inside l

OTHER DRUGS. Other drugs which commonly cause adverse reactions are *antiparkinsonian drugs, antihypertensives, psychotropics*, and *digoxin*; the usual maintenance dose of digoxin in very old patients is 125 micrograms daily (62.5 micrograms is often inadequate, and toxicity is common in those given 250 micrograms).

Drug-induced blood disorders are much more common in the elderly. Therefore drugs with a tendency to cause bone marrow depression (e.g. *co-trimoxazole, mianserin*) should be avoided unless there is no acceptable alternative.

The elderly generally require a lower maintenance dose of *warfarin* than younger adults; once again, the outcome of bleeding tends to be more serious.

GUIDELINES

First always question whether a drug is indicated at all.

LIMIT RANGE. It is a sensible policy to prescribe from a limited range of drugs and to be thoroughly familiar with their effects in the elderly.

REDUCE DOSE. Dosage should generally be substantially lower than for younger patients and it is common to start with about 50% of the adult dose. Some drugs (e.g. chlorpropamide) should be avoided altogether.

REVIEW REGULARLY. Review repeat prescriptions regularly. It may be possible to stop the drug (e.g. digoxin can often be withdrawn) or it may be necessary to reduce the dose to match diminishing renal function.

SIMPLIFY. Simplify regimens. Elderly patients cannot normally cope with more than three different drugs and, ideally, these should not be given more than twice daily. In particular, regimens which call for a confusing array of dosage intervals should be avoided.

EXPLAIN CLEARLY. Write full instructions on every prescription (*including* repeat prescriptions) so that containers can be properly labelled with full directions. Avoid imprecisions like 'as directed'. Child-resistant containers may be unsuitable.

REPEATS AND DISPOSAL. Instruct patients what to do when drugs run out, and also how to dispose of any that are no longer necessary. Try to prescribe matching quantities.

If these guidelines are followed most elderly people will cope adequately with their own medicines. If not then it is essential to enrol the help of a third party, usually a relative or a friend.

4.7.2 Opioid analgesics

Opioid analgesics are used to relieve moderate to severe pain particularly of visceral origin. Repeated administration may cause dependence and tolerance, but this is no deterrent in the control of pain in terminal illness, for guidelines see Prescribing in Palliative Care, p. 12.

SIDE-EFFECTS. Opioid analgesics share many side-effects though qualitative and quantitative differences exist. The most common include nausea, vomiting, constipation, and drowsiness. Larger doses produce respiratory depression and hypotension. **Overdosage**, see Emergency Treatment of Poisoning, p. 22.

INTERACTIONS. See Appendix 1 (opioid analgesics) (**important**: special hazard with *pethidine and possibly other opioids* and MAOIs).

DRIVING. Drowsiness may affect performance of skilled tasks (e.g. driving); effects of alcohol enhanced.

CHOICE. **Morphine** remains the most valuable opioid analgesic for severe pain although it frequently causes nausea and vomiting. It is the standard against which other opioid analgesics are compared. In addition to relief of pain, morphine also confers a state of euphoria and mental detachment.

Morphine is the opioid of choice for the oral treatment of *severe pain in palliative care*. It is given regularly every 4 hours (or every 12 or 24 hours as modified-release preparations). For guidelines on dosage adjustment in palliative care, see p. 12.

Buprenorphine has both opioid agonist and antagonist properties and may precipitate withdrawal symptoms, including pain, in patients dependent on other opioids. It has abuse potential and may itself cause dependence. It has a much longer duration of action than morphine and sublingually is an effective analgesic for 6 to 8 hours. Vomiting may be a problem. Unlike most opioid analgesics its effects are only partially reversed by naloxone.

Codeine is effective for the relief of mild to moderate pain but is too constipating for long-term use.

Dextromoramide is less sedating than morphine and has a short duration of action.

Diphenoxylate (in combination with atropine, as co-phenotrope) is used in acute diarrhoea (see section 1.4.2).

Dipipanone used alone is less sedating than morphine but the only preparation available contains an anti-emetic and is therefore not suitable for regular regimens in palliative care (see p. 14).

Dextropropoxyphene given alone is a very mild analgesic somewhat less potent than codeine. Combinations of dextropropoxyphene with paracetamol (co-proxamol) or aspirin have little more analgesic effect than paracetamol or aspirin alone. An important disadvantage of co-proxamol is that **overdosage** (which may be combined with alcohol) is complicated by respiratory depression and acute heart failure due to the dextropropoxyphene and by hepatotoxicity due to the paracetamol. Rapid treatment is essential (see Emergency Treatment of Poisoning, p. 22).

Diamorphine (heroin) is a powerful opioid analgesic. It may cause less nausea and hypotension than morphine. In *palliative care* the greater solubility of diamorphine allows effective doses to be injected in smaller volumes and this is important in the emaciated patient.

Dihydrocodeine has an analgesic efficacy similar to that of codeine. The dose of dihydrocodeine by mouth is usually 30 mg every 4 hours; doubling the dose to 60 mg may provide some additional pain relief but this may be at the cost of more nausea and vomiting. A 40-mg tablet is now also available.

Alfentanil, **fentanyl** and **remifentanil** are used by injection for intra-operative analgesia (section 15.1.4.3); fentanyl has been introduced recently in a transdermal drug delivery system as a self-adhesive patch which is changed every 72 hours.

Meptazinol is claimed to have a low incidence of respiratory depression. It has a reported length of action of 2 to 7 hours with onset within 15 minutes, but there is an incidence of nausea and vomiting.

Methadone is less sedating than morphine and acts for longer periods. In prolonged use, methadone should not be administered more often than twice daily to avoid the risk of accumulation and opioid overdosage. Methadone may be used instead of morphine in the occasional patient who experiences excitation (or exacerbation of pain) with morphine.

Nalbuphine has a similar efficacy to that of morphine for pain relief, but may have fewer side-effects and less abuse potential. Nausea and vomiting occur less than with other opioids but respiratory depression is similar to that with morphine.

Oxycodone is used as the pectinate in suppositories (special order from BCM Specials) for the control of *pain in palliative care*.

Papaveretum is used peri-operatively, section 15.1.4.3.

Pentazocine has both agonist and antagonist properties and precipitates withdrawal symptoms, including pain in patients dependent on other opioids. By injection it is more potent than dihydrocodeine or codeine, but hallucinations and thought disturbances may occur. It is not recommended and, in particular, should be avoided after myocardial infarction as it may increase pulmonary and aortic blood pressure as well as cardiac work.

Pethidine produces prompt but short-lasting analgesia; it is less constipating than morphine, but even in high doses is a less potent analgesic. It is not suitable for severe continuing pain. It is used for analgesia in labour, and in the neonate is associated with less respiratory depression than other opioid analgesics (probably because its action is weaker).

Phenazocine is effective in severe pain and has less tendency to increase biliary pressure than other opioid analgesics. It can be administered sublingually if nausea and vomiting are a problem.

Phenoperidine is used for intra-operative analgesia, section 15.1.4.3.

Tramadol has been introduced recently and is claimed to produce analgesia by two mechanisms: an opioid effect and an enhancement of serotoninergic and adrenergic pathways. It is reported to have fewer of the typical opioid side-effects (notably, less respiratory depression, less constipation and less addiction potential); psychiatric reactions have been reported.

ADDICTS. Although caution is necessary addicts (and ex-addicts) may be treated with analgesics in the same way as other people when there is a real clinical need. Doctors are reminded that they do not require a special licence to prescribe opioid analgesics for addicts for relief of pain due to organic disease or injury.

MORPHINE SALTS

Indications: see notes above; acute pulmonary oedema; peri-operative analgesia see section 15.1.4.3

Cautions: hypotension, hypothyroidism, asthma (avoid during attack) and decreased respiratory reserve, prostatic hypertrophy; pregnancy and breast-feeding; may precipitate coma in hepatic impairment (reduce dose or avoid but many such patients tolerate morphine well); reduce dose or avoid in renal impairment (see also Appendix 3), elderly and debilitated (reduce dose); dependence (severe withdrawal symptoms if withdrawn abruptly); use of cough suppressants containing opioid analgesics not generally recommended in children and should be avoided altogether in those under at least 1 year; **interactions:** Appendix 1 (opioid analgesics)

PALLIATIVE CARE. In the control of pain in terminal illness these cautions should not necessarily be a deterrent to the use of opioid analgesics

Contra-indications: avoid in acute respiratory depression, acute alcoholism and where risk of paralytic ileus; not indicated for acute abdomen; also avoid in raised intracranial pressure or head injury (in addition to interfering with respiration, affect pupillary responses vital for neurological assessment); avoid injection in phaeochromocytoma (risk of pressor response to histamine release)

Side-effects: nausea and vomiting (particularly in initial stages), constipation, and drowsiness; larger doses produce respiratory depression and hypotension; other side-effects include difficulty with micturition, ureteric or biliary spasm, dry mouth, sweating, headache, facial flushing, vertigo, bradycardia, tachycardia, palpitations, postural hypotension, hypothermia, hallucinations, dysphoria, mood changes, dependence, miosis, decreased libido or potency, rashes, urticaria and pruritus; **overdosage:** see Emergency Treatment of Poisoning, p. 22; for reversal of opioid-induced respiratory depression, see section 15.1.7.

Dose: acute pain, *by subcutaneous injection* (not suitable for oedematous patients) *or by intramuscular injection*, 10 mg every 4 hours if necessary (15 mg for heavier well-muscled patients); CHILD up to 1 month 150 micrograms/kg, 1–12 months 200 micrograms/kg, 1–5 years 2.5–5 mg, 6–12 years 5–10 mg

Postoperative pain, see section 15.1.4.3

By slow intravenous injection, quarter to half corresponding intramuscular dose

Patient controlled analgesia (PCA), consult hospital protocols

Myocardial infarction, *by slow intravenous injection* (2 mg/minute), 10 mg followed by a further 5–10 mg if necessary; elderly or frail patients reduce dose by half

Acute pulmonary oedema, *by slow intravenous injection* (2 mg/minute) 5–10 mg

Chronic pain, *by mouth or by subcutaneous injection* (not suitable for oedematous patients) *or by intramuscular injection*, 5–20 mg regularly every 4 hours; dose may be increased according to needs; oral dose should be approximately double corresponding intramuscular dose and triple to quadruple corresponding intramuscular *diamorphine* dose (see also Prescribing in Palliative Care, p. 12); *by rectum*, as suppositories, 15–30 mg regularly every 4 hours

Note. The doses stated above refer equally to morphine hydrochloride, sulphate, and tartrate; see below for doses of **modified-release** preparations.

Oral solutions

Note. For advice on transfer from oral solutions of morphine to modified-release preparations of morphine, see Prescribing in Palliative Care, p. 12

PoM or **CD Morphine Oral Solutions**

Oral solutions of morphine can be prescribed by writing the formula:

Morphine hydrochloride 5 mg

Chloroform water to 5 mL

Note. The proportion of morphine hydrochloride may be altered when specified by the prescriber; if above 13 mg per 5 mL the solution becomes **CD**. For sample prescription see Controlled Drugs and Drug Dependence, p. 7. It is usual to adjust the strength so that the dose volume is 5 or 10 mL.

Oramorph® (Boehringer Ingelheim)

PoM *Oramorph® oral solution*, morphine sulphate 10 mg/5 mL. Net price 100-mL pack = £2.31; 250-mL pack = £5.36; 500-mL pack = £9.70. Label: 2

PoM *Oramorph® Unit Dose Vials 10 mg* (oral vials), sugar-free, morphine sulphate 10 mg/5-mL vial, net price 25 vials = £3.31. Label: 2

CD *Oramorph® Unit Dose Vials 30 mg* (oral vials), sugar-free, morphine sulphate 30 mg/5-mL vial, net price 25 vials = £9.30. Label: 2

CD *Oramorph® concentrated oral solution*, sugar-free, morphine sulphate 100 mg/5 mL. Net price 30-mL pack = £6.47; 120-mL pack = £24.15 (both with calibrated dropper). Label: 2

CD *Oramorph® Unit Dose Vials 100 mg* (oral vials), sugar-free, morphine sulphate 100 mg/5-mL vial, net price 25 vials = £31.00. Label: 2

Tablets

CD Sevredol® (Napp)

Tablets, all f/c, scored, morphir
(blue), net price 56-tab pack
(pink), 56-tab pack = £12.62; 5(
56-tab pack = £31.55. Label: 2

Dose: severe pain uncontrolled by
50 mg every 4 hours (dose adjustec
and tolerance); CHILD 3–5 years, 5
10 mg

Modified release

CD Morcap® SR (Sanofi Winthr

Capsules, m/r, clear enclosing
pellets, morphine sulphate 20 n
cap pack = £5.71, 60-cap pack
30-cap pack = £13.84, 60-cap
100 mg, 30-cap pack = £27.68
£55.37. Label: 2, counselling, se

Dose: prolonged severe pain uncon
opioids, 40 mg once daily *or* 20 m
increased in increments of 25–50%
hour interval between dosage adjus
already receiving oral morphine su
daily dose as Morcap SR capsules in
doses

CHILD not recommended

COUNSELLING. Swallow whole or
sprinkle contents on soft food

Note. Prescription must also speci
'Morcap SR capsules')

CD MST Continus® (Napp)

Tablets, all m/r, f/c, morphine
(white), net price 60-tab pack
(brown), 60-tab pack = £7.51; 15
tab pack = £13.16; 30 mg (purple
£18.03; 60 mg (orange), 60-tab
100 mg (grey), 60-tab pack =
(green), 60-tab pack = £111.35. L

Suspension (= sachet of granule
water), m/r, pink, morphine s
sachet, net price 30-sachet pack =
sachet, 30-sachet pack = £29.72
30-sachet pack = £59.44; 100
sachet pack = £99.07; 200 mg/s
sachet pack = £198.14. Label: 2, 1

Dose: (suspension or tablets) severe
by weaker opioids, 30 mg every 12 h
60 mg every 12 hours when required, t
ments of 30–50% if necessary. For low
patients who have not received other
scribing in Palliative Care, p. 12

CHILD severe, intractable pain in canc
800 micrograms/kg every 12 hours, th
ments of 30–50% if necessary

Note. Prescriptions must also specify
pension' (i.e. 'MST Continus tablets' o
suspension').

CD MXL® (Napp)

Capsules, m/r, morphine sulphate
blue), net price 30-cap pack =
(brown), 30-cap pack = £18.03; 90
cap pack = £26.59; 120 mg (green
= £35.16; 150 mg (blue), 30-cap
200 mg (red-brown), 30-cap pa
Label: 2, counselling, see below

Dose: prolonged severe pain uncontr
opioids, 60 mg once daily increased i
30–50% if necessary; in patients alrea

Tablets

CD Sevredol® (Napp)

Tablets, all f/c, scored, morphine sulphate 10 mg (blue), net price 56-tab pack = £6.31; 20 mg (pink), 56-tab pack = £12.62; 50 mg (pale green), 56-tab pack = £31.55. Label: 2

Dose: severe pain uncontrolled by weaker opioid, 10–50 mg every 4 hours (dose adjusted according to need and tolerance); CHILD 3–5 years, 5 mg; 6–12 years, 5–10 mg

Modified release

CD Morcap® SR (Sanofi Winthrop)

Capsules, m/r, clear enclosing ivory and brown pellets, morphine sulphate 20 mg, net price 30-cap pack = £5.71, 60-cap pack = £11.42; 50 mg, 30-cap pack = £13.84, 60-cap pack = £27.68; 100 mg, 30-cap pack = £27.68, 60-cap pack = £55.37. Label: 2, counselling, see below

Dose: prolonged severe pain uncontrolled by weaker opioids, 40 mg once daily *or* 20 mg every 12 hours, increased in increments of 25–50% as necessary (24-hour interval between dosage adjustment); in patients already receiving oral morphine substitute same total daily dose as Morcap SR capsules in single or 2 divided doses

CHILD not recommended

COUNSELLING. Swallow whole or open capsule and sprinkle contents on soft food

Note. Prescription must also specify 'capsules' (i.e. 'Morcap SR capsules')

CD MST Continus® (Napp)

Tablets, all m/r, f/c, morphine sulphate 5 mg (white), net price 60-tab pack = £4.50; 10 mg (brown), 60-tab pack = £7.51; 15 mg (green), 60-tab pack = £13.16; 30 mg (purple), 60-tab pack = £18.03; 60 mg (orange), 60-tab pack = £35.16; 100 mg (grey), 60-tab pack = £55.67; 200 mg (green), 60-tab pack = £111.35. Label: 2, 25

Suspension (= sachet of granules to mix with water), m/r, pink, morphine sulphate 20 mg/sachet, net price 30-sachet pack = £28.60; 30 mg/sachet, 30-sachet pack = £29.72; 60 mg/sachet, 30-sachet pack = £59.44; 100 mg/sachet, 30-sachet pack = £99.07; 200 mg/sachet pack, 30-sachet pack = £198.14. Label: 2, 13

Dose: (suspension or tablets) severe pain uncontrolled by weaker opioids, 30 mg every 12 hours, increased to 60 mg every 12 hours when required, then further increments of 30–50% if necessary. For lower initial doses in patients who have not received other opioids, see Prescribing in Palliative Care, p. 12

CHILD severe, intractable pain in cancer, initially 200–800 micrograms/kg every 12 hours, then further increments of 30–50% if necessary

Note. Prescriptions must also specify 'tablets' or 'suspension' (i.e. 'MST Continus tablets' or 'MST Continus suspension').

CD MXL® (Napp)

Capsules, m/r, morphine sulphate 30 mg (light blue), net price 30-cap pack = £13.16; 60 mg (brown), 30-cap pack = £18.03; 90 mg (pink), 30-cap pack = £26.59; 120 mg (green), 30-cap pack = £35.16; 150 mg (blue), 30-cap pack = £43.95; 200 mg (red-brown), 30-cap pack = £55.67. Label: 2, counselling, see below

Dose: prolonged severe pain uncontrolled by weaker opioids, 60 mg once daily increased in increments of 30–50% if necessary; in patients already receiving oral morphine substitute same total daily dose as MXL capsules once daily

CHILD severe, intractable pain in cancer, initially 0.4–1.6 mg/kg daily, then further increments of 30–50% if necessary

COUNSELLING. Swallow whole or open capsule and sprinkle contents on soft food

Note. Prescriptions must also specify 'capsules' (i.e. 'MXL capsules')

CD Oramorph® SR (Boehringer Ingelheim)

Tablets, all m/r, f/c, morphine sulphate 10 mg (buff), net price 60-tab pack = £5.75; 30 mg (violet), 60-tab pack = £13.80; 60 mg (orange), 60-tab pack = £26.89; 100 mg (grey), 60-tab pack = £42.59. Label: 2, 25

Dose: severe pain uncontrolled by weaker opioids, 30 mg every 12 hours, increased to 60 mg every 12 hours when required, then further increments of 25–50% if necessary. For lower initial doses in patients who have not received other opioids, see Prescribing in Palliative Care, p. 12

CHILD not recommended

Note. Prescriptions must also specify 'tablets' (i.e. 'Oramorph SR tablets')

Injections

CD Morphine Sulphate (Non-proprietary)

Injection, morphine sulphate 10, 15, 20, and 30 mg/mL, net price 1- and 2-mL amp (all) = 64–96p

CD Min-I-Jet® Morphine Sulphate (IMS)

Injection, morphine sulphate 10 mg/mL, net price 2-mL disposable syringe = £10.85

CD Morphine and Atropine Injection

See section 15.1.4.3

CD Morphine Sulphate Rapiject® (IMS)

Injection, morphine sulphate 1 mg/mL, net price 50-mL disposable syringe = £9.50; 2 mg/mL, 50-mL disposable syringe = £10.50

Injection with anti-emetic

CAUTION. In myocardial infarction cyclizine may aggravate severe heart failure and counteract the haemodynamic benefits of opioids, see section 4.6. **Not recommended** in palliative care, see p. 14

CD Cyclimorph® (GlaxoWellcome)

Cyclimorph-10® Injection, morphine tartrate 10 mg, cyclizine tartrate 50 mg/mL. Net price 1-mL amp = £1.28

Dose: by subcutaneous, intramuscular, or intravenous injection, 1 mL, repeated not more often than every 4 hours, with not more than 3 doses in any 24-hour period; CHILD 1–5 years 0.25–0.5 mL as a single dose, 6–12 years 0.5–1 mL as a single dose

Cyclimorph-15® Injection, morphine tartrate 15 mg, cyclizine tartrate 50 mg/mL. Net price 1-mL amp = £1.33

Dose: by subcutaneous, intramuscular, or intravenous injection, 1 mL, repeated not more often than every 4 hours, with not more than 3 doses in any 24-hour period

Suppositories

CD Morphine (Non-proprietary)

Suppositories, morphine hydrochloride or sulphate 10 mg, net price 12 = £6.12; 15 mg, 12 = £5.54; 20 mg, 12 = £7.45; 30 mg, 12 = £8.10. Label: 2

Available from Aurum, Evans, Martindale

Note. Both the strength of the suppositories and the morphine salt contained in them must be specified by the prescriber.

BUPRENORPHINE

Indications: moderate to severe pain; peri-operative analgesia, see section 15.1.4.3

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; can give rise to mild withdrawal symptoms in patients dependent on opioids; effects only partially reversed by naloxone; **interactions:** Appendix 1 (opioid analgesics)

Dose: *by sublingual administration*, initially 200–400 micrograms every 8 hours, increasing if necessary to 200–400 micrograms every 6–8 hours; CHILD over 6 months, 16–25 kg, 100 micrograms; 25–37.5 kg, 100–200 micrograms; 37.5–50 kg, 200–300 micrograms

By intramuscular or slow intravenous injection, 300–600 micrograms every 6–8 hours; CHILD over 6 months 3–6 micrograms/kg every 6–8 hours (max. 9 micrograms/kg)

CD Temgesic® (R&C)

Tablets (sublingual), buprenorphine (as hydrochloride), 200 micrograms, net price 50-tab pack = £6.00; 400 micrograms, 50-tab pack = £12.00. Label: 2, 26

Injection, buprenorphine 300 micrograms (as hydrochloride)/mL. Net price 1-mL amp = 55p

CODEINE PHOSPHATE

Indications: mild to moderate pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; use of cough suppressants containing codeine or similar opioid analgesics not generally recommended in children and should be avoided altogether in those under 1 year; **interactions:** Appendix 1 (opioid analgesics)

Dose: *by mouth*, 30–60 mg every 4 hours when necessary, to a max. of 240 mg daily; CHILD 1–12 years, 3 mg/kg daily in divided doses

By intramuscular injection, 30–60 mg every 4 hours when necessary

Codeine Phosphate (Non-proprietary)

PoM *Tablets*, codeine phosphate 15 mg, net price 20 = 35p; 30 mg, 20 = 38p; 60 mg, 20 = 97p. Label: 2

Note. As for schedule 2 controlled drugs, travellers needing to take codeine phosphate preparations abroad may require a doctor's letter explaining why they are necessary

PoM *Syrup*, codeine phosphate 25 mg/5 mL. Net price 100 mL = 87p. Label: 2

CD *Injection*, codeine phosphate 60 mg/mL. Net price 1-mL amp = £1.68

Codeine Linctuses

See section 3.9.1

Note. Codeine is an ingredient of some compound analgesic preparations, see sections 4.7.1 and 10.1.1 (Codafen Continus®)

DEXTROMORAMIDE

Indications: severe pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; only short duration of action (2–3 hours); avoid in obstetric analgesia (increased risk of neonatal depression); **interactions:** Appendix 1 (opioid analgesics)

Dose: *by mouth*, 5 mg increasing to 20 mg, when required

By rectum in suppositories, 10 mg when required

CD Palfium® (Boehringer Mannheim)

Tablets, both scored, dextromoramide (as tartrate) 5 mg, net price 60-tab pack = £4.66; 10 mg (peach), 60-tab pack = £9.21. Label: 2

Suppositories, dextromoramide 10 mg (as tartrate). Net price 10 = £2.29. Label: 2

DEXTROPROPOXYPHENE HYDROCHLORIDE

Indications: mild to moderate pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; occasional hepatotoxicity; porphyria (see section 9.8.2); compound preparations special hazard in overdose, see notes above; convulsions reported in overdose; contra-indicated in those who are suicidal or addiction prone; **interactions:** Appendix 1 (opioid analgesics)

Dose: 65 mg every 6–8 hours when necessary; CHILD not recommended

Note. 65 mg dextropropoxyphene hydrochloride = 100 mg dextropropoxyphene napsylate

PoM **Dextropropoxyphene** (Non-proprietary)

Capsules, the equivalent of dextropropoxyphene hydrochloride 65 mg (as napsylate). Net price 20 = £1.64. Label: 2

Available from Lilly (~~NHS~~ Doloxene®)

Note. Dextropropoxyphene is an ingredient of some compound analgesic preparations, see section 4.7.1

DIAMORPHINE HYDROCHLORIDE

(Heroin Hydrochloride)

Indications: see notes above; acute pulmonary oedema

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

Dose: acute pain, *by subcutaneous or intramuscular injection*, 5 mg repeated every 4 hours if necessary (up to 10 mg for heavier well-muscled patients)

By slow intravenous injection, quarter to half corresponding intramuscular dose

Myocardial infarction, *by slow intravenous injection* (1 mg/minute), 5 mg followed by a further 2.5–5 mg if necessary; elderly or frail patients reduce dose by half

Acute pulmonary oedema, *by slow intravenous injection* (1 mg/minute) 2.5–5 mg

Chronic pain, *by mouth or by subcutaneous or intramuscular injection*, 5–10 mg regularly every 4 hours; dose may be increased according to needs; intramuscular dose should be approximately half corresponding oral dose, and quarter to third corresponding oral *morphine* dose—see also Palliative Care, p. 15; *by subcutaneous infusion* (using syringe driver), see Palliative Care p. 14

CD Diamorphine (

Tablets, diamorphin price 100-tab pack

Available from Aurum

Injection, powder f hydrochloride. Net mg amp = £1.34, amp = £4.42, 500-n

Available from Berk (E

CD Diamorphine L

See section 3.9.1

DIHYDROCODEI

Indications: modera

Cautions; Contra-ii under Morphine Sal

Dose: *by mouth*, 3 necessary (see also years 0.5–1 mg/kg e

By deep subcutaneou up to 50 mg repeate sary; CHILD over 4 hours

Dihydrocodeine (N

PoM *Tablets*, dihydro price 20 = 54p. Labe

Available from most gen

PoM *Oral solution*, di 5 mL. Net price 150

Available from Napp

CD *Injection*, dihydr Net price 1-mL amp

Available from Aurum, N

Note. The brand name tablets of dihydrocodeir

PoM **DF 118 Forte®** (

Tablets, dihydrocodei 100-tab pack = £12.0

Dose: severe pain, 40–8 daily; CHILD not recomm

Modified release

PoM **DHC Continus®**

Tablets, m/r, dihydro price 56-tab pack = £ £10.36; 120 mg, 56-t 25

Dose: chronic severe p CHILD not recommended

Note. Dihydrocodeine i pound analgesic preparat

DIPIPANONE HYDI

Indications: moderate

Cautions; Contra-indi under Morphine Salts tions: Appendix 1 (op

CD Diconal® (GlaxoW

Tablets, pink, scored, 10 mg, cyclizine hydr 50-tab pack = £7.59. L

Dose: 1 tablet gradua every 6 hours; CHILD n

CAUTION. **Not recomme** p. 14

Cautionary label wording

CD Diamorphine (Non-proprietary)

Tablets, diamorphine hydrochloride 10 mg. Net price 100-tab pack = £11.20. Label: 2

Available from Aurum

Injection, powder for reconstitution, diamorphine hydrochloride. Net price 5-mg amp = £1.16, 10-mg amp = £1.34, 30-mg amp = £1.60, 100-mg amp = £4.42, 500-mg amp = £20.68

Available from Berk (Diagesil®), CP, Evans, Hillcross

CD Diamorphine Linctus

See section 3.9.1

DIHYDROCODEINE TARTRATE

Indications: moderate to severe pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above

Dose: by mouth, 30 mg every 4–6 hours when necessary (see also notes above); CHILD over 4 years 0.5–1 mg/kg every 4–6 hours

By deep subcutaneous or intramuscular injection, up to 50 mg repeated every 4–6 hours if necessary; CHILD over 4 years 0.5–1 mg/kg every 4–6 hours

Dihydrocodeine (Non-proprietary)

PoM *Tablets*, dihydrocodeine tartrate 30 mg. Net price 20 = 54p. Label: 2, 21

Available from most generic manufacturers

PoM *Oral solution*, dihydrocodeine tartrate 10 mg/5 mL. Net price 150 mL = £2.40. Label: 2, 21

Available from Napp

CD *Injection*, dihydrocodeine tartrate 50 mg/mL. Net price 1-mL amp = £1.48

Available from Aurum, Napp (DF 118®)

Note. The brand name DF118® was formerly used for tablets of dihydrocodeine tartrate 30 mg

PoM **DF 118 Forte®** (Napp)

Tablets, dihydrocodeine tartrate 40 mg. Net price 100-tab pack = £12.05. Label: 2, 21

Dose: severe pain, 40–80 mg 3 times daily; max. 240 mg daily; CHILD not recommended

Modified release

PoM **DHC Continus®** (Napp)

Tablets, m/r, dihydrocodeine tartrate 60 mg, net price 56-tab pack = £6.58; 90 mg, 56-tab pack = £10.36; 120 mg, 56-tab pack = £13.83. Label: 2, 25

Dose: chronic severe pain, 60–120 mg every 12 hours; CHILD not recommended

Note. Dihydrocodeine is an ingredient of some compound analgesic preparations, see section 4.7.1

DIPIPANONE HYDROCHLORIDE

Indications: moderate to severe pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

CD Diconal® (GlaxoWellcome)

Tablets, pink, scored, dipipanone hydrochloride 10 mg, cyclizine hydrochloride 30 mg. Net price 50-tab pack = £7.59. Label: 2

Dose: 1 tablet gradually increased to 3 tablets every 6 hours; CHILD not recommended

CAUTION. **Not recommended** in palliative care, see p. 14

FENTANYL

Indications: chronic intractable pain due to cancer, see below; other indications, see section 15.1.4.3

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; local reactions such as rash, erythema and itching reported; **interactions:** Appendix 1 (opioid analgesics)

FEVER OR EXTERNAL HEAT. Monitor patients for increased side-effects if fever present (increased absorption possible); avoid exposing application site to external heat (may also increase absorption)

Administration: see under preparation, below

LONG DURATION OF ACTION. In view of the long duration of action, patients who have experienced severe side-effects should be monitored for up to 24 hours after patch removal

▼ **CD Durogesic®** (Janssen-Cilag)

Patches, self-adhesive, transparent, fentanyl, '25' patch (releasing approx. 25 micrograms/hour for 72 hours), net price 5 = £28.97; '50' patch (releasing approx. 50 micrograms/hour for 72 hours), 5 = £54.11; '75' patch (releasing approx. 75 micrograms/hour for 72 hours), 5 = £75.43; '100' patch (releasing approx. 100 micrograms/hour for 72 hours), 5 = £92.97. Label: 2

ADMINISTRATION: apply to dry, non-irritated, non-irradiated, non-hairy skin on torso or upper arm, removing after 72 hours and siting replacement patch on a different area (avoid using the same area for several days). Patients who have not previously received a strong opioid analgesic, initial dose, one '25 micrograms/hour' patch replaced after 72 hours; patients who have received a strong opioid analgesic, initial dose based on previous 24-hour opioid requirement (oral morphine sulphate 90 mg over 24 hours ≈ one '25 micrograms/hour' patch, see data sheet for details); CHILD not recommended

Note. When starting to use Durogesic® initial evaluation of the analgesic effect should **not** be made before the system has been worn for **24 hours** (to allow for the gradual increase in plasma-fentanyl concentration)—previous analgesic therapy should be phased out gradually from time of first patch application; dose adjustment should normally be carried out in 72-hour steps of '25 micrograms/hour'. More than one patch may be used at a time for doses greater than '100 micrograms/hour' (but applied at *same time* to avoid confusion)—consider additional or alternative analgesic therapy if dose required exceeds 300 micrograms/hour (**important:** it may take 17 hours or longer for the plasma-fentanyl concentration to decrease by 50%, therefore replacement opioid therapy should be initiated at a low dose, increasing gradually).

CD Sublimaze®

See section 15.1.4.3

MEPTAZINOL

Indications: moderate to severe pain, including postoperative and obstetric pain and renal colic; peri-operative analgesia, see section 15.1.4.3

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; effects only partially reversed by naloxone

Dose: by mouth, 200 mg every 3–6 hours as required; CHILD not recommended

By intramuscular injection, 75–100 mg every 2–4 hours if necessary; obstetric analgesia, 100–150 mg according to patient's weight (2 mg/kg); CHILD not recommended

By slow intravenous injection, 50–100 mg every 2–4 hours if necessary; CHILD not recommended

PoM **Meptid®** (Monmouth)

Tablets, orange, f/c, meptazinol 200 mg. Net price 20 = £4.39. Label: 2

Injection, meptazinol 100 mg (as hydrochloride)/mL. Net price 1-mL amp = £1.92

METHADONE HYDROCHLORIDE

Indications: severe pain, see notes above; adjunct in treatment of opioid dependence, section 4.10

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

Dose: by mouth or by subcutaneous or intramuscular injection, 5–10 mg every 6–8 hours, adjusted according to response; CHILD not recommended

CD Methadone (Non-proprietary)

Tablets, scored, methadone hydrochloride 5 mg. Net price 50 = £3.11. Label: 2

Available from GlaxoWellcome (Physeptone®)

Injection, methadone hydrochloride, 10 mg/mL, net price 1-mL amp = 86p, 2-mL amp = £1.49, 3.5-mL amp = £1.71, 5-mL amp = £1.85

Available from CP, Martindale, GlaxoWellcome (Physeptone®)

Linctus, see section 3.9.1

Mixture 1 mg/mL, section 4.10

NALBUPHINE HYDROCHLORIDE

Indications: moderate to severe pain; peri-operative analgesia, see section 15.1.4.3

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

Dose: by subcutaneous, intramuscular, or intravenous injection, 10–20 mg for 70 kg patient every 3–6 hours, adjusted as required; CHILD up to 300 micrograms/kg repeated once or twice as necessary

Myocardial infarction, *by slow intravenous injection*, 10–20 mg repeated after 30 minutes if necessary

Preparations

Section 15.1.4.3

PENTAZOCINE

Indications: moderate to severe pain, but see notes above

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; occasional hallucinations; avoid in patients dependent on opioids and in arterial or pulmonary hypertension and heart failure; porphyria (see section 9.8.2); **interactions:** Appendix 1 (opioid analgesics)

Dose: by mouth, pentazocine hydrochloride 50 mg 3–4 hours preferably after food (range 25–100 mg) CHILD 6–12 years 25 mg

By subcutaneous, intramuscular, or intravenous injection, moderate pain, pentazocine 30 mg, severe pain 60 mg every 3–4 hours when necessary; CHILD over 1 year, *by subcutaneous or intramuscular injection*, up to 1 mg/kg, *by intravenous injection* up to 500 micrograms/kg

By rectum in suppositories, pentazocine 50 mg up to 4 times daily; CHILD not recommended

CD Pentazocine (Non-proprietary)

Capsules, pentazocine hydrochloride 50 mg. Net price = £3.34. Label: 2, 21

Tablets, pentazocine hydrochloride 25 mg. Net price 20 = £1.58. Label: 2, 21

Injection, pentazocine 30 mg (as lactate)/mL. Net price 1-mL amp = £1.45; 2-mL amp = £2.80

Suppositories, pentazocine 50 mg (as lactate). Net price 20 = £17.33. Label: 2

Note. The brand name ~~NHS~~ Fortral® (Sanofi Winthrop) is used for all the above preparations of pentazocine

PETHIDINE HYDROCHLORIDE

Indications: moderate to severe pain, obstetric analgesia; peri-operative analgesia, see section 15.1.4.3

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; avoid in severe renal impairment; not suitable for severe continuing pain; convulsions reported in overdosage; **interactions:** Appendix 1 (opioid analgesics)

Dose: by mouth, 50–150 mg every 4 hours; CHILD 0.5–2 mg/kg

By subcutaneous or intramuscular injection, 25–100 mg, repeated after 4 hours; CHILD, *by intramuscular injection*, 0.5–2 mg/kg

By slow intravenous injection, 25–50 mg, repeated after 4 hours

Obstetric analgesia, *by subcutaneous or intramuscular injection*, 50–100 mg, repeated 1–3 hours later if necessary; max. 400 mg in 24 hours

Postoperative pain, see section 15.1.4.3

CD Pethidine (Non-proprietary)

Tablets, pethidine hydrochloride 50 mg, net price 20 = £1.82. Label: 2

Available from Roche

Injection, pethidine hydrochloride 50 mg/mL, net price 1-mL amp = 39p; 2-mL amp = 37p, 10 mL see section 15.1.4.3

Various strengths available from Martindale, Roche

CD Pamergan P100® (Martindale)

Injection, pethidine hydrochloride 50 mg, promethazine hydrochloride 25 mg/mL. Net price mL amp = 69p

Dose: by intramuscular injection, for obstetric analgesia, 1–2 mL every 4 hours if necessary; severe pain, 1–2 mL every 4–6 hours if necessary; premedication, see section 15.1.4.3

Note. Although usually given intramuscularly, may be given intravenously after dilution to at least 10 mL with water for injections

PHENAZOCINE HYDROBI

Indications: severe pain

Cautions; Contra-indications; under Morphine Salts and not tions: Appendix 1 (opioid anal

Dose: by mouth or sublinguall hours when necessary; singl increased to 20 mg; CHILD not

CD Narphen® (Napp)

Tablets, phenazocine hydrobr price 100-tab pack = £28.51. L

TRAMADOL HYDROCHL

Indications: moderate to severe

Cautions; Contra-indications; under Morphine Salts and not tion to hypotension, hypertens ally reported; anaphylaxis, confusion also reported; cautic lepsy (convulsions reported, intravenous injection); avoid breast-feeding; not suitable opioid-dependent patients; **int** dix 1 (opioid analgesics)

GENERAL ANAESTHESIA. Not recom during light planes of general a operative recall reported)

Dose: by mouth, 50–100 mg n every 4 hours; total of more th mouth not usually required; mended

By intramuscular injection injection (over 2–3 minutes) *infusion*, 50–100 mg every 4–6 Postoperative pain, 100 mg i every 10–20 minutes if nec hour to total max. 250 mg (inc in first hour, *then* 50–100 mg max. 600 mg daily; CHILD not

▼ PoM **Tramadol Hydrochlo** proprietary)

Capsules, tramadol hydrochl price 100-cap pack = £17.71.

Available from Ethical Generics Lt

▼ PoM **Zamadol®** (ASTA Med

Capsules, tramadol hydrochl price 100-cap pack = £15.20.

▼ PoM **Zydol®** (Searle)

Capsules, green/yellow, tram 50 mg. Net price 100-cap pacl

Soluble tablets, tramadol hydrc price 20-tab pack = £3.19, 10(Label: 2, 13

Injection, tramadol hydrochlo price 2-mL amp = £1.30

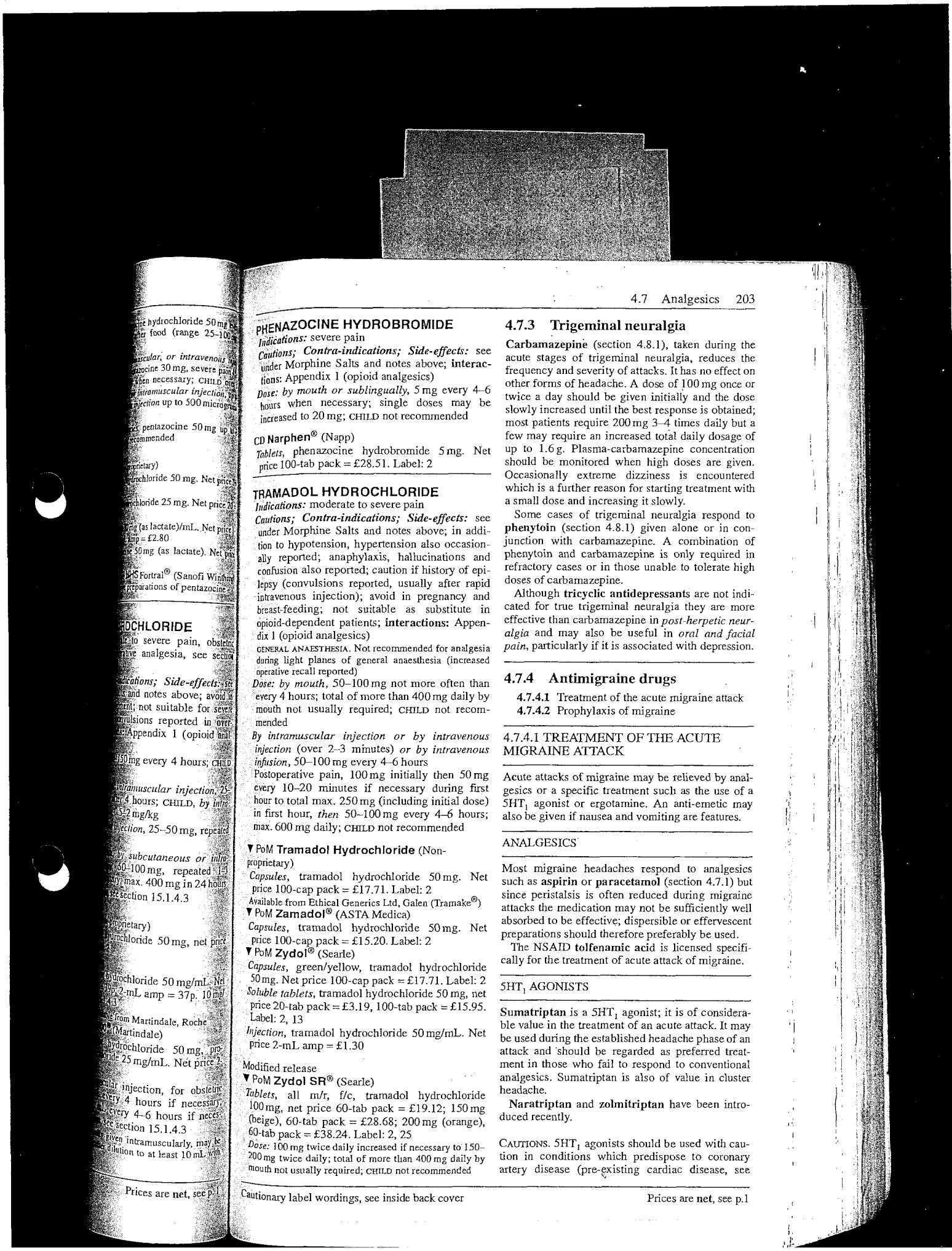
Modified release

▼ PoM **Zydol SR®** (Searle)

Tablets, all m/r, f/c, tram 100 mg, net price 60-tab pac (beige), 60-tab pack = £28.6 60-tab pack = £38.24. Label:

Dose: 100 mg twice daily increas 200 mg twice daily; total of mor mouth not usually required; CHIL

Cautionary label wordings, see i



PHENAZOCINE HYDROBROMIDE

Indications: severe pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

Dose: by mouth or sublingually, 5 mg every 4–6 hours when necessary; single doses may be increased to 20 mg; CHILD not recommended

CD **Narphen®** (Napp)

Tablets, phenazocine hydrobromide 5 mg. Net price 100-tab pack = £28.51. Label: 2

TRAMADOL HYDROCHLORIDE

Indications: moderate to severe pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; in addition to hypotension, hypertension also occasionally reported; anaphylaxis, hallucinations and confusion also reported; caution if history of epilepsy (convulsions reported, usually after rapid intravenous injection); avoid in pregnancy and breast-feeding; not suitable as substitute in opioid-dependent patients; **interactions:** Appendix 1 (opioid analgesics)

GENERAL ANAESTHESIA. Not recommended for analgesia during light planes of general anaesthesia (increased operative recall reported)

Dose: by mouth, 50–100 mg not more often than every 4 hours; total of more than 400 mg daily by mouth not usually required; CHILD not recommended

By intramuscular injection or by intravenous injection (over 2–3 minutes) *or by intravenous infusion,* 50–100 mg every 4–6 hours

Postoperative pain, 100 mg initially then 50 mg every 10–20 minutes if necessary during first hour to total max. 250 mg (including initial dose) in first hour, *then* 50–100 mg every 4–6 hours; max. 600 mg daily; CHILD not recommended

▼ PoM **Tramadol Hydrochloride** (Non-proprietary)

Capsules, tramadol hydrochloride 50 mg. Net price 100-cap pack = £17.71. Label: 2

Available from Ethical Generics Ltd, Galen (Tramake®)

▼ PoM **Zamadol®** (ASTA Medica)

Capsules, tramadol hydrochloride 50 mg. Net price 100-cap pack = £15.20. Label: 2

▼ PoM **Zydol®** (Searle)

Capsules, green/yellow, tramadol hydrochloride 50 mg. Net price 100-cap pack = £17.71. Label: 2

Soluble tablets, tramadol hydrochloride 50 mg, net price 20-tab pack = £3.19, 100-tab pack = £15.95. Label: 2, 13

Injection, tramadol hydrochloride 50 mg/mL. Net price 2-mL amp = £1.30

Modified release

▼ PoM **Zydol SR®** (Searle)

Tablets, all m/r, f/c, tramadol hydrochloride 100 mg, net price 60-tab pack = £19.12; 150 mg (beige), 60-tab pack = £28.68; 200 mg (orange), 60-tab pack = £38.24. Label: 2, 25

Dose: 100 mg twice daily increased if necessary to 150–200 mg twice daily; total of more than 400 mg daily by mouth not usually required; CHILD not recommended

4.7.3 Trigeminal neuralgia

Carbamazepine (section 4.8.1), taken during the acute stages of trigeminal neuralgia, reduces the frequency and severity of attacks. It has no effect on other forms of headache. A dose of 100 mg once or twice a day should be given initially and the dose slowly increased until the best response is obtained; most patients require 200 mg 3–4 times daily but a few may require an increased total daily dosage of up to 1.6 g. Plasma-carbamazepine concentration should be monitored when high doses are given. Occasionally extreme dizziness is encountered which is a further reason for starting treatment with a small dose and increasing it slowly.

Some cases of trigeminal neuralgia respond to **phenytoin** (section 4.8.1) given alone or in conjunction with carbamazepine. A combination of phenytoin and carbamazepine is only required in refractory cases or in those unable to tolerate high doses of carbamazepine.

Although **tricyclic antidepressants** are not indicated for true trigeminal neuralgia they are more effective than carbamazepine in *post-herpetic neuralgia* and may also be useful in *oral and facial pain,* particularly if it is associated with depression.

4.7.4 Antimigraine drugs

4.7.4.1 TREATMENT OF THE ACUTE MIGRAINE ATTACK

Acute attacks of migraine may be relieved by analgesics or a specific treatment such as the use of a $5HT_1$ agonist or ergotamine. An anti-emetic may also be given if nausea and vomiting are features.

ANALGESICS

Most migraine headaches respond to analgesics such as **aspirin** or **paracetamol** (section 4.7.1) but since peristalsis is often reduced during migraine attacks the medication may not be sufficiently well absorbed to be effective; dispersible or effervescent preparations should therefore preferably be used.

The NSAID **tolfenamic acid** is licensed specifically for the treatment of acute attack of migraine.

$5HT_1$ AGONISTS

Sumatriptan is a $5HT_1$ agonist; it is of considerable value in the treatment of an acute attack. It may be used during the established headache phase of an attack and should be regarded as preferred treatment in those who fail to respond to conventional analgesics. Sumatriptan is also of value in cluster headache.

Naratriptan and **zolmitriptan** have been introduced recently.

CAUTIONS. $5HT_1$ agonists should be used with caution in conditions which predispose to coronary artery disease (pre-existing cardiac disease, see

exposure of patients to nitrous oxide for pro- periods, either by continuous or by intermi- administration, may result in megaloblastic mia due to interference with the action of vi- B_{12}. For the same reason, exposure of theatre to nitrous oxide should be minimised. Depres- of white cell formation may also occur.

ROUS OXIDE

cations; Cautions; Side-effects: see notes
interactions: Appendix 1 (anaesthetics, al)

using a suitable anaesthetic apparatus, a ture with 25–30% oxygen for *maintenance* of anaesthesia

lysis, as a mixture with 50% oxygen ding to the patient's needs

Antimuscarinic drugs

carinic premedication drugs are used (less ly nowadays) to dry bronchial and salivary s which are increased by intubation and ulational anaesthetics. They are also used with neostigmine (section 15.1.6) to pre- ycardia, excessive salivation, and other ne actions of neostigmine. They are also revent bradycardia and hypotension asso- agents such as halothane, propofol, and nium.

is now rarely used for premedication s an emergency role in the treatment of side-effects. For its role in acute arrhyth- myocardial infarction, see section 2.3.1; ardiopulmonary resuscitation algorithm, 3.

effectively reduces secretions and also degree of amnesia, sedation and anti- like atropine it may produce bradycardia achycardia. In some patients, especially hyoscine may cause the central anti- ndrome (excitement, ataxia, halluci- behavioural abnormalities, and

onium produces good drying of sali- s. When given intravenously it pro- ycardia than atropine. It is widely stigmine for reversal of non-depolar- axants (section 15.1.5).

nes have too little drying activity to n used alone.

SULPHATE

ge secretions, reversal of exces- with neostigmine for reversal of muscular block; other indica- 1.2, 2.3.1, 11.5

ascular disease; see also section Appendix 1 (antimuscarinics)

ycardia; see also section 1.2

Prices are net, see p.1

Dose: premedication, *by intravenous injection*, 300–600 micrograms immediately before induction of anaesthesia, and in incremental doses of 100 micrograms for the treatment of bradycardia

By intramuscular injection, 300–600 micrograms 30–60 minutes before induction; CHILD 20 micrograms/kg

For control of muscarinic side-effects of neostigmine in reversal of competitive neuromuscular block, *by intravenous injection*, 0.6–1.2 mg

Arrhythmias after myocardial infarction, see section 2.3.1; see also cardiopulmonary resuscitation algorithm, section 2.7.3

PoM **Atropine** (Non-proprietary)

Injection, atropine sulphate 600 micrograms/mL. Net price 1-mL amp = 35p

Note. Other strengths also available

PoM **Min-I-Jet® Atropine Sulphate** (IMS)

Injection, atropine sulphate 100 micrograms/mL, net price 5-mL disposable syringe = £3.78, 10-mL disposable syringe = £4.24, 30-mL disposable syringe = £7.75

Note. A 10-mL prefilled syringe containing atropine sulphate 300 micrograms/mL is also available from Aurum; net price 10-mL disposable syringe = £4.32

CD **Morphine and Atropine Injection**, see under Morphine Salts (section 15.1.4.3)

GLYCOPYRRONIUM BROMIDE

Indications; Cautions; Side-effects: see under Atropine Sulphate

Dose: premedication, *by intramuscular or intravenous injection*, 200–400 micrograms, *or* 4–5 micrograms/kg to a max. of 400 micrograms; CHILD, *by intramuscular or intravenous injection*, 4–8 micrograms/kg to a max. of 200 micrograms

Intra-operative use, *by intravenous injection*, as for premedication, repeated if necessary

Control of muscarinic side-effects of neostigmine in reversal of competitive neuromuscular block, *by intravenous injection*, 10–15 micrograms/kg with neostigmine 50 micrograms/kg; CHILD, 10 micrograms/kg with neostigmine 50 micrograms/kg

PoM **Robinul®** (Anpharm)

Injection, glycopyrronium bromide 200 micrograms/mL. Net price 1-mL amp = 63p; 3-mL amp = £1.06

Available as a generic from Antigen

PoM **Robinul-Neostigmine®**, see under Neostigmine Methylsulphate (section 15.1.6)

HYOSCINE HYDROBROMIDE

(Scopolamine Hydrobromide)

Indications: drying secretions, amnesia; other indications, see section 4.6

Cautions; Side-effects: see under Atropine Sulphate; may slow heart; avoid in the elderly (see notes above); porphyria (see section 9.8.2)

Dose: premedication, *by subcutaneous or intramuscular injection*, 200–600 micrograms 30–60 minutes before induction of anaesthesia, usually with papaveretum

PoM **Hyoscine** (Non-proprietary)

Injection, hyoscine hydrobromide 400 micrograms/mL, net price 1-mL amp = £2.62; 600 micrograms/mL, 1-mL amp = £2.60

CD **Papaveretum and Hyoscine Injection**, see under Papaveretum (section 15.1.4.3)

15.1.4 Sedative and analgesic peri-operative drugs

15.1.4.1 Anxiolytics and neuroleptics
15.1.4.2 Non-opioid analgesics
15.1.4.3 Opioid analgesics

These drugs are given to allay the apprehension of the patient in the pre-operative period (including the night before operation), to relieve pain and discomfort when present, and to augment the action of subsequent anaesthetic agents. A number of the drugs used also provide some degree of pre-operative amnesia. The choice will vary with the individual patient, the nature of the operative procedure, the anaesthetic to be used and other prevailing circumstances such as outpatients, obstetrics, recovery facilities etc. The choice would also vary in elective and emergency operations.

PREMEDICATION IN CHILDREN. Oral or rectal administration is preferred to injections where possible but is not altogether satisfactory. Oral **trimeprazine** is still used but when given alone it may cause postoperative restlessness when pain is present. An alternative is **diazepam**. Some anaesthetists prefer the use of adult regimens, with dosage on a weight basis. (For guidelines on dose calculation in children, see Prescribing for Children, p. 11.)

Atropine or hyoscine is often given orally to children, but may be given intravenously immediately before induction.

ANAESTHESIA AND DRIVING. See section 15.1.

15.1.4.1 ANXIOLYTICS AND NEUROLEPTICS

Anxiolytic benzodiazepines are widely used whereas neuroleptics (e.g. chlorpromazine) are now rarely used.

BENZODIAZEPINES

Oral premedication with benzodiazepines is increasing in popularity, a short-acting oral benzodiazepine now being the most common premedicant.

Benzodiazepines are also of particular value for the production of light sedation during unpleasant procedures or during operations under local anaesthesia (including dentistry). The resultant amnesia is such that the patient is unlikely to have any unpleasant memories of the procedure (however, benzodiazepines, particularly when used for deep sedation, can sometimes induce sexual fantasies).

Diazepam is relatively insoluble in water and preparations formulated in organic solvents are painful on intravenous injection and followed by a

high incidence of venous thrombosis (which may not be noticed until a week after the injection); they are also painful on intramuscular injection, and absorption from the injection site is erratic. An emulsion preparation for intravenous injection is less irritant and is followed by a negligible incidence of venous thrombosis; it is not suitable for intramuscular injection. Diazepam is also available as a rectal solution.

Benzodiazepines are also of particular value for sedation of patients in intensive care units, particularly those having assisted ventilation. Since they have no analgesic action they are often given in conjunction with opioid analgesics.

Benzodiazepines may on occasion cause marked respiratory depression and facilities for treatment of this are essential.

Diazepam is used to produce light sedation with amnesia. The 'sleep' dose shows too great an individual variation to recommend it for induction of anaesthesia. It is a long-acting drug with active metabolites, and a second period of drowsiness can occur 4–6 hours after its administration.

Temazepam is given by mouth and has a shorter action and a relatively more rapid onset than diazepam by mouth. Used as a premedicant, anxiolytic and sedative effects are produced which continue for one and a half hours. After this period patients are usually fully alert but there may be residual drowsiness. It has proved useful as a premedicant in inpatient and day-case surgery.

Lorazepam produces more prolonged sedation than temazepam. In addition amnesia is commonplace. It is used as a premedicant the night before major surgery. A further, smaller, dose may be required the following morning if any delay in starting surgery is anticipated. Alternatively the first dose may be given in the early morning of the day of operation.

Midazolam is a water-soluble benzodiazepine which is often used in preference to diazepam. Recovery is faster than with diazepam. The incidence of side-effects is low but the CSM has received reports of respiratory depression (sometimes associated with severe hypotension) following intravenous administration. It is also associated with some major interactions (see below).

DIAZEPAM

Indications: premedication; sedation with amnesia, and in conjunction with local anaesthesia; other indications, see sections 4.1.2, 4.8.2, 10.2.2

Cautions; Contra-indications; Side-effects: see notes above and sections 4.1.2, 4.8.2

Dose: *by mouth*, 5 mg on night before minor or dental surgery then 5 mg 2 hours before procedure

By intravenous injection, into a large vein 10–20 mg over 2–4 minutes as sedative cover for minor surgical and medical procedures; premedication 100–200 micrograms/kg

By rectum in solution, ADULT and CHILD over 3 years 10 mg; CHILD 1–3 years and ELDERLY 5 mg
Note. Diazepam rectal solution doses in BNF may differ from those in the product literature

Preparations

See section 4.1.2

LORAZEPAM

Indications: sedation with amnesia; as premedication; other indications, see sections 4.1.2, 4.8.2

Cautions; Contra-indications; Side-effects: see under Diazepam

Dose: *by mouth*, 2–3 mg the night before operation; 2–4 mg 1–2 hours before operation

By slow intravenous injection, preferably diluted with an equal volume of sodium chloride intravenous infusion 0.9% or water for injections, 50 micrograms/kg 30–45 minutes before operation

By intramuscular injection, diluted as above, 50 micrograms/kg 1–1½ hours before operation

PoM **Ativan®** (Wyeth)

Injection, lorazepam 4 mg/mL. Net price 1-mL amp = 40p

Tablets, see section 4.1.2

MIDAZOLAM

Indications: sedation with amnesia, and in conjunction with local anaesthesia; premedication, induction

Cautions; Contra-indications; Side-effects: see under Diazepam; see notes above for CSM warning; **important:** profound sedation with erythromycin and possibly other drugs, see **interactions**: Appendix 1 (anxiolytics and hypnotics)

Dose: sedation, *by intravenous injection* over 30 seconds, 2 mg (elderly 1–1.5 mg) followed after 2 minutes by increments of 0.5–1 mg if sedation not adequate; usual range 2.5–7.5 mg (about 70 micrograms/kg), elderly 1–2 mg

Premedication, *by intramuscular injection*, 70–100 micrograms/kg 30–60 minutes before surgery; usual dose 5 mg (2.5 mg in elderly)

Induction, *by slow intravenous injection*, 200–300 micrograms/kg (elderly 100–200 micrograms/kg); CHILD over 7 years, 150 micrograms/kg

Sedation of patients receiving intensive care, *by intravenous infusion*, initially 30–300 micrograms/kg given over 5 minutes, then 30–200 micrograms/kg/hour; reduce dose (or omit initial dose) in hypovolaemia, vasoconstriction, or hypothermia; low doses may be adequate if opioid analgesic also used; avoid abrupt withdrawal after prolonged administration (safety after more than 14 days not established)

PoM **Hypnovel®** (Roche)

Injection, midazolam (as hydrochloride) 2 mg/mL, net price 5-mL amp = £1.01; 5 mg/mL, 2-mL amp = 85p

TEMAZEPAM
Indications: preme
anxiety before i
notic, see section
Cautions; Contra-
under Diazepam
Dose: by mouth,
erly, 10–20 mg) 1
1 mg/kg (max. 30

Preparations
See section 4.1.1

CHLORMETHIAZ

Chlormethiazole i
venous infusion to
carried out under
longer in current us

CHLORMETHIAZ
(Clomethiazole)
Indications: sedative
also notes above); c
4.8.2, 4.10
Cautions; Contra-in
4.10
Dose: by intravenou
chlormethiazole edi
minute for 1–2 m
32 mg)/minute
IMPORTANT. See sp
sion, section 4.10

Preparations
See section 4.10

PHENOTHIAZINE

Neuroleptics such a
dol (see section 4.2
premedication; alth
to prevent shivering
is no longer in cur
meprazine is used

PROMETHAZIN
Indications: pre-o
carinic; anti-emet
tions, see sections
Cautions; Contra
section 4.6
Dose: premedicati
years not recomm
10 years 20–25 m
By deep intramusc
before operation
12.5 mg

Preparations
See sections 3.4.1

TRIMEPRAZINE
(Alimemazine Tartr
Indications: pre-
other indications,

Cautionary label wo

TEMAZEPAM

Indications: premedication before minor surgery; anxiety before investigatory procedures; hypnotic, see section 4.1.1

Cautions; Contra-indications; Side-effects: see under Diazepam

Dose: by mouth, premedication, 20–40 mg (elderly, 10–20 mg) 1 hour before operation; CHILD 1 mg/kg (max. 30 mg)

Preparations

See section 4.1.1

CHLORMETHIAZOLE

Chlormethiazole is licensed for use as an intravenous infusion to maintain sleep during surgery carried out under regional anaesthesia, but is no longer in current use for this purpose.

CHLORMETHIAZOLE

(Clomethiazole)

Indications: sedative during regional anaesthesia (but see also notes above); other indications, see sections 4.1.1, 4.8.2, 4.10

Cautions; Contra-indications; Side-effects: see section 4.10

Dose: by intravenous infusion, as a 0.8% solution of chlormethiazole edisylate, induction 25 mL (200 mg)/minute for 1–2 minutes; maintenance 1–4 mL (8–32 mg)/minute

IMPORTANT. See special cautions for intravenous infusion, section 4.10

Preparations

See section 4.10

PHENOTHIAZINES AND RELATED

Neuroleptics such as **chlorpromazine** and **droperidol** (see section 4.2.1) are rarely used in the UK for premedication; although chlorpromazine is licensed to prevent shivering in induction of hypothermia, it is no longer in current use for this purpose. **Trimeprazine** is used as a premedicant for children.

PROMETHAZINE HYDROCHLORIDE

Indications: pre-operative sedative and antimuscarinic; anti-emetic, see section 4.6; other indications, see sections 3.4.1, 3.4.3

Cautions; Contra-indications; Side-effects: see section 4.6

Dose: premedication, *by mouth*, CHILD under 2 years not recommended, 2–5 years 15–20 mg, 5–10 years 20–25 mg

By deep intramuscular injection, 25–50 mg 1 hour before operation; CHILD 5–10 years, 6.25–12.5 mg

Preparations

See sections 3.4.1 and 15.1.4.3 (with pethidine)

TRIMEPRAZINE TARTRATE

(Alimemazine Tartrate)

Indications: pre-operative sedation, anti-emetic; other indications, see section 3.4.1

Cautions; Contra-indications; Side-effects: see notes above and section 3.4.1

Dose: by mouth, premedication, CHILD 2–7 years up to 2 mg/kg 1–2 hours before operation

Preparations

See section 3.4.1

15.1.4.2 NON-OPIOID ANALGESICS

Since non-steroidal anti-inflammatory drugs (NSAIDs) do not depress respiration, do not impair gastro-intestinal motility, and do not cause dependence, they may be useful alternatives (or adjuncts) to the use of opioids for the relief of postoperative pain. They may be inadequate for the relief of severe pain.

Diclofenac, ketoprofen (section 10.1.1), and **ketorolac** can be given by injection as well as by mouth. Intramuscular injections of diclofenac and ketoprofen are given deep into the gluteal muscle to minimise pain and tissue damage; diclofenac can also be given by intravenous infusion for the treatment or prevention of postoperative pain. Ketorolac is less irritant on intramuscular injection but pain has been reported; it can also be given by intravenous injection.

DICLOFENAC SODIUM

Indications: postoperative pain; other indications see section 10.1.1

Cautions; Contra-indications; Side-effects: see section 10.1.1

INTRAVENOUS USE. Additional contra-indications include concomitant NSAID or anticoagulant use (including low-dose heparin), history of haemorrhagic diathesis, history of confirmed or suspected cerebrovascular bleeding, operations with high risk of haemorrhage, history of asthma, moderate or severe renal impairment, hypovolaemia, dehydration

Dose: by deep intramuscular injection into the gluteal muscle, 75 mg once daily (twice daily in severe cases) for max. 2 days

By intravenous infusion (in hospital setting), 75 mg over 30–120 minutes repeated if necessary after 4–6 hours for max. 2 days

Prevention of postoperative pain, initially after surgery 25–50 mg over 15–60 minutes then 5 mg/hour for max. 2 days

By rectum, as suppositories, 75–150 mg daily in divided doses

Max. total daily dose by any route 150 mg

Preparations

See section 10.1.1

KETOROLAC TROMETAMOL

Indications: short-term management of moderate to severe acute postoperative pain

Cautions: reduce dose in elderly and in those weighing less than 50 kg; reduce dose and monitor in mild renal impairment (avoid if moderate or severe); heart failure, hepatic impairment and other conditions leading to reduction in blood volume or in renal blood flow (including those taking diuretics); cardiac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Changes to this edition see page viii
BRITISH NATIONAL FORMULARY
British Medical Association
Royal Pharmaceutical Society of Great Britain

Prescribing in palliative care

Palliative care is the active total care of patients whose disease is not responsive to curative treatment. Control of pain, of other symptoms, and of psychological, social and spiritual problems, is paramount to provide the best quality of life for patients and their families. Careful assessment of symptoms and needs of the patient should be undertaken by a multidisciplinary team.

Specialist palliative care is available in most areas as day hospice care, home care teams (often known as Macmillan teams), in-patient hospice care, and hospital teams. Many acute hospitals and teaching centres now have consultative, hospital-based teams.

Hospice care of terminally ill patients has shown the importance of symptom control and psychosocial support of the patient and family. Families should be included in the care of the patient if they wish.

Many patients wish to remain at home with their families. Although some families may at first be afraid of caring for the patient at home, support can be provided by community nursing services, social services, voluntary agencies and hospices together with the general practitioner. The family may be reassured by the knowledge that the patient will be admitted to a hospital or hospice if the family cannot cope.

DRUG TREATMENT. The number of drugs should be as few as possible, for even the taking of medicine may be an effort. Oral medication is usually satisfactory unless there is severe nansea and vomiting, dysphagia, weakness, or coma, in which case parenteral medication may be neeessary.

Pain

Analgesics are more effective if started at the earliest stage in the development of pain than if nsed for the relief of established pain.

The non-opioid analgesics **aspirin** or **paracetamol** given regularly will often make the use of opioids unnecessary. Aspirin (or other NSAIDs if preferred) may also control the pain of *bone secondaries*; naproxen, flurbiprofen, and indomethacin (section 10.1.1) are valuable and if necessary can be given rectally. Radiotherapy, radioactive isotopes of **strontium** (*Metastron*®) available from Amersham) and bisphosphonates (section 6.6.2) may also be useful for pain due to bone metastases.

An opioid such as **codeine** or **dextropropoxyphene**, alone or in combination with a non-opioid analgesic at adequate dosage, may be helpful in the control of moderate pain if non-opioids alone are not sufficient. If these preparations are not controlling the pain, **morphine** is the most useful opioid analgesic. Alternative strong analgesics are **hydromorphone** (section 4.7.2) and transdermal **fentanyl** (see below and section 4.7.2).

ORAL ROUTE. Morphine is given *by mouth* as an oral solution regularly every 4 hours, the initial dose depending largely on the patient's previous treatment. A dose of 5–10 mg is enough to replace a weaker analgesic (such as paracetamol or co-proxamol), but 10–20 mg or more is required to replace a strong one (comparable to morphine itself). If the first dose of morphine is no more effective than the previous analgesic it should be increased by 50%, the aim being to choose the lowest dose which prevents pain. Although a dose of 5–20 mg is usually adequate there should be no hesitation in increasing it stepwise according to response to 100 mg or occasionally up to 500 mg or higher if necessary. If pain occurs between doses the next dose due is increased; in the interim an additional dose is given. The dose should be adjusted with careful assessment of the pain and the use of other drugs (such as NSAIDs) should also be considered.

Modified-release preparations of morphine are an alternative to the oral solution. Depending on the formulation of the modified-release preparation, the total daily morphine requirement may be given in two equal doses or as a single dose.

Preparations suitable for twice daily administration include *MST Continus*® tablets or suspension, *Oramorph*® *SR* tablets, and *Zomorph*® capsules. Preparations that allow administration of the total daily morphine requirement as a single dose include *MXL*® capsules. *Morcap SR*® capsules may be given either twice daily or as a single daily dose.

The starting dose of modified-release preparations designed for twice daily administration is usually 10–20 mg every 12 hours if no other analgesic (or only paracetamol) has been taken previously, but to replace a weaker opioid analgesic (such as co-proxamol) the starting dose is usually 20–30 mg every 12 hours. Increments should be made to the dose, not to the frequency of administration, which should remain at every 12 hours.

The effective dose of modified-release preparations can alternatively be determined by giving the oral solution of morphine every 4 hours in increasing doses until the pain has been controlled, and then transferring the patient to the same total 24-hour dose of morphine given as the modified-release preparation (divided into two portions for 12-hourly administration). The first dose of the modified-release preparation is given 4 hours after the last dose of the oral solution.[1]

Morphine, as oral solution or standard formulation tablets, should be prescribed for breakthrough pain.

PARENTERAL ROUTE. If the patient becomes inable to swallow, the eqnivalent intramuscular dose of morphine is half the oral solution dose; in the case of the modified-release tablets it is half the total 24-hour dose (which is then divided into 6 portions to be given every 4 hours). **Diamorphine** is preferred for injection because being more soluble it can be given in a smaller volume. The equivalent intramuscular (or subcutaneous) dose of diamorphine is only about a quarter to a third of the oral dose of morphine; *subcutaneous infusion via syringe driver* can be useful (for details, see p. 13).

1. Studies have indicated that administration of the last dose of the *oral solution* with the first dose of the *modified-release tablets* is not necessary.

RECTAL ROUTE. Morphine is also available for *rectal administration* as suppositories; alternatively **oxycodone** suppositories can be obtained on special order.

TRANSDERMAL ROUTE. Transdermal preparations of fentanyl are available (section 4.7.2). Careful conversion from oral morphine to transdermal fentanyl is necessary; a 25 micrograms/hr patch is equivalent to a total dose of morphine up to 135 mg/24 hours

GASTRO-INTESTINAL PAIN. The pain of *bowel colic* may be reduced by loperamide 2–4 mg 4 times daily. Hyoscine hydrobromide may also be helpful, given sublingually at a dose of 300 micrograms 3 times daily as *Kwells*® (Roche Consumer Health) tablets. For the dose by subcutaneous infusion using a syringe driver, see p. 13.

Gastric distension pain due to pressure on the stomach may be helped by a preparation incorporating an antacid with an antiflatulent (section 1.1.1) and by domperidone 10 mg 3 times daily before meals.

MUSCLE SPASM. The pain of muscle spasm can be helped by a muscle relaxant such as diazepam 5–10 mg daily or baclofen 5–10 mg 3 times daily.

NEUROPATHIC PAIN. Neuropathic pain occurs when nerves are damaged; the pain may be described as burning, stabbing or stinging. Pain due to nerve compression may be reduced by a corticosteroid such as dexamethasone 8 mg daily, which reduces oedema around the tumour, thus reducing compression.

Tricyclic antidepressants can be useful; amitriptyline may be given initially at 10–25 mg daily at night and the dose increased gradually. If pain persists, an anticonvulsant such as *either* sodium valproate initially 200 mg twice daily increased to 1.6 g daily in divided doses *or* carbamazepine initially 200 mg at night increased to 400 mg twice daily, may be added or substituted.

Nerve blocks may be considered when pain is localised to a specific area. **Transcutaneous electrical nerve stimulation** (TENS) may also provide useful relief of pain.

Miscellaneous conditions

Non-licensed indications or routes

Several recommendations in this section involve non-licensed indications or routes.

RAISED INTRACRANIAL PRESSURE. Headache due to raised intracranial pressure often responds to a high dose of a corticosteroid, such as dexamethasone 16 mg daily for 4 to 5 days, subsequently reduced to 4–6 mg daily if possible; dexamethasone should be given before 6 p.m. to reduce the risk of insomnia.

INTRACTABLE COUGH. Intractable cough may be relieved by moist inhalations or may require regular administration of an oral morphine hydrochloride (or sulphate) solution in an initial dose of 5 mg every 4 hours. Methadone linctus should be avoided as it has a long duration of action and tends to accumulate.

DYSPNOEA. Dyspnoea may be relieved by regular oral morphine hydrochloride (or sulphate) solution in carefully titrated doses, starting at 5 mg every 4 hours. Diazepam 5–10 mg daily may be helpful; a corticosteroid, such as dexamethasone 4–8 mg daily, may also be helpful if there is bronchospasm or partial obstruction.

EXCESSIVE RESPIRATORY SECRETION. Excessive respiratory secretion (death rattle) may be reduced by subcutaneous injection of hyoscine hydrobromide 400–600 micrograms every 4 to 8 hours; care must however be taken to avoid the discomfort of dry mouth. For the dose by subcutaneous infusion using a syringe driver, see next page.

RESTLESSNESS AND CONFUSION. Restlessness and confusion may require treatment with haloperidol 1–3 mg by mouth every 8 hours. Chlorpromazine 25–50 mg by mouth every 8 hours is an alternative, but causes more sedation. Methotrimeprazine is also used occasionally for restlessness. For the dose by subcutaneous infusion using a syringe driver, see next page

HICCUP. Hiccup due to gastric distension may be helped by a preparation incorporating an antacid with an antiflatulent (section 1.1). If this fails, metoclopramide 10 mg every 6 to 8 hours by mouth or by intramuscular injection can be added; if this also fails, chlorpromazine 10–25 mg every 6 to 8 hours can be tried.

ANOREXIA. Anorexia may be helped by prednisolone 15–30 mg daily or dexamethasone 2–4 mg daily.

CONSTIPATION. Constipation is a very common cause of distress and is almost invariable after administration of an opioid. It should be prevented if possible by the regular administration of laxatives; a faecal softener with a peristaltic stimulant (e.g. co-danthramer), or lactulose solution with a senna preparation should be used (section 1.6.2 and section 1.6.3).

FUNGATING GROWTH. Fungating growth may be treated by cleansing with a mixture of 1 part of 4% povidone–iodine skin cleanser solution and 4 parts of liquid paraffin. Oral administration of metronidazole (section 5.1.11) may eradicate the anaerobic bacteria responsible for the odour of fungating tumours; topical application (section 13.10.1.2) is also used.

CAPILLARY BLEEDING. Capillary bleeding may be reduced by applying gauze soaked in adrenaline solution 1 mg/mL (1 in 1000).

DRY MOUTH. Dry mouth may be relieved by good mouth care and measures such as the sucking of ice or pineapple chunks or the use of artificial saliva (section 12.3.5); dry mouth associated with candidiasis can be treated by oral preparations of nystatin or miconazole (section 12.3.2); alternatively, fluconazole can be given by mouth (section 5.2). Dry

mouth may be caused by certain medication including opioids, antimuscarinic drugs (e.g. hyoscine), antidepressants and some anti-emetics; if possible, an alternative preparation should be considered.

PRURITUS. Pruritus, even when associated with obstructive jaundice, often responds to simple measures snch as emollients. In the case of obstructive jaundice, further measures include administration of cholestyramine or an anabolic steroid, such as stanozolol 5–10 mg daily; antihistamines can be helpful (section 3.4.1).

CONVULSIONS. Patients with cerebral tumours or uraemia may be susceptible to convulsions. Prophylactic treatment with phenytoin or carbamazepine (section 4.8.1) should be considered. When oral medication is no longer possible, diazepam as suppositories 10–20 mg every 4 to 8 hours, or phenobarbitone by injection 50–200 mg twice daily is continued as prophylaxis. For the use of midazolam by subcutaneous infusion using a syringe driver, see below.

DYSPHAGIA. A corticosteroid such as dexamethasone 8 mg daily may help, temporarily, if there is an obstruction due to tumour. See also under Dry Mouth.

NAUSEA AND VOMITING. Nausea and vomiting are very common in patients with advanced cancer. The cause should be diagnosed before treatment with anti-emetics (section 4.6) is started. Octreotide (section 8.3.4.3), which stimulates water and electrolyte absorption and inhibits water secretion in the small bowel, can be used by subcutaneous infusion, in a dose of 300–600 micrograms/24 hours to reduce intestinal secretions and vomiting.

Nausea and vomiting may also occur in the initial stages of morphine therapy but can be prevented by giving an anti-emetic such as haloperidol 1.5 mg daily (or twice daily if nausea continues) or metoclopramide 10 mg 3 times daily (section 4.6). An anti-emetic is usually only necessary for the first 4 or 5 days therefore fixed-combination opioid preparations containing an anti-emetic are not recommended since they lead to unnecessary anti-emetic therapy (often with undesirable drowsiness). For the administration of anti-emetics by subcutaneous infusion using a syringe driver, see below.

For the treatment of nausea and vomiting associated with cancer chemotherapy, see section 8.1.

INSOMNIA. Patients with advanced cancer may not sleep because of discomfort, cramps, night sweats, joint stiffness, or fear. There should be appropriate treatment of these problems before hypnotics are used. Benzodiazepines, such as temazepam, may be useful (section 4.1.1).

HYPERCALCAEMIA. See section 9.5.1.2.

Syringe drivers

Although drugs can usually be administered *by mouth* to control the symptoms of advanced cancer, the parenteral route may sometimes be necessary. If the parenteral route is necessary, repeated administration of *intramuscular injections* can be difficult in a cachectic patient. This has led to the use of a portable syringe driver to give a *continuous subcutaneous infusion*, which can provide good control of symptoms with little discomfort or inconvenience to the patient.

Indications for the **parenteral route** are:

- the patient is unable to take medicines by mouth owing to *nausea and vomiting, dysphagia, severe weakness,* or *coma;*
- there is *malignant bowel obstruction* in patients for whom further surgery is inappropriate (avoiding the need for an intravenous infusion or for insertion of a nasogastric tube);
- occasionally when the patient *does not wish* to take regular medication by mouth.

NAUSEA AND VOMITING. **Haloperidol** is given in a *subcutaneous infusion* dose of 2.5–10 mg/24 hours.

Methotrimeprazine causes sedation in about 50% of patients; it is given in a *subcutaneous infusion dose* of 25–200 mg/24 hours, although lower doses of 5–25 mg/24 hours may be effective with less sedation.

Cyclizine is particularly liable to precipitate if mixed with diamorphine or other drugs (see under Mixing and Compatibility, below); it is given in a *subcutaneous infusion dose* of 150 mg/24 hours.

Metoclopramide may cause skin reactions; it is given in a *subcutaneous infusion dose* of 30–60 mg/24 hours.

BOWEL COLIC AND EXCESSIVE RESPIRATORY SECRETIONS. **Hyoscine hydrobromide** effectively reduces respiratory secretions and is sedative (but occasionally causes paradoxical agitation); it is given in a *subcutaneous infusion dose* of 0.6–2.4 mg/24 hours.

Hyoscine butylbromide is effective in bowel colic, is less sedative than hyosciue hydrobromide, but is not always adequate for the control of respiratory secretions; it is given in a *subcutaneous infusion dose* of 20–60 mg/24 hours (**important:** this dose of *hyoscine butylbromide* must not be confused with the much lower dose of *hyoscine hydrobromide*, above).

RESTLESSNESS AND CONFUSION. **Haloperidol** has little sedative effect; it is given in a *subcutaneous infusion dose* of 5–30 mg/24 hours.

Methotrimeprazine has a sedative effect; it is given in a *subcutaneous infusion dose* of 50–200 mg/24 hours.

Midazolam is a sedative and an antiepileptic, and is therefore suitable for a very restless patient; it is given in a *subcutaneous infusion dose* of 20–100 mg/24 hours.

CONVULSIONS. If a patient has previously been receiving an antiepileptic *or* has a primary or secondary cerebral tumour *or* is at risk of convulsion (e.g. owing to uraemia) antiepileptic medication should not be stopped. **Midazolam** is the benzodiazepine antiepileptic of choice for *continuous subcutaneous infusion*, and is given in a dose of 20–40 mg/24 hours.

Syringe driver rate settings. Staff using syringe drivers should be **adequately trained** and different rate settings should be **clearly identified** and **differentiated**; incorrect use of syringe drivers is a common cause of drug errors.

PAIN CONTROL. **Diamorphine** is the preferred opioid since its high solubility permits a large dose to be given in a small volume (see under Mixing and Compatibility, below). The table below gives the approximate doses of *morphine by mouth* (as oral solution or standard tablets or as modified-release tablets) equivalent to *diamorphine by injection* (intramuscularly or by subcutaneous infusion).

MIXING AND COMPATIBILITY. The general principle that injections should be given into separate sites (and should not be mixed) does not apply to the use of syringe drivers in palliative care. Provided that there is evidence of compatibility, selected injections can be mixed in syringe drivers. Not all types of medication can be used in a subcutaneous infusion. In particular, **chlorpromazine, prochlorperazine** and **diazepam** are **contra-indicated** as they cause skin reactions at the injection site; to a lesser extent **cyclizine** and **methotrimeprazine** may also sometimes cause local irritation.

In theory injections dissolved in **water for injections** are more likely to be associated with pain (possibly owing to their hypotonicity). The use of **physiological saline** (sodium chloride 0.9%) however increases the likelihood of precipitation when more than one drug is used; moreover subcutaneous infusion rates are so slow (0.1–0.3 mL/hour) that pain is not usually a problem when water is used as a diluent.

Diamorphine can be given by subcutaneous infusion in a strength of up to 250 mg/mL; up to a strength of 40 mg/mL either *water for injections* or *physiological saline* (sodium chloride 0.9%) is a suitable diluent—above that strength only *water for injections* is used (to avoid precipitation).

The following can be mixed with *diamorphine:*

Cyclizine[1]	Hyoscine hydrobromide
Dexamethasone[2]	Methotrimeprazine
Haloperidol[3]	Metoclopramide[4]
Hyoscine butylbromide	Midazolam

Subcutaneous infusion solution should be monitored regularly both to check for precipitation (and discoloration) and to ensure that the infusion is running at the correct rate.

PROBLEMS ENCOUNTERED WITH SYRINGE DRIVERS. The following are problems that may be encountered with syringe drivers and the action that should be taken:

if the subcutaneous infusion runs *too quickly* check the rate setting and the calculation;

if the subcutaneous infusion runs *too slowly* check the start button, the battery, the syringe driver, the cannula, and make sure that the injection site is not inflamed;

if there is an *injection site reaction* make sure that the site does not need to be changed—firmness or swelling at the site of injection is not in itself an indication for change, but pain or obvious inflammation is.

1. Cyclizine may precipitate at concentrations above 10 mg/mL *or* in the presence of physiological saline *or* as the concentration of diamorphine relative to cyclizine increases; mixtures of diamorphine and cyclizine are also liable to precipitate after 24 hours.
2. Special care is needed to avoid precipitation of dexamethasone when preparing.
3. Mixtures of haloperidol and diamorphine are liable to precipitate after 24 hours if haloperidol concentration is above 2 mg/mL.
4. Under some conditions metoclopramide may become discoloured; such solutions should be discarded.

Equivalent doses of morphine sulphate by mouth (as oral solution or standard tablets *or* as modified-release tablets) *or* of diamorphine hydrochloride by intramuscular injection *or by* subcutaneous infusion
These eqnivalences are approximate only and may need to be adjusted according to response

ORAL MORPHINE		PARENTERAL DIAMORPHINE	
Morphine sulphate oral solution or standard tablets	Morphine sulphate modified-release tablets	Diamorphine hydrochloride by intramuscular injection	Diamorphine hydrochloride by subcutaneous infusion
every 4 hours	**every 12 hours**	**every 4 hours**	**every 24 hours**
5 mg	20 mg	2.5 mg	15 mg
10 mg	30 mg	5 mg	20 mg
15 mg	50 mg	5 mg	30 mg
20 mg	60 mg	7.5 mg	45 mg
30 mg	90 mg	10 mg	60 mg
40 mg	120 mg	15 mg	90 mg
60 mg	180 mg	20 mg	120 mg
80 mg	240 mg	30 mg	180 mg
100 mg	300 mg	40 mg	240 mg
130 mg	400 mg	50 mg	300 mg
160 mg	500 mg	60 mg	360 mg
200 mg	600 mg	70 mg	400 mg

If breakthrough pain occurs give a subcutaneous (preferable) or intramuscular injection of diamorphine equivalent to one-sixth of the total 24-hour subcutaneous infusion dose. It is kinder to give an intermittent bolus injection *subcutaneously*—absorption is smoother so that the risk of adverse effects at peak absorption is avoided (an even better method is to use a subcutaneous butterfly needle).

To minimise the risk of infection no individual subcutaneous infusion solution should be used for longer than 24 hours.

Prescribing for the elderly

Old people, especially the very old, require special care and consideration from prescribers.

POLYPHARMACY. Elderly patients often receive multiple drugs for their multiple diseases. This greatly increases the risk of drug interactions as well as other adverse reactions. Moreover, symptoms such as headache, sleeplessness, and lightheadedness which may be associated with social stress, as in widowhood, loneliness, and family dispersal can lead to further prescribing, especially of psychotropics. The use of drugs in such cases can at best be a poor substitute for effective social measures and at worst pose a serious threat from adverse reactions.

FORM OF MEDICINE. Elderly patients may have difficulty swallowing tablets; if left in the mouth, ulceration may develop. They should always be encouraged to take their tablets or capsules with enough fluid, and in some cases it may be advisable to prescribe the drug as a liquid if available.

MANIFESTATIONS OF AGEING. In very old subjects, manifestations of normal ageing may be mistaken for disease and lead to inappropriate prescribing. For example, drugs such as prochlorperazine are commonly misprescribed for giddiness due to age-related loss of postural stability. Not only is such treatment ineffective but the patient may experience serious side-effects such as parkinsonism, postural hypotension, and confusion.

SELF-MEDICATION. Self-medication with over-the-counter products or with drugs prescribed for a previous illness (or even for another person) may be an added complication. Discussion with relatives and a home visit may be needed to establish exactly what is being taken.

SUSCEPTIBILITY. The ageing nervous system shows increased *susceptibility* to many commonly used drugs, such as opioid analgesics, benzodiazepines, and antiparkinsonian drugs, all of which must be used with caution.

Pharmacokinetics

While drug distribution and metabolism may be significantly altered, the most important effect of age is reduction in renal clearance, frequently aggravated by the effects of prostatism or chronic urinary tract infection. Many aged patients thus possess only *limited reserves of renal function, excrete drugs slowly*, and are *highly susceptible to nephrotoxic drugs*. Acute illness may lead to rapid reduction in renal clearance, especially if accompanied by dehydration. Hence, a patient stabilised on a drug with a narrow margin between the therapeutic and the toxic dose (e.g. digoxin) may rapidly develop adverse effects in the aftermath of a myocardial infarction or a respiratory tract infection.

The net result of pharmacokinetic changes is that the tissue concentration of a drug is commonly increased by over 50%, and aged and debilitated patients may show even larger changes.

Adverse reactions

Adverse reactions often present in the elderly in a vague and non-specific fashion. *Mental confusion* is often the presenting symptom (caused by almost any of the commonly used drugs). Other common manifestations are *constipation* (with antimuscarinics and many tranquillisers) and postural *hypotension* and *falls* (with diuretics and many psychotropics).

HYPNOTICS. Many hypnotics with long half-lives have serious hangover effects of drowsiness, unsteady gait, and even slurred speech and confusion. Those with short half-lives should be used but they too can present problems (section 4.1.1). Short courses of hypnotics are occasionally useful for helping a patient through an acute illness or some other crisis but every effort must be made to avoid dependence.

DIURETICS. Diuretics are overprescribed in old age and should not be used on a long-term basis to treat simple gravitational oedema which will usually respond to increased movement, raising the legs, and support stockings. A few days of diuretic treatment may speed the clearing of the oedema but it should rarely need continued drug therapy.

NSAIDs. Bleeding associated with *aspirin* and *other NSAIDs* is more common in the elderly who are more likely to have a fatal or serious outcome. NSAIDs are also a special hazard in patients with cardiac disease or renal impairment which may again place the elderly at particular risk.

Owing to the *increased susceptibilty of the elderly* to the *side-effects of NSAIDs* the following recommendations are made:

- for *osteoarthritis, soft-tissue lesions and back pain* first try measures such as weight reduction, warmth, exercise and use of a walking stick;
- for *osteoarthritis, soft tissue lesions, back pain and rheumatoid arthritis* avoid giving an NSAID unless *paracetamol* (alone or with a *low dose* of an opioid analgesic as in co-codamol 8/500 or co-dydramol 10/500) has failed to relieve the pain adequately;
- where a paracetamol preparation has failed to relieve the pain adequately *add a very low dose of an NSAID* to the paracetamol preparation (starting with ibuprofen). For advice on prophylaxis of NSAID-induced peptic ulcers (where continued treatment with NSAIDs is necessary), see section 1.3.
- if an NSAID is considered necessary monitor the patient for gastro-intestinal bleeding for 4 weeks (and for a similar time on switching to another NSAID). For the management of NSAID-associated peptic ulcers, see section 1.3.
- do not give two NSAIDs at the same time.

OTHER DRUGS. Other drugs which commonly cause adverse reactions are *antiparkinsonian drugs, antihypertensives, psychotropics*, and *digoxin*; the usual maintenance dose of digoxin in very old patients is 125 micrograms daily (62.5 micrograms is often inadequate, and toxicity is common in those given 250 micrograms).

Drug-induced blood disorders are much more common in the elderly. Therefore drugs with a tendency to cause bone marrow depression (e.g. *co-trimoxazole, mianserin*) should be avoided unless there is no acceptable alternative.

The elderly generally require a lower maintenance dose of *warfarin* than younger adults; once again, the outcome of bleeding tends to be more serious.

Guidelines

First always question whether a drug is indicated at all.

LIMIT RANGE. It is a sensible policy to prescribe from a limited range of drugs and to be thoroughly familiar with their effects in the elderly.

REDUCE DOSE. Dosage should generally be substantially lower than for younger patients and it is common to start with about 50% of the adult dose. Some drugs (e.g. chlorpropamide) should be avoided altogether.

REVIEW REGULARLY. Review repeat prescriptions regularly. It may be possible to stop the drug (e.g. digoxin can often be withdrawn) or it may be necessary to reduce the dose to match diminishing renal function.

SIMPLIFY REGIMENS. Elderly patients cannot normally cope with more than three different drugs and, ideally, these should not be given more than twice daily. In particular, regimens which call for a confusing array of dosage intervals should be avoided.

EXPLAIN CLEARLY. Write full instructions on every prescription (*including* repeat prescriptions) so that containers can be properly labelled with full directions. Avoid imprecisions like 'as directed'. Child-resistant containers may be unsuitable.

REPEATS AND DISPOSAL. Instruct patients what to do when drugs run out, and also how to dispose of any that are no longer necessary. Try to prescribe matching quantities.

If these guidelines are followed most elderly people will cope adequately with their own medicines. If not then it is essential to enrol the help of a third party, usually a relative or a friend.

Acupan® (3M) PoM
Tablets, f/c, nefopam hydrochloride 30 mg. Net price 90-tab pack = £11.44. Label: 2, 14
Injection, nefopam hydrochloride 20 mg/mL. Net price 1-mL amp = 73p

4.7.2 Opioid analgesics

Opioid analgesics are used to relieve moderate to severe pain particularly of visceral origin. Repeated administration may cause dependence and tolerance, but this is no deterrent in the control of pain in terminal illness, for guidelines see Prescribing in Palliative Care, p. 11.

SIDE-EFFECTS. Opioid analgesics share many side-effects though qualitative and quantitative differences exist. The most common include nausea, vomiting, constipation, and drowsiness. Larger doses produce respiratory depression and hypotension. **Overdosage**, see Emergency Treatment of Poisoning, p. 22.

INTERACTIONS. See Appendix 1 (opioid analgesics) (**important**: special hazard with *pethidine and possibly other opioids* and MAOIs).

DRIVING. Drowsiness may affect performance of skilled tasks (e.g. driving); effects of alcohol enhanced.

CHOICE. **Morphine** remains the most valuable opioid analgesic for severe pain although it frequently causes nausea and vomiting. It is the standard against which other opioid analgesics are compared. In addition to relief of pain, morphine also confers a state of euphoria and mental detachment.

Morphine is the opioid of choice for the oral treatment of *severe pain in palliative care*. It is given regularly every 4 hours (or every 12 or 24 hours as modified-release preparations). For guidelines on dosage adjustment in palliative care, see p. 11.

Buprenorphine has both opioid agonist and antagonist properties and may precipitate withdrawal symptoms, including pain, in patients dependent on other opioids. It has abnse potential and may itself cause dependence. It has a much longer duration of action than morphine and sublingually is an effective analgesic for 6 to 8 hours. Vomiting may be a problem. Unlike most opioid analgesics its effects are only partially reversed by naloxone.

Codeine is effective for the relief of mild to moderate pain but is too constipating for long-term use.

Dextromoramide is less sedating than morphine and has a short duration of action.

Diphenoxylate (in combination with atropine, as co-phenotrope) is used in acute diarrhoea (see section 1.4.2).

Dipipanone nsed alone is less sedating than morphine but the only preparatiou available contains an anti-emetic and is therefore not suitable for regular regimens in palliative care (see p. 13).

Dextropropoxyphene given alone is a very mild analgesic somewhat less potent than codeine. Combinations of dextropropoxyphene with paracetamol (co-proxamol) or aspirin have little more analgesic effect than paracetamol or aspirin alone. An imp tant disadvantage of co-proxamol is that overd age (which may be combined with alcohol) complicated by respiratory depression and ac heart failure due to the dextropropoxyphene and hepatotoxicity due to the paracetamol. Rapid trea ment is essential (see Emergency Treatment of Poisoning, p. 22).

Diamorphine (heroin) is a powerful opioid an gesic. It may cause less nausea and hypotensi than morphine. In *palliative care* the greater sol bility of diamorphine allows effective doses to injected in smaller volumes and this is important the emaciated patient.

Dihydrocodeine has an analgesic efficacy sim to that of codeine. The dose of dihydrocodeine mouth is usually 30 mg every 4 hours; doubling dose to 60 mg may provide some additional pa relief but this may be at the cost of more nausea vomiting. A 40-mg tablet is now also available.

Alfentanil, **fentanyl** and **remifentanil** are us by injection for intra-operative analgesia (sectio 15.1.4.3); fentanyl has been introduced recently in transdermal drug delivery system as a self-adhesi patch which is changed every 72 hours.

Meptazinol is claimed to have a low incidence respiratory depression. It has a reported length action of 2 to 7 hours with onset within 15 minut but there is an incidence of nausea and vomiting.

Methadone is less sedating than morphine acts for longer periods. In prolonged use, meth done should not be administered more often th twice daily to avoid the risk of accumulation opioid overdosage. Methadone may be used inste of morphine in the occasional patient who expe ences excitation (or exacerbation of pain) with mo phine.

Nalbnphine has a similar efficacy to that of mo phine for pain relief, but may have fewer sid effects and less abuse potential. Nausea and vom ting occur less than with other opioids but resp atory depression is similar to that with morphine.

Oxycodone is used as the pectinate in suppos ries (special order from BCM Specials) for the co trol of *pain in palliative care*.

Papaveretum is used peri-operatively, sectio 15.1.4.3.

Pentazocine has both agonist and antago properties and precipitates withdrawal sympto including pain in patients dependent on other op ids. By injection it is more potent than dihydro eine or codeine, but hallucinations and thou disturbances may occur. It is not recommended in particular, should be avoided after myoca iufarction as it may increase pulmonary and a blood pressure as well as cardiac work.

Pethidine produces prompt but short-la analgesia; it is less constipating than morphine even in high doses is a less potent analgesic. It not suitable for severe continuing pain. It is used analgesia in labour, and in the neonate is asso with less respiratory depression than other analgesics (probably because its action is wea

Phenazocine is effective in severe pain and less tendency to increase biliary pressure than opioid analgesics. It can be administered su gually if nausea and vomiting are a problem.

Tramadol has been introduced recently claimed to produce analgesia by two mech

an opioid effect and an enhancem gic and adrenergic pathways. It i fewer of the typical opioid sid less respiratory depression, less less addiction potential); psychia been reported.

ADDICTS. Although caution is (and ex-addicts) may be treated the same way as other people w clinical need. Doctors are remind require a special licence to pres gesics for addicts for relief of p disease or injury.

MORPHINE SALTS

Indications: see notes above; oedema; peri-operative ar 15.1.4.3)

Cautions: hypotension, hypot (avoid during attack) and dec reserve, prostatic hypertroph breast-feeding; may precipitat impairment (reduce dose or av patients tolerate morphine we avoid in renal impairment (see elderly and debilitated (reduce disorders, dependence (severe toms if withdrawn abruptly); pressants containing opioi generally recommended in chil avoided altogether in those un **interactions:** Appendix 1 (opi

PALLIATIVE CARE. In the control o ness these cautions should not nec to the use of opioid analgesics

Contra-indications: avoid in depression, acute alcoholism paralytic ileus; not indicated i also avoid in raised intracrani injury (in addition to interferi affect pupillary responses vit assessment); avoid injection cytoma (risk of pressor res release)

Side-effects: nausea and vomi initial stages), constipation, larger doses produce respirat hypotension; other side-effect with micturition, ureteric or mouth, sweating, headache vertigo, bradycardia, tachyc postural hypotension, hypo tions, dysphoria, mood cha miosis, decreased libido or p caria and pruritus; **overdosa** Treatment of Poisoning, p. [illegible] opioid-induced respiratory de 15.1.7.

Dose: acute pain, *by subcuta* suitable for oedematous patie *cular injection*, 10 mg every [illegible] (15 mg for heavier well-musc up to 1 month 150 microgra 200 micrograms/kg, 1–5 ye years 5–10 mg
Postoperative pain, see sectio

an opioid effect and an enhancement of serotoninergic and adrenergic pathways. It is reported to have fewer of the typical opioid side-effects (notably, less respiratory depression, less constipation and less addiction potential); psychiatric reactions have been reported.

ADDICTS. Although caution is necessary addicts (and ex-addicts) may be treated with analgesics in the same way as other people when there is a real clinical need. Doctors are reminded that they do not require a special licence to prescribe opioid analgesics for addicts for relief of pain due to organic disease or injury.

MORPHINE SALTS

Indications: see notes above; acute pulmonary oedema; peri-operative analgesia (section 15.1.4.3)

Cautions: hypotension, hypothyroidism, asthma (avoid during attack) and decreased respiratory reserve, prostatic hypertrophy; pregnancy and breast-feeding; may precipitate coma in hepatic impairment (reduce dose or avoid but many such patients tolerate morphine well); reduce dose or avoid in renal impairment (see also Appendix 3), elderly and debilitated (reduce dose); convulsive disorders, dependence (severe withdrawal symptoms if withdrawn abruptly); use of cough suppressants containing opioid analgesics not generally recommended in children and should be avoided altogether in those under at least 1 year; **interactions:** Appendix 1 (opioid analgesics)

PALLIATIVE CARE. In the control of pain in terminal illness these cautions should not necessarily be a deterrent to the use of opioid analgesics

Contra-indications: avoid in acute respiratory depression, acute alcoholism and where risk of paralytic ileus; not indicated for acute abdomen; also avoid in raised intracranial pressure or head injury (in addition to interfering with respiration, affect pupillary responses vital for neurological assessment); avoid injection in phaeochromocytoma (risk of pressor response to histamine release)

Side-effects: nausea and vomiting (particularly in initial stages), constipation, and drowsiness; larger doses produce respiratory depression and hypotension; other side-effects include difficulty with micturition, ureteric or biliary spasm, dry mouth, sweating, headache, facial flushing, vertigo, bradycardia, tachycardia, palpitations, postural hypotension, hypothermia, hallucinations, dysphoria, mood changes, dependence, miosis, decreased libido or potency, rashes, urticaria and pruritus; **overdosage:** see Emergency Treatment of Poisoning, p. 22; for reversal of opioid-induced respiratory depression, see section 15.1.7.

Dose: acute pain, *by subcutaneous injection* (not suitable for oedematous patients) *or by intramuscular injection*, 10 mg every 4 hours if necessary (15 mg for heavier well-muscled patients); CHILD up to 1 month 150 micrograms/kg, 1–12 months 200 micrograms/kg, 1–5 years 2.5–5 mg, 6–12 years 5–10 mg

Postoperative pain, see section 15.1.4.3

By slow intravenous injection, quarter to half corresponding intramuscular dose

Patient controlled analgesia (PCA), consult hospital protocols

Myocardial infarction, *by slow intravenous injection* (2 mg/minute), 10 mg followed by a further 5–10 mg if necessary; elderly or frail patients, reduce dose by half

Acute pulmonary oedema, *by slow intravenous injection* (2 mg/minute) 5–10 mg

Chronic pain, *by mouth or by subcutaneous injection* (not suitable for oedematous patients) *or by intramuscular injection*, 5–20 mg regularly every 4 hours; dose may be increased according to needs; oral dose should be approximately double corresponding intramuscular dose and triple to quadruple corresponding intramuscular *diamorphine* dose (see also Prescribing in Palliative Care, p. 11); *by rectum*, as suppositories, 15–30 mg regularly every 4 hours

Note. The doses stated above refer equally to morphine hydrochloride, sulphate, and tartrate; see below for doses of **modified-release** preparations.

■ Oral solutions

Note. For advice on transfer from oral solutions of morphine to modified-release preparations of morphine, see Prescribing in Palliative Care, p. 11

Morphine Oral Solutions PoM or CD

Oral solutions of morphine can be prescribed by writing the formula:

Morphine hydrochloride 5 mg
Chloroform water to 5 mL

Note. The proportion of morphine hydrochloride may be altered when specified by the prescriber; if above 13 mg per 5 mL the solution becomes **CD**. For sample prescription see Controlled Drugs and Drug Dependence, p. 6. It is usual to adjust the strength so that the dose volume is 5 or 10 mL.

Oramorph® (Boehringer Ingelheim)

Oramorph® oral solution PoM, morphine sulphate 10 mg/5 mL. Net price 100-mL pack = £2.31; 250-mL pack = £5.36; 500-mL pack = £9.70. Label: 2

Oramorph® Unit Dose Vials 10 mg PoM (oral vials), sugar-free, morphine sulphate 10 mg/5-mL vial, net price 25 vials = £3.31. Label: 2

Oramorph® Unit Dose Vials 30 mg CD (oral vials), sugar-free, morphine sulphate 30 mg/5-mL vial, net price 25 vials = £9.30. Label: 2

Oramorph® concentrated oral solution CD, sugar-free, morphine sulphate 100 mg/5 mL. Net price 30-mL pack = £6.47; 120-mL pack = £24.15 (both with calibrated dropper). Label: 2

Oramorph® Unit Dose Vials 100 mg CD (oral vials), sugar-free, morphine sulphate 100 mg/5-mL vial, net price 25 vials = £31.00. Label: 2

■ Tablets

Sevredol® (Napp) CD

Tablets, f/c, scored, morphine sulphate 10 mg (blue), net price 56-tab pack = £6.31; 20 mg (pink), 56-tab pack = £12.62; 50 mg (pale green), 56-tab pack = £31.55. Label: 2

Dose: severe pain uncontrolled by weaker opioid, 10–50 mg every 4 hours (dose adjusted according to need and tolerance); CHILD 3–5 years, 5 mg; 6–12 years, 5–10 mg

■ Modified release

Morcap® SR (Sanofi Winthrop) CD

Capsules, m/r, clear enclosing ivory and brown pellets, morphine sulphate 20 mg, net price 30-cap pack = £5.71, 60-cap pack = £11.42; 50 mg, 30-cap pack = £13.84, 60-cap pack = £27.68; 100 mg, 30-cap pack = £27.68, 60-cap pack = £55.37. Label: 2, counselling, see below

Dose: adjusted according to daily morphine requirements, for further advice on determining dose, see Prescribing in Palliative Care, p. 11; dosage requirements may need to be reviewed if the brand is altered

COUNSELLING. Swallow whole or open capsule and sprinkle contents on soft food

Note. Prescription must also specify 'capsules' (i.e. 'Morcap SR capsules')

MST Continus® (Napp) CD

Tablets, m/r, f/c, morphine sulphate 5 mg (white), net price 60-tab pack = £4.50; 10 mg (brown), 60-tab pack = £7.51; 15 mg (green), 60-tab pack = £13.16; 30 mg (purple), 60-tab pack = £18.03; 60 mg (orange), 60-tab pack = £35.16; 100 mg (grey), 60-tab pack = £55.67; 200 mg (green), 60-tab pack = £111.35. Label: 2, 25

Suspension (= sachet of granules to mix with water), m/r, pink, morphine sulphate 20 mg/sachet, net price 30-sachet pack = £28.60; 30 mg/sachet, 30-sachet pack = £29.72; 60 mg/sachet, 30-sachet pack = £59.44; 100 mg/sachet, 30-sachet pack = £99.07; 200 mg/sachet pack, 30-sachet pack = £198.14. Label: 2, 13

Dose: adjusted according to daily morphine requirements, for further advice on determining dose, see Prescribing in Palliative Care, p. 11; dosage requirements may need to be reviewed if the brand is altered

Note. Prescriptions must also specify 'tablets' or 'suspension' (i.e. 'MST Continus tablets' or 'MST Continus suspension').

MXL® (Napp) CD

Capsules, m/r, morphine sulphate 30 mg (light blue), net price 28-cap pack = £12.28; 60 mg (brown), 28-cap pack = £16.83; 90 mg (pink), 28-cap pack = £24.82; 120 mg (green), 28-cap pack = £32.82; 150 mg (blue), 28-cap pack = £41.02; 200 mg (red-brown), 28-cap pack = £51.96. Label: 2, counselling, see below

Dose: adjusted according to daily morphine requirements, for further advice on determining dose, see Prescribing in Palliative Care, p. 11; dosage requirements may need to be reviewed if the brand is altered

COUNSELLING. Swallow whole or open capsule and sprinkle contents on soft food

Note. Prescriptions must also specify 'capsules' (i.e. 'MXL capsules')

Oramorph® SR (Boehringer Ingelheim) CD

Tablets, m/r, f/c, morphine sulphate 10 mg (buff), net price 60-tab pack = £5.75; 30 mg (violet), 60-tab pack = £13.80; 60 mg (orange), 60-tab pack = £26.89; 100 mg (grey), 60-tab pack = £42.59. Label: 2, 25

Dose: adjusted according to daily morphine requirements, for further advice on determining dose, see Prescribing in Palliative Care, p. 11; dosage requirements may need to be reviewed if the brand is altered

Note. Prescriptions must also specify 'tablets' (i.e. 'Oramorph SR tablets')

Zomorph® (Link) CD

Capsules, m/r, morphine sulphate 10 mg (yellow/clear enclosing pale yellow pellets), net price 60-cap pack = £4.51; 30 mg (pink/clear enclosing pale yellow pellets), 60-cap pack = £10.82; 60 mg (orange/clear enclosing pale yellow pellets), 60-cap pack = £21.10; 100 mg (white/clear enclosing pale yellow pellets), 60-cap pack = £33.40; 200 mg (clear enclosing pale yellow pellets), 60-cap pack = £66.80. Label: 2, counselling, see below

Dose: adjusted according to daily morphine requirements, for further advice on determining doses, see Prescribing in Palliative Care, p. 11; dosage requirements may need to be reviewed if the brand is altered

COUNSELLING. Swallow whole or open capsule and sprinkle contents on soft food

Note. Prescriptions must also specify 'capsules' (i.e. 'Zomorph capsules')

■ Injections

Morphine Sulphate (Non-proprietary) CD

Injection, morphine sulphate 10, 15, 20, and 30 mg/mL, net price 1- and 2-mL amp (all) = £1.96p

Intravenous infusion, morphine sulphate 1 mg/mL, net price 50-mL vial = £4.75; 2 mg/mL, 50-mL vial = £4.85

Available from Aurum, Faulding DBL

Min-I-Jet® Morphine Sulphate (IMS) CD

Injection, morphine sulphate 10 mg/mL, net price 2-mL disposable syringe = £10.85

Morphine and Atropine Injection CD
Section 15.1.4.3

Morphine Sulphate Rapiject® (IMS) CD

Injection, morphine sulphate 1 mg/mL, net price 50-mL disposable syringe = £9.50; 2 mg/mL, 5 mL disposable syringe = £10.50

■ Injection with anti-emetic

CAUTION. In myocardial infarction cyclizine may aggravate severe heart failure and counteract the haemodynamic benefits of opioids, see section 4.6. Not recommended in palliative care, see p. 13

Cyclimorph® (GlaxoWellcome) CD

Cyclimorph-10® Injection, morphine tartrate 10 mg, cyclizine tartrate 50 mg/mL. Net price 1-mL amp = £1.28

Dose: by subcutaneous, intramuscular, or intravenous injection, 1 mL, repeated not more often than every 4 hours, with not more than 3 doses in any 24-hour period

CHILD 1–5 years 0.25–0.5 mL as a single dose, 6–12 years 0.5–1 mL as a single dose

Cyclimorph-15® Injection, morphine tartrate 15 mg, cyclizine tartrate 50 mg/mL. Net price 1-mL amp = £1.33

Dose: by subcutaneous, intramuscular, or intravenous injection, 1 mL, repeated not more often than every 4 hours, with not more than 3 doses in any 24-hour period

■ Suppositories

Morphine (Non-proprietary) CD

Suppositories, morphine hydrochloride or sulphate 10 mg, net price 12 = £6.12; 15 mg, 12 = £7.45; 20 mg, 12 = £7.45; 30 mg, 12 = £8.50. Label:

Available from Aurum, Martindale, Medeva

Note. Both the strength of the suppositories and the morphine salt contained in them must be specified by the prescriber

BUPRENORPHINE

Indications: moderate to severe pain, perioperative analgesia (section 15.1.4.3)

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above

give rise to mild withdrawal dependent on opioids; ef reversed by naloxone; **inter** (opioid analgesics)

Dose: *by sublingual administ* 400 micrograms every 8 hou essary to 200–400 microgra CHILD over 6 months, 16–25 25–37.5 kg, 100–200 micro 200–300 micrograms

By intramuscular or slow in 300–600 micrograms every over 6 months 3–6 microg hours (max. 9 micrograms/kg

Temgesic® (R&C) CD

Tablets (sublingual), buprenorp chloride), 200 micrograms, ne = £6.00; 400 micrograms, 50- Label: 2, 26

Injection, buprenorphine 300 m hydrochloride)/mL. Net price

CODEINE PHOSPHATE

Indications: mild to moderate p

Cautions; Contra-indicatio see under Morphine Salts and cough suppressants containing opioid analgesics not generall children and should be avo those under 1 year; **interact** (opioid analgesics)

Dose: *by mouth*, 30–60 mg ev necessary, to a max. of 240 mg years, 3 mg/kg daily in divided

By intramuscular injection, 30–6 when necessary

Codeine Phosphate (Non-proj

Tablets PoM, codeine phosphat 20 = 35p; 30 mg, 20 = 39p; 60 r Label: 2

Note. As for schedule 2 control needing to take codeine phosphate may require a doctor's letter expl necessary

Syrup PoM, codeine phosphate price 100 mL = 87p. Label: 2

Injection CD, codeine phosphat price 1-mL amp = £1.76

Codeine Linctuses
Section 3.9.1

Note. Codeine is an ingredient of som OTC preparations, section 4.7.1 and sect *Covonus®*)

DEXTROMORAMIDE

Indications: severe pain

Cautions; Contra-indication see under Morphine Salts and r short duration of action (2–3 obstetric analgesia (increased depression); interactions: Ap analgesics)

Dose: *by mouth*, 5 mg increasing required

By rectum in suppositories, 10 mg

give rise to mild withdrawal symptoms in patients dependent on opioids; effects only partially reversed by naloxone; **interactions:** Appendix 1 (opioid analgesics)

Dose: *by sublingual administration*, initially 200–400 micrograms every 8 hours, increasing if necessary to 200–400 micrograms every 6–8 hours; CHILD over 6 months, 16–25 kg, 100 micrograms; 25–37.5 kg, 100–200 micrograms; 37.5–50 kg, 200–300 micrograms

By intramuscular or slow intravenous injection, 300–600 micrograms every 6–8 hours; CHILD over 6 months 3–6 micrograms/kg every 6–8 hours (max. 9 micrograms/kg)

Temgesic® (R&C) CD

Tablets (sublingual), buprenorphine (as hydrochloride), 200 micrograms, net price 50-tab pack = £6.00; 400 micrograms, 50-tab pack = £12.00. Label: 2, 26

Injection, buprenorphine 300 micrograms (as hydrochloride)/mL. Net price 1-mL amp = 55p

CODEINE PHOSPHATE

Indications: mild to moderate pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; use of cough suppressants containing codeine or similar opioid analgesics not generally recommended in children and should be avoided altogether in those under 1 year; **interactions:** Appendix 1 (opioid analgesics)

Dose: *by mouth*, 30–60 mg every 4 hours when necessary, to a max. of 240 mg daily; CHILD 1–12 years, 3 mg/kg daily in divided doses

By intramuscular injection, 30–60 mg every 4 hours when necessary

Codeine Phosphate (Non-proprietary)

Tablets PoM, codeine phosphate 15 mg, net price 20 = 35p; 30 mg, 20 = 39p; 60 mg, 20 = 97p. Label: 2

Note. As for schedule 2 controlled drugs, travellers needing to take codeine phosphate preparations abroad may require a doctor's letter explaining why they are necessary

Syrup PoM, codeine phosphate 25 mg/5 mL. Net price 100 mL = 87p. Label: 2

Injection CD, codeine phosphate 60 mg/mL. Net price 1-mL amp = £1.76

Codeine Linctuses

Section 3.9.1

Note. Codeine is an ingredient of some compound analgesic preparations, section 4.7.1 and section 10.1.1 (*Codafen Continus®*)

DEXTROMORAMIDE

Indications: severe pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; only short duration of action (2–3 hours); avoid in obstetric analgesia (increased risk of neonatal depression); **interactions:** Appendix 1 (opioid analgesics)

Dose: *by mouth*, 5 mg increasing to 20 mg, when required

By rectum in suppositories, 10 mg when required

Palfium® (Boehringer Mannheim) CD

Tablets, both scored, dextromoramide (as tartrate) 5 mg, net price 60-tab pack = £4.66; 10 mg (peach), 60-tab pack = £9.21. Label: 2

Suppositories, dextromoramide 10 mg (as tartrate). Net price 10 = £2.29. Label: 2

DEXTROPROPOXYPHENE HYDROCHLORIDE

Indications: mild to moderate pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; occasional hepatotoxicity; porphyria (see section 9.8.2); compound preparations special hazard in overdose, see notes above; convulsions reported in overdose; contra-indicated in those who are suicidal or addiction prone; **interactions:** Appendix 1 (opioid analgesics)

Dose: 65 mg every 6–8 hours when necessary; CHILD not recommended

Note. 65 mg dextropropoxyphene hydrochloride ≡ 100 mg dextropropoxyphene napsylate

Dextropropoxyphene (Non-proprietary) PoM

Capsules, the equivalent of dextropropoxyphene hydrochloride 65 mg (as napsylate). Net price 20 = £1.64. Label: 2

Available from Lilly (DPHS Doloxene®)

Note. Dextropropoxyphene is an ingredient of some compound analgesic preparations, section 4.7.1

DIAMORPHINE HYDROCHLORIDE

(Heroin Hydrochloride)

Indications: see notes above; acute pulmonary oedema

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

Dose: acute pain, *by subcutaneous or intramuscular injection*, 5 mg repeated every 4 hours if necessary (up to 10 mg for heavier well-muscled patients)

By slow intravenous injection, quarter to half corresponding intramuscular dose

Myocardial infarction, *by slow intravenous injection* (1 mg/minute), 5 mg followed by a further 2.5–5 mg if necessary; elderly or frail patients, reduce dose by half

Acute pulmonary oedema, *by slow intravenous injection* (1 mg/minute) 2.5–5 mg

Chronic pain, *by mouth or by subcutaneous or intramuscular injection*, 5–10 mg regularly every 4 hours; dose may be increased according to needs; intramuscular dose should be approximately half corresponding oral dose, and quarter to third corresponding oral *morphine* dose—see also Palliative Care, p. 14; *by subcutaneous infusion* (using syringe driver), see Palliative Care, p. 14

Diamorphine (Non-proprietary) CD

Tablets, diamorphine hydrochloride 10 mg. Net price 100-tab pack = £12.30. Label: 2

Available from Aurum

Injection, powder for reconstitution, diamorphine hydrochloride. Net price 5-mg amp = £1.16, 10-mg amp = £1.34, 30-mg amp = £1.60, 100-mg amp = £4.42, 500-mg amp = £20.68

Available from Berk (Diagesil®), CP, Hillcross, Medeva

Diamorphine Linctus CD
See section 3.9.1

DIHYDROCODEINE TARTRATE

Indications: moderate to severe pain
Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above
Dose: *by mouth*, 30 mg every 4–6 hours when necessary (see also notes above); CHILD over 4 years 0.5–1 mg/kg every 4–6 hours
By deep subcutaneous or intramuscular injection, up to 50 mg repeated every 4–6 hours if necessary; CHILD over 4 years 0.5–1 mg/kg every 4–6 hours

Dihydrocodeine (Non-proprietary)
Tablets PoM, dihydrocodeine tartrate 30 mg. Net price 20 = 56p. Label: 2, 21
Available from most generic manufacturers
Oral solution PoM, dihydrocodeine tartrate 10 mg/5 mL. Net price 150 mL = £2.40. Label: 2, 21
Available from Napp
Injection CD, dihydrocodeine tartrate 50 mg/mL. Net price 1-mL amp = £1.49
Available from Aurum

DF 118 Forte® (Napp) PoM
Tablets, dihydrocodeine tartrate 40 mg. Net price 100-tab pack = £12.05. Label: 2, 21
Dose: severe pain, 40–80 mg 3 times daily; max. 240 mg daily; CHILD not recommended

■ Modified release

DHC Continus® (Napp) PoM
Tablets, m/r, dihydrocodeine tartrate 60 mg, net price 56-tab pack = £6.58; 90 mg, 56-tab pack = £10.36; 120 mg, 56-tab pack = £13.83. Label: 2, 25
Dose: chronic severe pain, 60–120 mg every 12 hours; CHILD not recommended

Note. Dihydrocodeine is an ingredient of some compound analgesic preparations, see section 4.7.1

DIPIPANONE HYDROCHLORIDE

Indications: moderate to severe pain
Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

Diconal® (GlaxoWellcome) CD
Tablets, pink, scored, dipipanone hydrochloride 10 mg, cyclizine hydrochloride 30 mg. Net price 50-tab pack = £7.59. Label: 2
Dose: 1 tablet gradually increased to 3 tablets every 6 hours; CHILD not recommended
CAUTION. **Not recommended** in palliative care, see p. 13

FENTANYL

Indications: chronic intractable pain due to cancer, see below; other indications (section 15.1.4.3)
Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; local reactions such as rash, erythema and itching reported; **interactions:** Appendix 1 (opioid analgesics)
FEVER OR EXTERNAL HEAT. Monitor patients for increased side-effects if fever present (increased absorption possible); avoid exposing application site to external heat (may also increase absorption)
Administration: see under preparation, below
LONG DURATION OF ACTION. In view of the long duration of action, patients who have experienced severe side-effects should be monitored for up to 24 hours after patch removal

Durogesic® (Janssen-Cilag) ▼ CD
Patches, self-adhesive, transparent, fentanyl '75' patch (releasing approx. 25 micrograms/hour for 72 hours), net price 5 = £28.97; '50' patch (releasing approx. 50 micrograms/hour for 72 hours), 5 = £54.11; '75' patch (releasing approx. 75 micrograms/hour for 72 hours), 5 = £75.43; '100' patch (releasing approx. 100 micrograms/hour for 72 hours), 5 = £92.97. Label: 2
ADMINISTRATION: apply to dry, non-irritated, non-irritated, non-hairy skin on torso or upper arm, removing after 72 hours and siting replacement patch on a different area (avoid using the same area for several days). Patients who have not previously received a strong opioid analgesic, initial dose, one '25 micrograms/hour' patch replaced after 72 hours; patients who have received a strong opioid analgesic, initial dose based on previous 24-hour opioid requirement (oral morphine sulphate 90 mg over 24 hours ≈ one '25 micrograms/hour' patch, see data sheet for details); CHILD not recommended
Note. When starting initial evaluation of the analgesic effect should **not** be made before the system has been worn for **24 hours** (to allow for the gradual increase in plasma-fentanyl concentration)—previous analgesic therapy should be phased out gradually from time of first patch application; dose adjustment should normally be carried out in 72-hour steps of '25 micrograms/hour'. More than one patch may be used at a time for doses greater than '100 micrograms/hour' (but applied at same time to avoid confusion)—consider additional or alternative analgesic therapy if dose required exceeds 300 micrograms/hour (**important:** it may take 17 hours or longer for the plasma-fentanyl concentration to decrease by 50%, therefore replacement opioid therapy should be initiated at a low dose, increasing gradually)

Sublimaze® CD
Section 15.1.4.3

HYDROMORPHONE HYDROCHLORIDE

Indications: severe pain in cancer
Cautions: see Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)
Contra-indications: see Morphine Salts and notes above
Side-effects: see Morphine Salts and notes above
Dose: see under preparations below

Palladone® (Napp) ▼ CD
Capsules, hydromorphone hydrochloride 1.3 mg (orange/clear), net price 56-cap pack = £8.67; 2.6 mg (red/clear), 56-cap pack = £17.34. Label: 2, counselling, see below
Dose: 1.3 mg every 4 hours, increased if necessary according to severity of pain; CHILD under 12 years not recommended
COUNSELLING. Swallow whole or open capsule and sprinkle contents on soft food

Palladone® SR (Napp) ▼ CD
Capsules, m/r, hydromorphone hydrochl
2 mg (yellow/clear), net price 56-cap pa
£18.42; 4 mg (pale blue/clear), 56-cap p
£25.24; 8 mg (pink/clear), 56-cap pack
16 mg (brown/clear), 56-cap pack = £9
24 mg (dark blue/clear), 56-cap pack =
Label: 2, counselling, see below
Dose: 4 mg every 12 hours, increased if nec
according to severity of pain; CHILD under
recommended
COUNSELLING. Swallow whole or open
sprinkle contents on soft food

MEPTAZINOL

Indications: moderate to severe pain
postoperative and obstetric pain and
peri-operative analgesia, see section 1
Cautions; Contra-indications; Si
see under Morphine Salts and notes ab
only partially reversed by naloxone
Dose: *by mouth*, 200 mg every 3–
required; CHILD not recommended
By intramuscular injection, 75–100 m
hours if necessary; obstetric anal
150 mg according to patient's weigh
CHILD not recommended
By slow intravenous injection, 50–100
4 hours if necessary; CHILD not recor

Meptid® (Monmouth) PoM
Tablets, orange, f/c, meptazinol 200 m
20 = £4.39. Label: 2
Injection, meptazinol 100 mg (as hyd
mL. Net price 1-mL amp = £1.92

METHADONE HYDROCHLO

Indications: severe pain, see notes a
in treatment of opioid dependence,
Cautions; Contra-indications;
see under Morphine Salts and notes
actions: Appendix 1 (opioid analge
Dose: *by mouth or by subcutaneous*
lar injection, 5–10 mg every 6–8 h
according to response; CHILD not re

Methadone (Non-proprietary) CD
Tablets, scored, methadone hydroch
Net price 50 = £3.11. Label: 2
Available from GlaxoWellcome (*Physep*
Injection, methadone hydrochloride
net price 1-mL amp = 86p, 2-mL a
3.5-mL amp = £1.78, 5-mL amp =
Available from CP, Martindale, GlaxoW
(*Physeptone®*)
Linctus, section 3.9.1
Mixture 1 mg/mL, section 4.10

NALBUPHINE HYDROCHL

Indications: moderate to severe p
tive analgesia, see section 15.1.4.
Cautions; Contra-indications;
see under Morphine Salts and no
actions: Appendix 1 (opioid anal
Dose: *by subcutaneous, intramus*
venous injection, 10–20 mg fo
every 3–6 hours, adjusted as rec

Palladone® SR (Napp) ▼ CD

Capsules, m/r, hydromorphone hydrochloride 2 mg (yellow/clear), net price 56-cap pack = £18.42; 4 mg (pale blue/clear), 56-cap pack = £25.24; 8 mg (pink/clear), 56-cap pack = £49.22; 16 mg (brown/clear), 56-cap pack = £93.52; 24 mg (dark blue/clear), 56-cap pack = £140.30. Label: 2, counselling, see below

Dose: 4 mg every 12 hours, increased if necessary according to severity of pain; CHILD under 12 years not recommended

COUNSELLING. Swallow whole or open capsule and sprinkle contents on soft food

MEPTAZINOL

Indications: moderate to severe pain, including postoperative and obstetric pain and renal colic; peri-operative analgesia, see section 15.1.4.3

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; effects only partially reversed by naloxone

Dose: *by mouth*, 200 mg every 3–6 hours as required; CHILD not recommended

By intramuscular injection, 75–100 mg every 2–4 hours if necessary; obstetric analgesia, 100–150 mg according to patient's weight (2 mg/kg); CHILD not recommended

By slow intravenous injection, 50–100 mg every 2–4 hours if necessary; CHILD not recommended

Meptid® (Monmouth) PoM

Tablets, orange, f/c, meptazinol 200 mg. Net price 20 = £4.39. Label: 2

Injection, meptazinol 100 mg (as hydrochloride)/mL. Net price 1-mL amp = £1.92

METHADONE HYDROCHLORIDE

Indications: severe pain, see notes above; adjunct in treatment of opioid dependence, section 4.10

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

Dose: *by mouth or by subcutaneous or intramuscular injection*, 5–10 mg every 6–8 hours, adjusted according to response; CHILD not recommended

Methadone (Non-proprietary) CD

Tablets, scored, methadone hydrochloride 5 mg. Net price 50 = £3.11. Label: 2

Available from GlaxoWellcome (*Physeptone®*)

Injection, methadone hydrochloride, 10 mg/mL, net price 1-mL amp = 86p, 2-mL amp = £1.55, 3.5-mL amp = £1.78, 5-mL amp = £1.92

Available from CP, Martindale, GlaxoWellcome (*Physeptone®*)

Linctus, section 3.9.1

Mixture 1 mg/mL, section 4.10

NALBUPHINE HYDROCHLORIDE

Indications: moderate to severe pain; peri-operative analgesia, see section 15.1.4.3

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

Dose: *by subcutaneous, intramuscular, or intravenous injection*, 10–20 mg for 70 kg patient every 3–6 hours, adjusted as required; CHILD up to 300 micrograms/kg repeated once or twice as necessary

Myocardial infarction, *by slow intravenous injection*, 10–20 mg repeated after 30 minutes if necessary

Preparations

Section 15.1.4.3

PENTAZOCINE

Indications: moderate to severe pain, but see notes above

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; occasional hallucinations; avoid in patients dependent on opioids and in arterial or pulmonary hypertension and heart failure; porphyria (see section 9.8.2); **interactions:** Appendix 1 (opioid analgesics)

Dose: *by mouth*, pentazocine hydrochloride 50 mg every 3–4 hours preferably after food (range 25–100 mg); CHILD 6–12 years 25 mg

By subcutaneous, intramuscular, or intravenous injection, moderate pain, pentazocine 30 mg, severe pain 45–60 mg every 3–4 hours when necessary; CHILD over 1 year, *by subcutaneous or intramuscular injection*, up to 1 mg/kg, *by intravenous injection* up to 500 micrograms/kg

By rectum in suppositories, pentazocine 50 mg up to 4 times daily; CHILD not recommended

Pentazocine (Non-proprietary) CD

Capsules, pentazocine hydrochloride 50 mg. Net price 20 = £3.68. Label: 2, 21

Tablets, pentazocine hydrochloride 25 mg. Net price 20 = £1.58. Label: 2, 21

Injection, pentazocine 30 mg (as lactate)/mL. Net price 1-mL amp = £1.45; 2-mL amp = £2.80

Suppositories, pentazocine 50 mg (as lactate). Net price 20 = £17.33. Label: 2

Note. The brand name *Fortral®* NHS (Sanofi Winthrop) is used for all the above preparations of pentazocine

PETHIDINE HYDROCHLORIDE

Indications: moderate to severe pain, obstetric analgesia; peri-operative analgesia (section 15.1.4.3)

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; avoid in severe renal impairment; not suitable for severe continuing pain; convulsions reported in **overdosage; interactions:** Appendix 1 (opioid analgesics)

Dose: *by mouth*, 50–150 mg every 4 hours; CHILD 0.5–2 mg/kg

By subcutaneous or intramuscular injection, 25–100 mg, repeated after 4 hours; CHILD, *by intramuscular injection*, 0.5–2 mg/kg

By slow intravenous injection, 25–50 mg, repeated after 4 hours

Obstetric analgesia, *by subcutaneous or intramuscular injection*, 50–100 mg, repeated 1–3 hours later if necessary; max. 400 mg in 24 hours

Postoperative pain, see section 15.1.4.3

Pethidine (Non-proprietary) CD

Tablets, pethidine hydrochloride 50 mg, net price 20 = £1.91. Label: 2

Available from Roche

Injection, pethidine hydrochloride 50 mg/mL. Net price 1-mL amp = 39p; 2-mL amp = 42p. 10 mg/mL see section 15.1.4.3

Various strengths available from Martindale

Pamergan P100® (Martindale) CD

Injection, pethidine hydrochloride 50 mg, promethazine hydrochloride 25 mg/mL. Net price 2-mL amp = 69p

Dose: by intramuscular injection, for obstetric analgesia, 1–2 mL every 4 hours if necessary; severe pain, 1–2 mL every 4–6 hours if necessary; premedication, see section 15.1.4.3

Note. Although usually given intramuscularly, may be given intravenously after dilution to at least 10 mL with water for injections

PHENAZOCINE HYDROBROMIDE

Indications: severe pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

Dose: *by mouth or sublingually*, 5 mg every 4–6 hours when necessary; single doses may be increased to 20 mg; CHILD not recommended

Narphen® (Napp) CD

Tablets, phenazocine hydrobromide 5 mg. Net price 100-tab pack = £28.51. Label: 2

TRAMADOL HYDROCHLORIDE

Indications: moderate to severe pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; in addition to hypotension, hypertension also occasionally reported; anaphylaxis, hallucinations and confusion also reported; caution if history of epilepsy (convulsions reported, usually after rapid intravenous injection); avoid in pregnancy and breast-feeding; not suitable as substitute in opioid-dependent patients; **interactions:** Appendix 1 (opioid analgesics)

GENERAL ANAESTHESIA. Not recommended for analgesia during potentially very light planes of general anaesthesia (possibly increased operative recall reported)

Dose: *by mouth*, 50–100 mg not more often than every 4 hours; total of more than 400 mg daily by mouth not usually required; CHILD not recommended

By intramuscular injection or by intravenous injection (over 2–3 minutes) *or by intravenous infusion*, 50–100 mg every 4–6 hours

Postoperative pain, 100 mg initially then 50 mg every 10–20 minutes if necessary during first hour to total max. 250 mg (including initial dose) in first hour, *then* 50–100 mg every 4–6 hours; max. 600 mg daily; CHILD not recommended

Tramadol Hydrochloride (Non-proprietary) ▼ PoM

Capsules, tramadol hydrochloride 50 mg. Net price 100-cap pack = £15.20. Label: 2

Available from Cox, Ethical Generics Ltd, Galen (*Tramake®*), Norton

Tramake Insts® (Galen) ▼ PoM

Sachets, effervescent powder, sugar-free, lemon-flavoured, tramadol hydrochloride 50 mg (contains 9.7 mmol Na^+/sachet), net price 60-sachet pack = £8.95; 100 mg (contains 14.6 mmol Na^+/sachet), 60-sachet pack = £17.90. Label: 2, 13

Excipients: include aspartame (section 9.4.1)

Zamadol® (ASTA Medica) ▼ PoM

Capsules, tramadol hydrochloride 50 mg. Net price 100-cap pack = £15.20. Label: 2

Zydol® (Searle) ▼ PoM

Capsules, green/yellow, tramadol hydrochloride 50 mg. Net price 100-cap pack = £17.71. Label: 2

Soluble tablets, tramadol hydrochloride 50 mg, net price 20-tab pack = £3.19, 100-tab pack = £15.95. Label: 2, 13

Injection, tramadol hydrochloride 50 mg/mL. Net price 2-mL amp = £1.30

■ Modified release

Zamadol® SR (ASTA Medica) ▼ PoM

Capsules, m/r, tramadol hydrochloride 50 mg (green), net price 60-cap pack = £8.60; 100 mg, net price 60-cap pack = £17.20; 150 mg (dark green), 60-cap pack = £25.80; 200 mg (yellow), 60-cap pack = £34.40. Label: 2

Dose: 50–100 mg twice daily increased if necessary to 150–200 mg twice daily; total of more than 400 mg daily not usually required; CHILD under 12 years not recommended

COUNSELLING. Swallow whole or open capsule and swallow contents immediately without chewing

Zydol SR® (Searle) ▼ PoM

Tablets, m/r, f/c, tramadol hydrochloride 100 mg, net price 60-tab pack = £19.12; 150 mg (beige), 60-tab pack = £28.68; 200 mg (orange), 60-tab pack = £38.24. Label: 2, 25

Dose: 100 mg twice daily increased if necessary to 150–200 mg twice daily; total of more than 400 mg daily by mouth not usually required; CHILD not recommended

4.7.3 Trigeminal neuralgia

Carbamazepine (section 4.8.1), taken during the acute stages of trigeminal neuralgia, reduces the frequency and severity of attacks. It has no effect on other forms of headache. A dose of 100 mg once or twice a day should be given initially and the dose slowly increased until the best response is obtained; most patients require 200 mg 3–4 times daily but a few may require an increased total daily dosage of up to 1.6 g. Plasma-carbamazepine concentration should be monitored when high doses are given. Occasionally extreme dizziness is encountered which is a further reason for starting treatment with a small dose and increasing it slowly.

Some cases of trigeminal neuralgia respond to **phenytoin** (section 4.8.1) given alone or in conjunction with carbamazepine. A combination of phenytoin and carbamazepine is only required in refractory cases or in those unable to tolerate high doses of carbamazepine.

Although **tricyclic antidepressants** are not indicated for true trigeminal neuralgia they are more effective than carbamazepine in *post-herpetic neuralgia* and may also be useful in *oral and facial pain*, particularly if it is associated with depression.

4.7.4 Ant

4.7.4.1 Treatn

4.7.4.2 Proph

4.7.4.1 Treat migr

Acute attacks of mi gesics or a specific $5HT_1$ agonist or er also be given if naus

Analgesics

Most migraine hea such as **aspirin** or p since peristalsis is c attacks the medicatic absorbed to be effect preparations should t

The NSAID **tolfen** cally for the treatmen

$5HT_1$ agonists

Sumatriptan is a 5H ble value in the treatm be used during the esti attack and should be ment in those who fa analgesics. Sumatripta headache.

Naratriptan and **zo** duced recently; both absorption than sumatr

CAUTIONS. $5HT_1$ ag caution in conditions w artery disease (pre-ex Contra-indications belo Appendix 2); pregnanc agonists are recomme should not be taken co migraine therapies.

CONTRA-INDICATIOI not be used for prophyla in ischaemic heart diseas arction; coronary vas metal's angina); uncontr

SIDE-EFFECTS. Side-eff include sensations of ting sure, or tightness of any throat and chest—disco due to coronary vasocon see also CSM advice unc dizziness, feeling of wea vomiting also reported.

Ergotamine

The value of **ergotamine** in absorption and by its

Atropine (Non-proprietary) PoM
Injection, atropine sulphate 600 micrograms/mL. Net price 1-mL amp = 32p
Note. Other strengths also available
Injection, prefilled disposable syringe, atropine sulphate 100 micrograms/mL, net price 5 mL = £3.78, 10 mL = £4.24, 30 mL = £7.75
Available from IMS (*Min-I-Jet®*)
Injection, prefilled disposable syringe, atropine sulphate 200 micrograms/mL, net price 5 mL = £4.24; 300 micrograms/mL, 10 mL = £4.32
Available from Aurum
Morphine and Atropine Injection CD see under Morphine Salts (section 15.1.4.3)

GLYCOPYRRONIUM BROMIDE

Indications; Cautions; Side-effects: see under Atropine Sulphate
Dose: premedication, *by intramuscular or intravenous injection*, 200–400 micrograms, *or* 4–5 micrograms/kg to a max. of 400 micrograms; CHILD, *by intramuscular or intravenous injection*, 4–8 micrograms/kg to a max. of 200 micrograms
Intra-operative use, *by intravenous injection*, as for premedication, repeated if necessary
Control of muscarinic side-effects of neostigmine in reversal of competitive neuromuscular block, *by intravenous injection*, 10–15 micrograms/kg with neostigmine 50 micrograms/kg; CHILD, 10 micrograms/kg with neostigmine 50 micrograms/kg

...binul® (Anpharm) PoM
...jection, glycopyrronium bromide 200 micrograms/mL. Net price 1-mL amp = 63p; 5-mL amp = £1.06
Available as a generic from Antigen
...binul-Neostigmine® PoM see under Neostigmine Methylsulphate (section 15.1.6)

...OSCINE HYDROBROMIDE

...polamine Hydrobromide)
...cations: drying secretions, amnesia; other ...dications, see section 4.6
...tions; Side-effects: see under Atropine Sulphate; may slow heart; avoid in the elderly (see ...es above); porphyria (see section 9.8.2)
...e: ...cation, *by subcutaneous or intramuscular injection*, 200–600 micrograms 30–60 minutes before induction of anaesthesia, usually with papaveretum

...cine (Non-proprietary) PoM
...tion, hyoscine hydrobromide 200 micrograms/mL, net price 1-mL amp = 47; 600 micrograms/mL, 1-mL amp = £2.73
...eretum and Hyoscine Injection CD see ...r Papaveretum (section 15.1.4.3)

15.1 Sedative and analgesic peri-operative drugs

15.1.1 Anxiolytics and neuroleptics
15.1.2 Non-opioid analgesics
15.1.3 Opioid analgesics

...rugs are given to allay the apprehension of ...nt in the pre-operative period (including ...t before operation), to relieve pain and discomfort when present, and to augment the action of subsequent anaesthetic agents. A number of the drugs used also provide some degree of pre-operative amnesia. The choice will vary with the individual patient, the nature of the operative procedure, the anaesthetic to be used and other prevailing circumstances such as outpatients, obstetrics, recovery facilities etc. The choice would also vary in elective and emergency operations.

PREMEDICATION IN CHILDREN. Oral administration is preferred to injections where possible but is not altogether satisfactory; the rectal route should only be used in exceptional circumstances. Oral trimeprazine is still used but when given alone it may cause postoperative restlessness when pain is present.

Atropine or hyoscine is often given orally to children, but may be given intravenously immediately before induction.

ANAESTHESIA AND DRIVING. See section 15.1.

15.1.4.1 Anxiolytics and neuroleptics

Anxiolytic benzodiazepines are widely used whereas neuroleptics (e.g. chlorpromazine) are now rarely used.

Benzodiazepines

Oral premedication with benzodiazepines is increasing in popularity, a short-acting oral benzodiazepine now being the most common premedicant.

Benzodiazepines are also of particular value for the production of light sedation during unpleasant procedures or during operations under local anaesthesia (including dentistry). The resultant amnesia is such that the patient is unlikely to have any unpleasant memories of the procedure (however, benzodiazepines, particularly when used for deep sedation, can sometimes induce sexual fantasies).

Benzodiazepines are also of particular value for sedation of patients in intensive care units, particularly those having assisted ventilation. Since they have no analgesic action they are often given in conjunction with opioid analgesics.

Benzodiazepines may on occasion cause marked respiratory depression and facilities for treatment of this are essential.

Diazepam is used to produce light sedation with amnesia. The 'sleep' dose shows too great an individual variation to recommend it for induction of anaesthesia. It is a long-acting drug with active metabolites, and a second period of drowsiness can occur 4–6 hours after its administration. Peri-operative use of diazepam in children is not generally recommended; its effect and timing of response are unreliable and paradoxical effects may occur.

Diazepam is relatively insoluble in water and preparations formulated in organic solvents are painful on intravenous injection and followed by a high incidence of venous thrombosis (which may not be noticed until a week after the injection); they are also painful on intramuscular injection, and absorption from the injection site is erratic. An emulsion preparation for intravenous injection is less irritant and is followed by a negligible incidence of venous thrombosis; it is not suitable for intramuscular injection. Diazepam is also available as a rectal solution.

Temazepam is given by mouth and has a shorter action and a relatively more rapid onset than diazepam by mouth. Used as a premedicant, anxiolytic and sedative effects are produced which continue for one and a half hours, but there may be residual drowsiness. It has proved useful as a premedicant in inpatient and day-case surgery.

Lorazepam produces more prolonged sedation than temazepam. In addition amnesia is commonplace. It is used as a premedicant the night before major surgery. A further, smaller, dose may be required the following morning if any delay in starting surgery is anticipated. Alternatively the first dose may be given in the early morning of the day of operation.

Midazolam is a water-soluble benzodiazepine which is often used in preference to intravenous diazepam. Recovery is faster than with diazepam. The incidence of side-effects is low but the CSM has received reports of respiratory depression (sometimes associated with severe hypotension) following intravenous administration. It is also associated with some major interactions (see below).

DIAZEPAM

Indications: premedication; sedation with amnesia, and in conjunction with local anaesthesia; other indications, see sections 4.1.2, 4.8.2, 10.2.2
Cautions; Contra-indications; Side-effects: see notes above and sections 4.1.2, 4.8.2
Dose: *by mouth*, 5 mg on night before minor or dental surgery then 5 mg 2 hours before procedure
By intravenous injection, into a large vein 10–20 mg over 2–4 minutes as sedative cover for minor surgical and medical procedures; premedication 100–200 micrograms/kg
By rectum in solution, 10 mg; ELDERLY 5 mg; CHILD not recommended (see notes above)
Note. Diazepam rectal solution doses in the BNF may differ from those in the product literature

Preparations
Section 4.1.2

LORAZEPAM

Indications: sedation with amnesia; as premedication; other indications, see sections 4.1.2, 4.8.2
Cautions; Contra-indications; Side-effects: see under Diazepam
Dose: *by mouth*, 2–3 mg the night before operation; 2–4 mg 1–2 hours before operation
By slow intravenous injection, preferably diluted with an equal volume of sodium chloride intravenous infusion 0.9% or water for injections, 50 micrograms/kg 30–45 minutes before operation
By intramuscular injection, diluted as above, 50 micrograms/kg 1–1½ hours before operation

Preparations
Section 4.1.2

MIDAZOLAM

Indications: sedation with amnesia, and in conjunction with local anaesthesia; premedication, induction

Cautions; Contra-indications; Side-effects: see under Diazepam; see notes above for CSM warning; **important:** profound sedation with erythromycin and possibly other drugs, see **interactions:** Appendix 1 (anxiolytics and hypnotics)

Dose: sedation, *by intravenous injection* over 30 seconds, 2 mg (elderly 1–1.5 mg) followed after 2 minutes by increments of 0.5–1 mg if sedation not adequate; usual range 2.5–7.5 mg (about 70 micrograms/kg), elderly 1–2 mg

Premedication, *by intramuscular injection*, 70–100 micrograms/kg 30–60 minutes before surgery; usual dose 5 mg (2.5 mg in elderly)

Induction, *by slow intravenous injection*, 200–300 micrograms/kg (elderly 100–200 micrograms/kg); CHILD over 7 years, 150 micrograms/kg

Sedation of patients receiving intensive care, *by intravenous infusion*, initially 30–300 micrograms/kg given over 5 minutes, then 30–200 micrograms/kg/hour; reduce dose (or omit initial dose) in hypovolaemia, vasoconstriction, or hypothermia; low doses may be adequate if opioid analgesic also used; avoid abrupt withdrawal after prolonged administration (safety after more than 14 days not established)

Midazolam (Non-proprietary) PoM

Injection, midazolam (as hydrochloride) 1 mg/mL, net price 50-mL vial = £6.00

Available from Aurum

Hypnovel® (Roche) PoM

Injection, midazolam (as hydrochloride) 2 mg/mL, net price 5-mL amp = £1.01; 5 mg/mL, 2-mL amp = 85p

TEMAZEPAM

Indications: premedication before minor surgery; anxiety before investigatory procedures; hypnotic, (section 4.1.1)

Cautions; Contra-indications; Side-effects: see under Diazepam

Dose: *by mouth*, premedication, 20–40 mg (elderly, 10–20 mg) 1 hour before operation; CHILD 1 mg/kg (max. 30 mg)

Preparations

Section 4.1.1

Chlormethiazole

Chlormethiazole (clomethiazole) is licensed for use as an intravenous infusion to maintain sleep during surgery carried out under regional anaesthesia, but is no longer in current use for this purpose.

CHLORMETHIAZOLE

(Clomethiazole)

Indications: sedative during regional anaesthesia (but see also notes above); other indications (section 4.1.1, section 4.8.2, and section 4.10)

Cautions; Contra-indications; Side-effects: see section 4.1.1

Dose: *by intravenous infusion*, as a 0.8% solution of chlormethiazole edisylate, induction 25 mL (200 mg)/minute for 1–2 minutes; maintenance 1–4 mL (8–32 mg)/minute

IMPORTANT. See special cautions for intravenous infusion, section 4.1.1

Preparations

See section 4.1.1

denotes preparations that are considered to be less suitable for prescribing (see p. vi)

Phenothiazines and related drugs

Neuroleptics such as **chlorpromazine** and **droperidol** (section 4.2.1) are rarely used in the UK for premedication; although chlorpromazine is licensed to prevent shivering in induction of hypothermia, it is no longer in current use for this purpose. **Trimeprazine** is used as a premedicant for children.

PROMETHAZINE HYDROCHLORIDE

Indications: pre-operative sedative and antimuscarinic; anti-emetic (section 4.6); other indications (section 3.4.1 and section 3.4.3)

Cautions; Contra-indications; Side-effects: see section 4.6

Dose: premedication, *by mouth*, CHILD under 2 years not recommended, 2–5 years 15–20 mg, 5–10 years 20–25 mg

By deep intramuscular injection, 25–50 mg 1 hour before operation; CHILD 5–10 years, 6.25–12.5 mg

Preparations

Section 3.4.1 and section 15.1.4.3 (with pethidine)

TRIMEPRAZINE TARTRATE

(Alimemazine Tartrate)

Indications: pre-operative sedation, anti-emetic; other indications (section 3.4.1)

Cautions; Contra-indications; Side-effects: see notes above and section 3.4.1

Dose: *by mouth*, premedication, CHILD 2–7 years up to 2 mg/kg 1–2 hours before operation

Preparations

Section 3.4.1

15.1.4.2 Non-opioid analgesics

Since non-steroidal anti-inflammatory drugs (NSAIDs) do not depress respiration, do not impair gastro-intestinal motility, and do not cause dependence, they may be useful alternatives (or adjuncts) to the use of opioids for the relief of postoperative pain. NSAIDs may be inadequate for the relief of severe pain.

Diclofenac, flurbiprofen, ketoprofen (section 10.1.1), and **ketorolac** are licensed for postoperative use. Diclofenac, ketoprofen and ketorolac can be given by injection as well as by mouth. Intramuscular injections of diclofenac and ketoprofen

are given deep into the gluteal muscle pain and tissue damage; diclofenac given by intravenous infusion for the prevention of postoperative pain. K irritant on intramuscular injection but reported; it can also be given by intr tion.

Suppositories of diclofenac and k be effective alternatives to the par these drugs. Flurbiprofen is also av positories.

KETOROLAC TROMETAMC

Indications: short-term managemer to severe acute postoperative pain

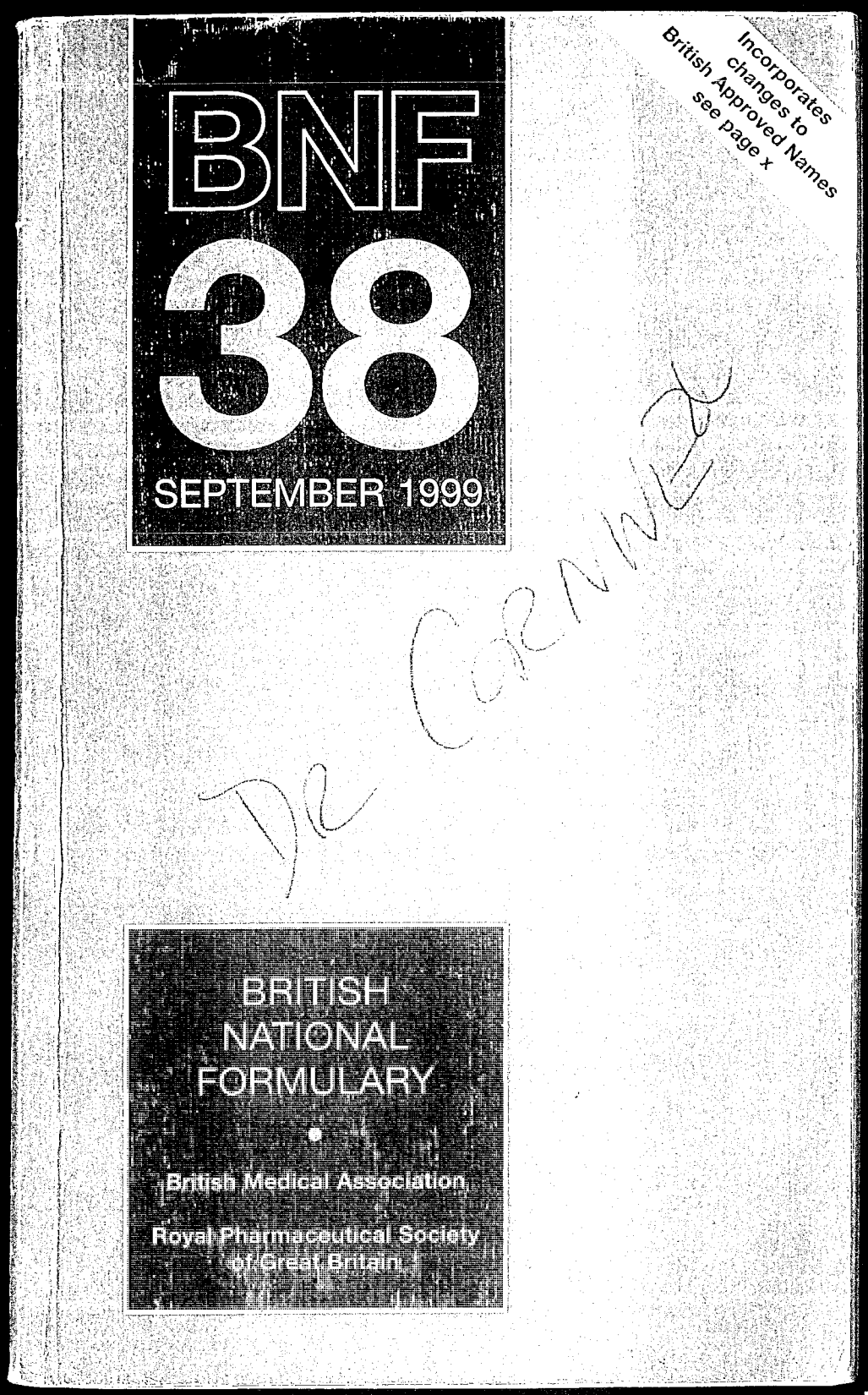
Cautions: reduce dose in elderly weighing less than 50 kg; reduce d tor in mild renal impairment (avoid severe); heart failure, hepatic in other conditions leading to reduc volume or in renal blood flow (ir taking diuretics); cardiac decompen tension or similar conditions (fluid oedema reported); **interactions:** (NSAIDs)

GASTRO-INTESTINAL EFFECTS. Elderly more prone to risk of gastro-intestin increases with increased dose and dur under Contra-indications and Side-effect

Contra-indications: history of hype aspirin or any other NSAID (severe reactions reported), history of asth or partial syndrome of nasal polyps or bronchospasm; history of peptic gastro-intestinal bleeding; haemorr ses (including coagulation disorder tions with high risk of haemorrhage haemostasis; confirmed or suspec vascular bleeding; moderate or impairment; hypovolaemia or pregnancy (including labour and breast-feeding

Side-effects: side-effects reported inc laxis (with rash, bronchospasm, laryn and hypotension), fluid retention (s nausea, dyspepsia, abdominal disco changes, peptic ulceration, gas bleeding (elderly at greater risk, see pancreatitis, drowsiness, dizziness sweating, dry mouth, excessive thirs sensory changes, convulsions, mya meningitis, hyponatraemia, hyperkal blood urea and creatinine, urinary s acute renal failure, flushing or pallor, hypertension, purpura, thrombocyt longed bleeding time, dyspnoea an oedema, skin reactions (some seve Stevens-Johnson and Lyell's syndr operative wound haemorrhage, epistaxis, oedema, liver function char tinue if clinical symptoms); pain at i for general side-effects of NSAIDs, 10.1.1

Dose: *by mouth*, PATIENT over 16 y every 4–6 hours (ELDERLY every 6–8 h 40 mg daily; max. duration of treatn CHILD under 16 years, not recommen


BNF
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SEPTEMBER 1999
Incorporates changes to British Approved Names
see page x
BRITISH NATIONAL FORMULARY
British Medical Association
Royal Pharmaceutical Society of Great Britain

Prescribing in palliative care

Palliative care is the active total care of patients whose disease is not responsive to curative treatment. Control of pain, of other symptoms, and of psychological, social and spiritual problems, is paramount to provide the best quality of life for patients and their families. Careful assessment of symptoms and needs of the patient should be undertaken by a multidisciplinary team.

Specialist palliative care is available in most areas as day hospice care, home care teams (often known as Macmillan teams), in-patient hospice care, and hospital teams. Many acute hospitals and teaching centres now have consultative, hospital-based teams.

Hospice care of terminally ill patieuts has shown the importance of symptom control and psychosocial support of the patient and family. Families should be included in the care of the patient if they wish.

Many patients wish to remain at home with their families. Although some families may at first be afraid of caring for the patient at home, support can be provided by community nursing services, social services, voluntary agencies and hospices together with the general practitioner. The family may be reassured by the knowledge that the patient will be admitted to a hospital or hospice if the family cannot cope.

DRUG TREATMENT. The number of drugs should be as few as possible, for even the taking of medicine may be an effort. Oral medication is usually satisfactory unless there is severe nausea and vomiting, dysphagia, weakness, or coma, in which case parenteral medication may be necessary.

Pain

Analgesics are more effective in preventing pain than in the relief of established pain; it is important that they are given regularly.

The non-opioid analgesics **aspirin** or **paracetamol** given regularly will often make the use of opioids unnecessary. Aspirin (or other NSAIDs if preferred) may also control the pain of *bone secondaries*; naproxen, flurbiprofen, and indometacin (section 10.1.1) are valuable and if necessary can be given rectally. Radiotherapy, bisphosphonates (section 6.6.2) and radioactive isotopes of **strontium** (*Metastron*® available from Amersham) may also be useful for pain due to bone metastases.

An opioid such as **codeine** or **dextropropoxyphene**, alone or in combination with a non-opioid analgesic at adequate dosage, may be helpful in the control of moderate pain if non-opioids alone are not sufficient. If these preparations are not controlling the pain, **morphine** is the most useful opioid analgesic. Alternatives to morphine are **hydromorphone** (section 4.7.2) and transdermal **fentanyl** (see below and section 4.7.2).

ORAL ROUTE. Morphine is given *by mouth* as an oral solution or as standard ('immediate release') formulation tablets regularly every 4 hours, the initial dose depending largely on the patient's previous treatment. A dose of 5–10 mg is enough to replace a weaker analgesic (such as paracetamol or co-proxamol), but 10–20 mg or more is required to replace a strong one (comparable to morphine itself). If the first dose of morphine is no more effective than the previous analgesic it should be increased by 50%, the aim being to choose the lowest dose which prevents pain. The dose should be adjusted with careful assessment of the pain and the use of other drugs (such as NSAIDs) should also be considered. Although morphine in a dose of 5–20 mg is usually adequate there should be no hesitation in increasing it stepwise according to response to 100 mg or occasionally up to 500 mg or higher if necessary. If pain occurs between doses the next dose due is increased; in the interim an additional dose is given.

Modified-release preparations of morphine are an alternative to the oral solution or standard formulation tablets. Depending on the formulation of the modified-release preparation, the total daily morphine requirement may be given in two equal doses or as a single dose.

Preparations suitable for twice daily administration include *MST Continus*® tablets or snspension, *Oramorph*® *SR* tablets, and *Zomorph*® capsules. Preparations that allow administration of the total daily morphine requirement as a single dose include *MXL*® capsules. *Morcap SR*® capsules may be given either twice daily or as a single daily dose.

The starting dose of modified-release preparations designed for twice daily administration is usually 10–20 mg every 12 hours if no other analgesic (or only paracetamol) has been taken previously, but to replace a weaker opioid aualgesic (such as co-proxamol) the starting dose is nsually 20–30 mg every 12 hours. Increments should be made to the dose, not to the frequency of administration, which should remain at every 12 honrs.

The effective dose of modified-release preparations can alternatively be determined by giving the oral solution of morphine every 4 hours in increasing doses until the pain has been controlled, and then transferring the patient to the same total 24-hour dose of morphine given as the modified-release preparation (divided into two portions for 12-hourly administration). The first dose of the modified-release preparation is given 4 hours after the last dose of the oral solution.[1]

Morphine, as oral solution or standard formulation tablets, should be prescribed for breakthrough pain.

PARENTERAL ROUTE. If the patient becomes unable to swallow, the equivaleut intramuscular dose of morphine is half the oral solution dose; in the case of the modified-release tablets it is half the total 24-hour dose (which is then divided into 6 portions to be given every 4 hours). **Diamorphine** is preferred for injection because, being more soluble, it can be given in a smaller volume. The equivalent intramuscular (or subcutaneous) dose of diamorphine is approximately a third of the oral dose of morphine. *Subcutaneous infusion* of diamorphine via syringe driver can be useful (for details, see p. 13).

1. Studies have indicated that administration of the last dose of the *oral solution* with the first dose of the *modified-release tablets* is not necessary.

RECTAL ROUTE. Morphine is also available for *rectal administration* as suppositories; alternatively **oxycodone** suppositories can be obtained on special order.

TRANSDERMAL ROUTE. Transdermal preparations of fentanyl are available (section 4.7.2). Careful conversion from oral morphine to transdermal fentanyl is necessary; a 25 micrograms/hr patch is equivalent to a total dose of morphine up to 135 mg/24 hours

GASTRO-INTESTINAL PAIN. The pain of *bowel colic* may be reduced by loperamide 2–4 mg 4 times daily. Hyoscine hydrobromide may also be helpful, given sublingually at a dose of 300 micrograms 3 times daily as *Kwells*® (Roche Consumer Health) tablets. For the dose by subcutaneous infusion using a syringe driver, see p. 13.

Gastric distension pain due to pressure on the stomach may be helped by a preparation incorporating an antacid with an antiflatulent (section 1.1.1) and by domperidone 10 mg 3 times daily before meals.

MUSCLE SPASM. The pain of muscle spasm can be helped by a muscle relaxant such as diazepam 5–10 mg daily or baclofen 5–10 mg 3 times daily.

NEUROPATHIC PAIN. Tricyclic antidepressants can be useful; amitriptyline may be given initially at a dose of 10–25 mg each night and the dose increased gradually. If pain persists, an anticonvulsant such as *either* sodium valproate initially 200 mg twice daily increased to 1.6 g daily in divided doses *or* carbamazepine initially 200 mg at night increased to 400 mg twice daily, may be added or substituted.

Pain due to nerve compression may be reduced by a corticosteroid such as dexamethasone 8 mg daily, which reduces oedema around the tumour, thus reducing compression.

Nerve blocks may be considered when pain is localised to a specific area. **Transcutaneous electrical nerve stimulation** (TENS) may also help.

Miscellaneous conditions

Non-licensed indications or routes

Several recommendations in this section involve non-licensed indications or routes.

RAISED INTRACRANIAL PRESSURE. Headache due to raised intracranial pressure often responds to a high dose of a corticosteroid, such as dexamethasone 16 mg daily for 4 to 5 days, subsequently reduced to 4–6 mg daily if possible; dexamethasone should be given before 6 p.m. to reduce the risk of insomnia.

INTRACTABLE COUGH. Intractable cough may be relieved by moist inhalations or by regular administration of oral morphine hydrochloride (or sulphate) in an initial dose of 5 mg every 4 hours. Methadone linctus should be avoided because it has a long duration of action and tends to accumulate.

DYSPNOEA. Dyspnoea may be relieved by regular oral morphine hydrochloride (or sulphate) in carefully titrated doses, starting at 5 mg every 4 hours. Diazepam 5–10 mg daily may be helpful; a corticosteroid, such as dexamethasone 4–8 mg daily, may also be helpful if there is bronchospasm or partial obstruction.

EXCESSIVE RESPIRATORY SECRETION. Excessive respiratory secretion (death rattle) may be reduced by subcutaneous injection of hyoscine hydrobromide 400–600 micrograms every 4 to 8 hours; care must however be taken to avoid the discomfort of dry mouth. For the dose by subcutaneous infusion using a syringe driver, see next page.

RESTLESSNESS AND CONFUSION. Restlessness and confusion may require treatment with haloperidol 1–3 mg by mouth every 8 hours. Chlorpromazine 25–50 mg by mouth every 8 hours is an alternative, but causes more sedation. Methotrimeprazine is also used occasionally for restlessness. For the dose by subcutaneous infusion using a syringe driver, see next page

HICCUP. Hiccup due to gastric distension may be helped by a preparation incorporating an antacid with an antiflatulent (section 1.1). If this fails, metoclopramide 10 mg every 6 to 8 hours by mouth or by intramuscular injection can be added; if this also fails, chlorpromazine 10–25 mg every 6 to 8 hours can be tried.

ANOREXIA. Anorexia may be helped by prednisolone 15–30 mg daily or dexamethasone 2–4 mg daily.

CONSTIPATION. Constipation is a very common cause of distress and is almost invariable after administration of an opioid. It should be prevented if possible by the regular administration of laxatives; a faecal softener with a peristaltic stimulant (e.g. co-danthramer), or lactulose solution with a senna preparation should be used (section 1.6.2 and section 1.6.3).

FUNGATING GROWTH. Fungating growth may be treated by cleansing with a mixture of 1 part of 4% povidone–iodine skin cleanser solution and 4 parts of liquid paraffin. Oral administration of metronidazole (section 5.1.11) may eradicate the anaerobic bacteria responsible for the odour of fungating tumours; topical application (section 13.10.1.2) is also used.

CAPILLARY BLEEDING. Capillary bleeding may be reduced by applying gauze soaked in adrenaline solution 1 mg/mL (1 in 1000).

DRY MOUTH. Dry mouth may be relieved by good mouth care and measures such as the sucking of ice or pineapple chunks or the use of artificial saliva (section 12.3.5); dry mouth associated with candidiasis can be treated by oral preparations of nystatin or miconazole (section 12.3.2); alternatively, fluconazole can be given by mouth (section 5.2). Dry mouth may be caused by certain medication including opioids, antimuscarinic drugs (e.g. hyoscine), antidepressants and some anti-emetics; if possible, an alternative preparation should be considered.

PRURITUS. Pruritus, even wh
obstructive jaundice, often re
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measures include administratio
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CONVULSIONS. Patients with
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emetics are inadequate. **Dexameth**
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For the administration of anti-em
neous infusion using a syringe drive

For the treatment of nausea and
ated with cancer chemotherapy, see

INSOMNIA. Patients with advanced
sleep because of discomfort, cramps, r
stiffness, or fear. There should be approp
these problems before hypnotics are
epines (e.g. temazepam) may be useful

HYPERCALCAEMIA. See section 9.

PRURITUS. Pruritus, even when associated with obstructive jaundice, often responds to simple measures such as application of emollients (section 13.2.1). In the case of obstructive jaundice, further measures include administration of colestyramine or an anabolic steroid, such as stanozolol 5–10 mg daily; antihistamines can be helpful (section 3.4.1).

CONVULSIONS. Patients with cerebral tumours or uraemia may be susceptible to convulsions. Prophylactic treatment with phenytoin or carbamazepine (section 4.8.1) should be considered. When oral medication is no longer possible, diazepam as suppositories 10–20 mg every 4 to 8 hours, or phenobarbital by injection 50–200 mg twice daily is continued as prophylaxis. For the use of midazolam by subcutaneous infusion using a syringe driver, see below.

DYSPHAGIA. A corticosteroid such as dexamethasone 8 mg daily may help, temporarily, if there is an obstruction due to tumour. See also under Dry Mouth.

NAUSEA AND VOMITING. Nausea and vomiting are common in patients with advanced cancer. Ideally, the cause should be determined before treatment with anti-emetics (section 4.6) is started.

Metoclopramide has a prokinetic action and is used in a dose of 10 mg 3 times daily by mouth for nausea and vomiting associated with gastritis, gastric stasis, and functional bowel obstruction. Alternatively, **cisapride** 20 mg twice daily by mouth may produce a stronger prokinetic action. Drugs with antimuscarinic effects antagonise prokinetic drugs and, where possible, should not therefore be used concurrently.

Haloperidol is used in a dose of 1.5 mg daily (or twice daily if nausea continues) by mouth for most chemical causes of vomiting (e.g. hypercalcaemia, renal failure).

Nausea and vomiting may occur with opioid therapy particularly in the initial stages but can be prevented by giving an anti-emetic such as haloperidol or metoclopramide. An anti-emetic is usually necessary only for the first 4 or 5 days and therefore combined preparations containing an opioid with an anti-emetic are not recommended because they lead to unnecessary anti-emetic therapy (and associated side-effects when used long-term).

Cyclizine is given in a dose of 50 mg up to 3 times daily by mouth. It is used for nausea and vomiting due to mechanical bowel obstruction, raised intracranial pressure, and motion sickness.

Anti-emetic therapy should be reviewed every 24 hours; it may be necessary to substitute the anti-emetic or to add another one.

Methotrimeprazine (levomepromazine) 12.5–25 mg daily by mouth may be used if first-line anti-emetics are inadequate. **Dexamethasone** 8–16 mg daily by mouth may be used as an adjunct.

For the administration of anti-emetics by subcutaneous infusion using a syringe driver, see below.

For the treatment of nausea and vomiting associated with cancer chemotherapy, see section 8.1.

INSOMNIA. Patients with advanced cancer may not sleep because of discomfort, cramps, night sweats, joint stiffness, or fear. There should be appropriate treatment of these problems before hypnotics are used. Benzodiazepines (e.g. temazepam) may be useful (section 4.1.1).

HYPERCALCAEMIA. See section 9.5.1.2.

Syringe drivers

Although drugs can usually be administered *by mouth* to control the symptoms of advanced cancer, the parenteral route may sometimes be necessary. If the parenteral route is necessary, repeated administration of *intramuscular injections* can be difficult in a cachectic patient. This has led to the use of a portable syringe driver to give a *continuous subcutaneous infusion*, which can provide good control of symptoms with little discomfort or inconvenience to the patient.

Syringe driver rate settings. Staff using syringe drivers should be **adequately trained** and different rate settings should be **clearly identified** and **differentiated**; incorrect use of syringe drivers is a common cause of drug errors.

Indications for the **parenteral route** are:

- the patient is unable to take medicines by mouth owing to *nausea and vomiting, dysphagia, severe weakness,* or *coma;*
- there is *malignant bowel obstruction* in patients for whom further surgery is inappropriate (avoiding the need for an intravenous infusion or for insertion of a nasogastric tube);
- occasionally when the patient *does not wish* to take regular medication by mouth.

NAUSEA AND VOMITING. **Haloperidol** is given in a *subcutaneous infusion* dose of 2.5–10 mg/24 hours.

Methotrimeprazine causes sedation in about 50% of patients; it is given in a *subcutaneous infusion dose* of 25–200 mg/24 hours, although lower doses of 5–25 mg/24 hours may be effective with less sedation.

Cyclizine is particularly liable to precipitate if mixed with diamorphine or other drugs (see under Mixing and Compatibility, below); it is given in a *subcutaneous infusion dose* of 150 mg/24 hours.

Metoclopramide may cause skin reactions; it is given in a *subcutaneous infusion dose* of 30–100 mg/24 hours.

Octreotide (section 8.3.4.3), which stimulates water and electrolyte absorption and inhibits water secretion in the small bowel, can be used by subcutaneous infusion, in a dose of 300–600 micrograms/24 hours to reduce intestinal secretions and vomiting.

BOWEL COLIC AND EXCESSIVE RESPIRATORY SECRETIONS. **Hyoscine hydrobromide** effectively reduces respiratory secretions and is sedative (but occasionally causes paradoxical agitation); it is given in a *subcutaneous infusion dose* of 0.6–2.4 mg/24 hours.

Hyoscine butylbromide is effective in bowel colic, is less sedative than hyoscine hydrobromide, but is not always adequate for the control of respiratory secretions; it is given in a *subcutaneous infusion dose* of 20–60 mg/24 hours (**important:** this dose of *hyoscine butylbromide* must not be confused with the much lower dose of *hyoscine hydrobromide*, above).

Glycopyrronium 0.6–1.2 mg/24 hours may also be used.

RESTLESSNESS AND CONFUSION. **Haloperidol** has little sedative effect; it is given in a *subcutaneous infusion dose* of 5–15 mg/24 hours.

Methotrimeprazine has a sedative effect; it is given in a *subcutaneous infusion dose* of 50–200 mg/24 hours.

Midazolam is a sedative and an antiepileptic, and is therefore suitable for a very restless patient; it is given in a *subcutaneous infusion dose* of 20–100 mg/24 hours.

CONVULSIONS. If a patient has previously been receiving an antiepileptic *or* has a primary or secondary cerebral tumour *or* is at risk of convulsion (e.g. owing to uraemia) antiepileptic medication should not be stopped. **Midazolam** is the benzodiazepine antiepileptic of choice for *continuous subcutaneous infusion*, and is given in a dose of 20–40 mg/24 hours.

PAIN CONTROL. **Diamorphine** is the preferred opioid since its high solubility permits a large dose to be given in a small volume (see under Mixing and Compatibility, below). The table on the next page gives the approximate doses of *morphine by mouth* (as oral solution or standard formulation tablets or as modified-release tablets) equivalent to *diamorphine by injection* (intramuscularly or by subcutaneous infusion).

MIXING AND COMPATIBILITY. The general principle that injections should be given into separate sites (and should not be mixed) does not apply to the use of syringe drivers in palliative care. Provided that there is evidence of compatibility, selected injections can be mixed in syringe drivers. Not all types of medication can be used in a subcutaneous infusion. In particular, **chlorpromazine, prochlorperazine** and **diazepam** are **contra-indicated** as they cause skin reactions at the injection site; to a lesser extent **cyclizine** and **methotrimeprazine** may also sometimes cause local irritation.

In theory injections dissolved in **water for injections** are more likely to be associated with pain (possibly owing to their hypotonicity). The use of **physiological saline** (sodium chloride 0.9%) however increases the likelihood of precipitation when more than one drug is used; moreover subcutaneous infusion rates are so slow (0.1–0.3 mL/hour) that pain is not usually a problem when water is used as a diluent.

Diamorphine can be given by subcutaneous infusion in a strength of up to 250 mg/mL; up to a strength of 40 mg/mL either *water for injections* or *physiological saline* (sodium chloride 0.9%) is a suitable diluent—above that strength only *water for injections* is used (to avoid precipitation).

The following can be mixed with *diamorphine:*

Cyclizine[1]	Hyoscine hydrobromide
Dexamethasone[2]	Methotrimeprazine
Haloperidol[3]	Metoclopramide[4]
Hyoscine butylbromide	Midazolam

Subcutaneous infusion solution should be monitored regularly both to check for precipitation (and discoloration) and to ensure that the infusion is running at the correct rate.

PROBLEMS ENCOUNTERED WITH SYRINGE DRIVERS. The following are problems that may be encountered with syringe drivers and the action that should be taken:

- if the subcutaneous infusion runs *too quickly* check the rate setting and the calculation;
- if the subcutaneous infusion runs *too slowly* check the start button, the battery, the syringe driver, the cannula, and make sure that the injection site is not inflamed;
- if there is an *injection site reaction* make sure that the site does not need to be changed—firmness or swelling at the site of injection is not in itself an indication for change, but pain or obvious inflammation is.

1. Cyclizine may precipitate at concentrations above 10 mg/mL *or* in the presence of physiological saline *or* as the concentration of diamorphine relative to cyclizine increases; mixtures of diamorphine and cyclizine are also liable to precipitate after 24 hours.
2. Special care is needed to avoid precipitation of dexamethasone when preparing.
3. Mixtures of haloperidol and diamorphine are liable to precipitate after 24 hours if haloperidol concentration is above 2 mg/mL.
4. Under some conditions metoclopramide may become discoloured; such solutions should be discarded.

Equivalent doses of morphine sulphate by mouth (as oral solution or standard tablets *or* as modified-release tablets) *or* of diamorphine hydrochloride by intramuscular injection *or by* subcutaneous infusion

These equivalences are approximate only and may need to be adjusted according to response

ORAL MORPHINE		PARENTERAL DIAMORPHINE	
Morphine sulphate oral solution or standard tablets	Morphine sulphate modified-release tablets	Diamorphine hydrochloride by intramuscular injection	Diamorphine hydrochloride by subcutaneous infusion
every 4 hours	**every 12 hours**	**every 4 hours**	**every 24 hours**
5 mg	20 mg	2.5 mg	15 mg
10 mg	30 mg	5 mg	20 mg
15 mg	50 mg	5 mg	30 mg
20 mg	60 mg	7.5 mg	45 mg
30 mg	90 mg	10 mg	60 mg
40 mg	120 mg	15 mg	90 mg
60 mg	180 mg	20 mg	120 mg
80 mg	240 mg	30 mg	180 mg
100 mg	300 mg	40 mg	240 mg
130 mg	400 mg	50 mg	300 mg
160 mg	500 mg	60 mg	360 mg
200 mg	600 mg	70 mg	400 mg

If breakthrough pain occurs give a subcutaneous (preferable) or intramuscular injection of diamorphine equivalent to one-sixth of the total 24-hour subcutaneous infusion dose. It is kinder to give an intermittent bolus injection *subcutaneously*—absorption is smoother so that the risk of adverse effects at peak absorption is avoided (an even better method is to use a subcutaneous butterfly needle).

To minimise the risk of infection no individual subcutaneous infusion solution should be used for longer than 24 hours.

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Prescribing for the elderly

Old people, especially the very old, require special care and consideration from prescribers.

POLYPHARMACY. Elderly patients often receive multiple drugs for their multiple diseases. This greatly increases the risk of drug interactions as well as adverse reactions. Moreover, symptoms such as headache, sleeplessness, and lightheadedness which may be associated with social stress, as in widowhood, loneliness, and family dispersal can lead to further prescribing, especially of psychotropics. The use of drugs in such cases can at best be a poor substitute for effective social measures and at worst pose a serious threat from adverse reactions. Whilst unnecessary medication should be avoided, elderly patients should not be denied effective treatments such as those for stroke prophylaxis in atrial fibrillation or for osteoporosis.

FORM OF MEDICINE. Frail elderly patients may have difficulty swallowing tablets; if left in the mouth, ulceration may develop. They should always be encouraged to take their tablets or capsules with enough fluid, and in some cases it may be helpful to discuss with the patient the possibility of prescribing the drug as a liquid if available.

MANIFESTATIONS OF AGEING. In very old subjects, manifestations of normal ageing may be mistaken for disease and lead to inappropriate prescribing. For example, drugs such as prochlorperazine are commonly misprescribed for giddiness due to age-related loss of postural stability. Not only is such treatment ineffective but the patient may experience serious side-effects such as parkinsonism, postural hypotension, and confusion.

SELF-MEDICATION. Self-medication with over-the-counter products or with drugs prescribed for a previous illness (or even for another person) may be an added complication. Discussion with both the patient and relatives as well as a home visit may be needed to establish exactly what is being taken.

SENSITIVITY. The ageing nervous system shows increased *susceptibility* to many commonly used drugs, such as opioid analgesics, benzodiazepines, antipsychotics, and antiparkinsonian drugs, all of which must be used with caution.

Pharmacokinetics

The most important effect of age is reduction in renal clearance. Many aged patients thus possess only *limited reserves of renal function, excrete drugs slowly*, and are *highly susceptible to nephrotoxic drugs*. Acute illness may lead to rapid reduction in renal clearance, especially if accompanied by dehydration. Hence, a patient stabilised on a drug with a narrow margin between the therapeutic and the toxic dose (e.g. digoxin) may rapidly develop adverse effects in the aftermath of a myocardial infarction or a respiratory-tract infection. Metabolism of drugs in the liver may be reduced in the elderly.

The net result of pharmacokinetic changes is that the tissue concentration of a drug is commonly increased by over 50%, and aged and debilitated patients may show even larger changes.

Adverse reactions

Adverse reactions often present in the elderly in a vague and non-specific fashion. *Confusion* is often the presenting symptom (caused by almost any of the commonly used drugs). Other common manifestations are *constipation* (with antimuscarinics and many tranquillisers) and postural *hypotension* and *falls* (with diuretics and many psychotropics).

HYPNOTICS. Many hypnotics with long half-lives have serious hangover effects of drowsiness, unsteady gait, and even slurred speech and confusion. Those with short half-lives should be used but they too can present problems (section 4.1.1). Short courses of hypnotics are occasionally useful for helping a patient through an acute illness or some other crisis but every effort must be made to avoid dependence. Benzodiazepines impair balance, which may result in falls.

DIURETICS. Diuretics are overprescribed in old age and should **not** be used on a long-term basis to treat simple gravitational oedema which will usually respond to increased movement, raising the legs, and support stockings. A few days of diuretic treatment may speed the clearing of the oedema but it should rarely need continued drug therapy.

NSAIDs. Bleeding associated with *aspirin* and *other NSAIDs* is more common in the elderly who are more likely to have a fatal or serious outcome. NSAIDs are also a special hazard in patients with cardiac disease or renal impairment which may again place older patients at particular risk.

Owing to the *increased susceptibilty of the elderly* to the *side-effects of NSAIDs* the following recommendations are made:

- for *osteoarthritis, soft-tissue lesions and back pain* first try measures such as weight reduction, warmth, exercise and use of a walking stick;
- for *osteoarthritis, soft tissue lesions, back pain and rheumatoid arthritis* avoid giving an NSAID unless *paracetamol* (alone or with a *low dose* of an opioid analgesic as in co-codamol 8/500 or co-dydramol 10/500) has failed to relieve the pain adequately;
- where a paracetamol preparation has failed to relieve the pain adequately *add a very low dose of an NSAID* to the paracetamol preparation (starting with ibuprofen). For advice on prophylaxis of NSAID-induced peptic ulcers (where continued treatment with NSAIDs is necessary), see section 1.3.
- if an NSAID is considered necessary monitor the patient for gastro-intestinal bleeding for 4 weeks (and for a similar time on switching to another NSAID). For the management of NSAID-associated peptic ulcers, see section 1.3.
- do **not** give two NSAIDs at the same time.

OTHER DRUGS. Other drugs which commonly cause adverse reactions are *antiparkinsonian drugs, antihypertensives, psychotropics*, and *digoxin*. The

usual maintenance dose of digoxin in very old patients is 125 micrograms daily (62.5 micrograms in those with renal disease); lower doses are often inadequate but toxicity is common in those given 250 micrograms daily.

Drug-induced blood disorders are much more common in the elderly. Therefore drugs with a tendency to cause bone marrow depression (e.g. *co-trimoxazole, mianserin*) should be avoided unless there is no acceptable alternative.

The elderly generally require a lower maintenance dose of *warfarin* than younger adults; once again, the outcome of bleeding tends to be more serious.

Guidelines

First always question whether a drug is indicated at all.

LIMIT RANGE. It is a sensible policy to prescribe from a limited range of drugs and to be thoroughly familiar with their effects in the elderly.

REDUCE DOSE. Dosage should generally be substantially lower than for younger patients and it is common to start with about 50% of the adult dose. Some drugs (e.g. long-acting antidiabetic drugs such as glibenclamide and chlorpropamide) should be avoided altogether.

REVIEW REGULARLY. Review repeat prescriptions regularly. It may be possible to stop the drug (e.g. digoxin can often be withdrawn) or it may be necessary to reduce the dose to match diminishing renal function.

SIMPLIFY REGIMENS. Elderly patients benefit from simple treatment regimens. Only drugs with a clear indication should be prescribed and whenever possible given once or twice daily. In particular, regimens which call for a confusing array of dosage intervals should be avoided.

EXPLAIN CLEARLY. Write full instructions on every prescription (*including* repeat prescriptions) so that containers can be properly labelled with full directions. Avoid imprecisions like 'as directed'. Child-resistant containers may be unsuitable.

REPEATS AND DISPOSAL. Instruct patients what to do when drugs run out, and also how to dispose of any that are no longer necessary. Try to prescribe matching quantities.

If these guidelines are followed most elderly people will cope adequately with their own medicines. If not then it is essential to enrol the help of a third party, usually a relative or a friend.

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Drug Information Line (
Supplies of this card a
Street, London NW1 2E
Similar cards detailing
the Lawn Tennis Associa
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Side-effects: nausea, nervousness, urinary retention, dry mouth, lightheadedness; less frequently vomiting, blurred vision, drowsiness, sweating, insomnia, tachycardia, headache; confusion and hallucinations also reported; may colour urine (pink)

Dose: *by mouth*, initially 60 mg (elderly, 30 mg) 3 times daily, adjusted according to response; usual range 30–90 mg 3 times daily; CHILD not recommended

By intramuscular injection, 20 mg every 6 hours; CHILD not recommended

Note. Nefopam hydrochloride 20 mg by injection ≡ 60 mg by mouth

Acupan® (3M) PoM

Tablets, f/c, nefopam hydrochloride 30 mg. Net price 90-tab pack = £11.44. Label: 2, 14

Injection, nefopam hydrochloride 20 mg/mL. Net price 1-mL amp = 73p

4.7.2 Opioid analgesics

Opioid analgesics are usually used to relieve moderate to severe pain particularly of visceral origin. Repeated administration may cause dependence and tolerance, but this is no deterrent in the control of pain in terminal illness, for guidelines see Prescribing in Palliative Care, p. 11.

SIDE-EFFECTS. Opioid analgesics share many side-effects though qualitative and quantitative differences exist. The most common include nausea, vomiting, constipation, and drowsiness. Larger doses produce respiratory depression and hypotension. **Overdosage**, see Emergency Treatment of Poisoning, p. 22.

INTERACTIONS. See Appendix 1 (opioid analgesics) (**important**: special hazard with *pethidine and possibly other opioids* and MAOIs).

DRIVING. Drowsiness may affect performance of skilled tasks (e.g. driving); effects of alcohol enhanced.

CHOICE. **Morphine** remains the most valuable opioid analgesic for severe pain although it frequently causes nausea and vomiting. It is the standard against which other opioid analgesics are compared. In addition to relief of pain, morphine also confers a state of euphoria and mental detachment.

Morphine is the opioid of choice for the oral treatment of *severe pain in palliative care*. It is given regularly every 4 hours (or every 12 or 24 hours as modified-release preparations). For guidelines on dosage adjustment in palliative care, see p. 11.

Buprenorphine has both opioid agonist and antagonist properties and may precipitate withdrawal symptoms, including pain, in patients dependent on other opioids. It has abuse potential and may itself cause dependence. It has a much longer duration of action than morphine and sublingually is an effective analgesic for 6 to 8 hours. Vomiting may be a problem. Unlike most opioid analgesics its effects are only partially reversed by naloxone.

Codeine is effective for the relief of mild to moderate pain but is too constipating for long-term use.

Dextromoramide is less sedating than morphine and has a short duration of action.

Diphenoxylate (in combination with atropine, as co-phenotrope) is used in acute diarrhoea (see section 1.4.2).

Dipipanone used alone is less sedating than morphine but the only preparation available contains an anti-emetic and is therefore not suitable for regular regimens in palliative care (see p. 13).

Dextropropoxyphene given alone is a very mild analgesic somewhat less potent than codeine. Combinations of dextropropoxyphene with paracetamol (co-proxamol) or aspirin have little more analgesic effect than paracetamol or aspirin alone. An important disadvantage of co-proxamol is that **overdosage** (which may be combined with alcohol) is complicated by respiratory depression and acute heart failure due to the dextropropoxyphene and by hepatotoxicity due to the paracetamol. Rapid treatment is essential (see Emergency Treatment of Poisoning, p. 22).

Diamorphine (heroin) is a powerful opioid analgesic. It may cause less nausea and hypotension than morphine. In *palliative care* the greater solubility of diamorphine allows effective doses to be injected in smaller volumes and this is important in the emaciated patient.

Dihydrocodeine has an analgesic efficacy similar to that of codeine. The dose of dihydrocodeine by mouth is usually 30 mg every 4 hours; doubling the dose to 60 mg may provide some additional pain relief but this may be at the cost of more nausea and vomiting. A 40-mg tablet is now also available.

Alfentanil, fentanyl and **remifentanil** are used by injection for intra-operative analgesia (section 15.1.4.3); fentanyl is available in a transdermal drug delivery system as a self-adhesive patch which is changed every 72 hours.

Meptazinol is claimed to have a low incidence of respiratory depression. It has a reported length of action of 2 to 7 hours with onset within 15 minutes, but there is an incidence of nausea and vomiting.

Methadone is less sedating than morphine and acts for longer periods. In prolonged use, methadone should not be administered more often than twice daily to avoid the risk of accumulation and opioid overdosage. Methadone may be used instead of morphine in the occasional patient who experiences excitation (or exacerbation of pain) with morphine.

Nalbuphine has a similar efficacy to that of morphine for pain relief, but may have fewer side-effects and less abuse potential. Nausea and vomiting occur less than with other opioids but respiratory depression is similar to that with morphine.

Oxycodone is used as the pectinate in suppositories (special order from BCM Specials) for the control of *pain in palliative care*.

Pentazocine has both agonist and antagonist properties and precipitates withdrawal symptoms, including pain in patients dependent on other opioids. By injection it is more potent than dihydrocodeine or codeine, but hallucinations and thought disturbances may occur. It is not recommended and, in particular, should be avoided after myocardial infarction as it may increase pulmonary and aortic blood pressure as well as cardiac work.

Pethidine produces prompt but short-lasting analgesia; it is less constipating than morphine, but even in high doses is a less potent analgesic. It is not suitable for severe continuing pain. It is used for analgesia in labour, and in the neonate is associated with less respiratory depression than other opioid analgesics (probably because its action is weaker).

Phenazocine is effective in severe pain and has less tendency to increase biliary pressure than other opioid analgesics. It can be administered sublingually if nausea and vomiting are a problem.

Tramadol is claimed to produce analgesia by two mechanisms: an opioid effect and an enhancement of serotoninergic and adrenergic pathways. It is reported to have fewer of the typical opioid side-effects (notably, less respiratory depression, less constipation and less addiction potential); psychiatric reactions have been reported.

POSTOPERATIVE ANALGESIA. The use of intraoperative opioids affects the prescribing of postoperative analgesics and in many cases delays the need for a postoperative analgesic. A postoperative opioid analgesic should be given with care since it may potentiate any residual respiratory depression (for the treatment of opioid-induced respiratory depression, see section 15.1.7). Non-opioid analgesics are also used for postoperative pain (section 15.1.4.2).

Morphine and **papaveretum** are used most widely. **Tramadol** is not as effective in severe pain as other opioid analgesics. **Buprenorphine** may antagonise the analgesic effect of previously administered opioids and is generally not recommended. **Pethidine** is metabolised to norpethidine which may accumulate, particularly in renal impairment; norpethidine stimulates the central nervous system and may cause convulsions. **Meptazinol** and **nalbuphine** are rarely used.

Opioids are also given epidurally [unlicensed route] in the postoperative period but are associated with side-effects such as pruritus, urinary retention, nausea and vomiting; respiratory depression can be delayed, particularly with morphine.

For details of patient-controlled analgesia (PCA) for the relief of postoperative pain, consult hospital protocols. Formulations specifically designed for PCA are available (*Pharma-Ject® Morphine Sulphate*)

ADDICTS. Although caution is necessary addicts (and ex-addicts) may be treated with analgesics in the same way as other people when there is a real clinical need. Doctors are reminded that they do not require a special licence to prescribe opioid analgesics for addicts for relief of pain due to organic disease or injury.

MORPHINE SALTS

Indications: see notes above and under Dose; acute diarrhoea (section 1.4.2); cough in terminal care (section 3.9.1)

Cautions: hypotension, hypothyroidism, asthma (avoid during attack) and decreased respiratory reserve, prostatic hypertrophy; pregnancy and breast-feeding; may precipitate coma in hepatic impairment (reduce dose or avoid but many such patients tolerate morphine well); reduce dose or avoid in renal impairment (see also Appendix 3), elderly and debilitated (reduce dose); convulsive disorders, dependence (severe withdrawal symptoms if withdrawn abruptly); use of cough suppressants containing opioid analgesics not generally recommended in children and should be avoided altogether in those under at least 1 year; **interactions:** Appendix 1 (opioid analgesics)

PALLIATIVE CARE. In the control of pain in terminal illness these cautions should not necessarily be a deterrent to the use of opioid analgesics

Contra-indications: avoid in acute respiratory depression, acute alcoholism and where risk of paralytic ileus; not indicated for acute abdomen; also avoid in raised intracranial pressure or head injury (in addition to interfering with respiration, affect pupillary responses vital for neurological assessment); avoid injection in phaeochromocytoma (risk of pressor response to histamine release)

Side-effects: nausea and vomiting (particularly in initial stages), constipation, and drowsiness; larger doses produce respiratory depression and hypotension; other side-effects include difficulty with micturition, ureteric or biliary spasm, dry mouth, sweating, headache, facial flushing, vertigo, bradycardia, tachycardia, palpitations, postural hypotension, hypothermia, hallucinations, dysphoria, mood changes, dependence, miosis, decreased libido or potency, rashes, urticaria and pruritus; **overdosage:** see Emergency Treatment of Poisoning, p. 22; for reversal of opioid-induced respiratory depression, see section 15.1.7.

Dose: acute pain, *by subcutaneous injection* (not suitable for oedematous patients) *or by intramuscular injection*, 10 mg every 4 hours if necessary (15 mg for heavier well-muscled patients); CHILD up to 1 month 150 micrograms/kg, 1–12 months 200 micrograms/kg, 1–5 years 2.5–5 mg, 6–12 years 5–10 mg

By slow intravenous injection, quarter to half corresponding intramuscular dose

Premedication, *by subcutaneous or intramuscular injection*, up to 10 mg 60–90 minutes before operation; CHILD, *by intramuscular injection*, 150 micrograms/kg

Postoperative pain, *by subcutaneous or intramuscular injection*, 10 mg every 2–4 hours if necessary (15 mg for heavier well-muscled patients); CHILD up to 1 month 150 micrograms/kg, 1–12 months 200 micrograms/kg, 1–5 years 2.5–5 mg, 6–12 years 5–10 mg

Note. In the postoperative period, the patient should be closely monitored for pain relief as well as for side-effects especially respiratory depression

Patient controlled analgesia (PCA), consult hospital protocols

Myocardial infarction, *by slow intravenous injection* (2 mg/minute), 10 mg followed by a further 5–10 mg if necessary; elderly or frail patients, reduce dose by half

Acute pulmonary oedema, *by slow intravenous injection* (2 mg/minute) 5–10 mg

Chronic pain, *by mouth or by subcutaneous injection* (not suitable for oedematous patients) *or by intramuscular injection*, 5–20 mg regularly every 4 hours; dose may be increased according to needs; oral dose should be approx. double corresponding intramuscular dose and approximately triple corresponding intramuscular *diamorphine* dose (see also Prescrit p. 11); *by rectum*, as supp ularly every 4 hours

Note. The doses stated abov hydrochloride, sulphate, a doses of **modified-release** p

■ Oral solutions

Note. For advice on transfer f phine to modified-release pre Prescribing in Palliative Care, p

Morphine Oral Solution

Oral solutions of morphine writing the formula:

Morphine hydrochloride 5 Chloroform water to 5 mL

Note. The proportion of morp altered when specified by the p 5 mL the solution becomes **CD** Controlled Drugs and Drug De adjust the strength so that the do

Oramorph® (Boehringer In

Oramorph® oral solution P 10 mg/5 mL. Net price 100-mL pack = £6.43; 500-mL p

Oramorph® Unit Dose Vials vials), sugar-free, morphine vial, net price 25 vials = £3

Oramorph® Unit Dose Vials vials), sugar-free, morphine vial, net price 25 vials = £9

Oramorph® concentrated or sugar-free, morphine sulpha price 30-mL pack = £6.47; 1 (both with calibrated droppe

Oramorph® Unit Dose Vials vials), sugar-free, morphine mL vial, net price 25 vials =

Sevredol® (Napp)

Oral solution PoM, morphir 5 mL, net price 100 mL = £2 500 mL = £8.73. Label: 2

Concentrated oral solution C 20 mg/mL, net price 30 mL = £21.74 (both with dropper or

■ Tablets

Sevredol® (Napp) CD

Tablets, f/c, scored, morphine (blue), net price 56-tab pack (pink), 56-tab pack = £12.62; 56-tab pack = £31.55. Label:

Dose: severe pain uncontrolled by 50 mg every 4 hours (dose adjuste tolerance); CHILD 3–5 years, 5 mg;

■ Modified release

Morcap® SR (Sanofi Winthrop)

Capsules, m/r, clear enclosing pellets, morphine sulphate 20 cap pack = £5.71, 60-cap pack 30-cap pack = £13.84, 60-cap 100 mg, 30-cap pack = £27.68 £55.37. Label: 2, counselling,

Dose: adjusted according to daily ments, for further advice on deter scribing in Palliative Care, p. 11; d may need to be reviewed if the bra

COUNSELLING. Swallow whole sprinkle contents on soft food

Note. Prescription must also spe 'Morcap SR capsules')

dose (see also Prescribing in Palliative Care, p. 11); *by rectum*, as suppositories, 15–30 mg regularly every 4 hours

Note. The doses stated above refer equally to morphine hydrochloride, sulphate, and tartrate; see below for doses of **modified-release** preparations.

Oral solutions

Note. For advice on transfer from oral solutions of morphine to modified-release preparations of morphine, see Prescribing in Palliative Care, p. 11

Morphine Oral Solutions PoM or CD

Oral solutions of morphine can be prescribed by writing the formula:

Morphine hydrochloride 5 mg

Chloroform water to 5 mL

Note. The proportion of morphine hydrochloride may be altered when specified by the prescriber; if above 13 mg per 5 mL the solution becomes **CD**. For sample prescription see Controlled Drugs and Drug Dependence, p. 6. It is usual to adjust the strength so that the dose volume is 5 or 10 mL.

Oramorph® (Boehringer Ingelheim)

Oramorph® oral solution PoM, morphine sulphate 10 mg/5 mL. Net price 100-mL pack = £2.31; 300-mL pack = £6.43; 500-mL pack = £9.70. Label: 2

Oramorph® Unit Dose Vials 10 mg PoM (oral vials), sugar-free, morphine sulphate 10 mg/5-mL vial, net price 25 vials = £3.31. Label: 2

Oramorph® Unit Dose Vials 30 mg CD (oral vials), sugar-free, morphine sulphate 30 mg/5-mL vial, net price 25 vials = £9.30. Label: 2

Oramorph® concentrated oral solution CD, sugar-free, morphine sulphate 100 mg/5 mL. Net price 30-mL pack = £6.47; 120-mL pack = £24.15 (both with calibrated dropper). Label: 2

Oramorph® Unit Dose Vials 100 mg CD (oral vials), sugar-free, morphine sulphate 100 mg/5-mL vial, net price 25 vials = £31.00. Label: 2

Sevredol® (Napp)

Oral solution PoM, morphine sulphate 10 mg/5 mL, net price 100 mL = £2.08, 300 mL = £5.79, 500 mL = £8.73. Label: 2

Concentrated oral solution CD, morphine sulphate 20 mg/mL, net price 30 mL = £5.82, 120 mL = £21.74 (both with dropper or oral syringe). Label: 2

Tablets

Sevredol® (Napp) CD

Tablets, f/c, scored, morphine sulphate 10 mg (blue), net price 56-tab pack = £6.31; 20 mg (pink), 56-tab pack = £12.62; 50 mg (pale green), 56-tab pack = £31.55. Label: 2

Dose: severe pain uncontrolled by weaker opioid, 10–50 mg every 4 hours (dose adjusted according to need and tolerance); CHILD 3–5 years, 5 mg; 6–12 years, 5–10 mg

Modified release

Morcap® SR (Sanofi Winthrop) CD

Capsules, m/r, clear enclosing ivory and brown pellets, morphine sulphate 20 mg, net price 30-cap pack = £5.71, 60-cap pack = £11.42; 50 mg, 30-cap pack = £13.84, 60-cap pack = £27.68; 100 mg, 30-cap pack = £27.68, 60-cap pack = £55.37. Label: 2, counselling, see below

Dose: adjusted according to daily morphine requirements, for further advice on determining dose, see Prescribing in Palliative Care, p. 11; dosage requirements may need to be reviewed if the brand is altered

COUNSELLING. Swallow whole or open capsule and sprinkle contents on soft food

Note. Prescription must also specify 'capsules' (i.e. 'Morcap SR capsules')

MST Continus® (Napp) CD

Tablets, m/r, f/c, morphine sulphate 5 mg (white), net price 60-tab pack = £4.50; 10 mg (brown), 60-tab pack = £7.51; 15 mg (green), 60-tab pack = £13.16; 30 mg (purple), 60-tab pack = £18.03; 60 mg (orange), 60-tab pack = £35.16; 100 mg (grey), 60-tab pack = £55.67; 200 mg (green), 60-tab pack = £111.35. Label: 2, 25

Suspension (= sachet of granules to mix with water), m/r, pink, morphine sulphate 20 mg/sachet, net price 30-sachet pack = £28.60; 30 mg/sachet, 30-sachet pack = £29.72; 60 mg/sachet, 30-sachet pack = £59.44; 100 mg/sachet, 30-sachet pack = £99.07; 200 mg/sachet pack, 30-sachet pack = £198.14. Label: 2, 13

Dose: adjusted according to daily morphine requirements, for further advice on determining dose, see Prescribing in Palliative Care, p. 11; dosage requirements may need to be reviewed if the brand is altered

Note. Prescriptions must also specify 'tablets' or 'suspension' (i.e. 'MST Continus tablets' or 'MST Continus suspension').

MXL® (Napp) CD

Capsules, m/r, morphine sulphate 30 mg (light blue), net price 28-cap pack = £12.28; 60 mg (brown), 28-cap pack = £16.83; 90 mg (pink), 28-cap pack = £24.82; 120 mg (green), 28-cap pack = £32.82; 150 mg (blue), 28-cap pack = £41.02; 200 mg (red-brown), 28-cap pack = £51.96. Label: 2, counselling, see below

Dose: adjusted according to daily morphine requirements, for further advice on determining dose, see Prescribing in Palliative Care, p. 11; dosage requirements may need to be reviewed if the brand is altered

COUNSELLING. Swallow whole or open capsule and sprinkle contents on soft food

Note. Prescriptions must also specify 'capsules' (i.e. 'MXL capsules')

Oramorph® SR (Boehringer Ingelheim) CD

Tablets, m/r, f/c, morphine sulphate 10 mg (buff), net price 60-tab pack = £5.75; 30 mg (violet), 60-tab pack = £13.80; 60 mg (orange), 60-tab pack = £26.89; 100 mg (grey), 60-tab pack = £42.59. Label: 2, 25

Dose: adjusted according to daily morphine requirements, for further advice on determining dose, see Prescribing in Palliative Care, p. 11; dosage requirements may need to be reviewed if the brand is altered

Note. Prescriptions must also specify 'tablets' (i.e. 'Oramorph SR tablets')

Zomorph® (Link) CD

Capsules, m/r, morphine sulphate 10 mg (yellow/clear enclosing pale yellow pellets), net price 60-cap pack = £4.51; 30 mg (pink/clear enclosing pale yellow pellets), 60-cap pack = £10.82; 60 mg (orange/clear enclosing pale yellow pellets), 60-cap pack = £21.10; 100 mg (white/clear enclosing pale yellow pellets), 60-cap pack = £33.40; 200 mg (clear enclosing pale yellow pellets), 60-cap pack = £66.80. Label: 2, counselling, see below

Dose: adjusted according to daily morphine requirements, for further advice on determining dose, see Prescribing in Palliative Care, p. 11; dosage requirements may need to be reviewed if the brand is altered

COUNSELLING. Swallow whole or open capsule and sprinkle contents on soft food

Note. Prescriptions must also specify 'capsules' (i.e. 'Zomorph capsules')

■ Injections

Morphine Sulphate (Non-proprietary) CD
Injection, morphine sulphate 10, 15, 20, and 30 mg/mL, net price 1- and 2-mL amp (all) = 66–99p
Intravenous infusion, morphine sulphate 1 mg/mL, net price 50-mL vial = £4.75; 2 mg/mL, 50-mL vial = £4.85
Available from Aurum, Faulding DBL

Min-I-Jet® Morphine Sulphate (IMS) CD
Injection, morphine sulphate 10 mg/mL, net price 2-mL disposable syringe = £10.85

Morphine Sulphate Rapiject® (IMS) CD
Injection, morphine sulphate 1 mg/mL, net price 50-mL disposable syringe = £9.50; 2 mg/mL, 50-mL disposable syringe = £10.50

Morphine and Atropine Injection (Non-proprietary) CD
Injection, morphine sulphate 10 mg, atropine sulphate 600 micrograms/mL. Net price 1-mL amp = £4.65
Dose: premedication, by subcutaneous injection, 0.5–1 mL

■ Injection with anti-emetic

CAUTION. In myocardial infarction cyclizine may aggravate severe heart failure and counteract the haemodynamic benefits of opioids, see section 4.6. **Not recommended** in palliative care, see p. 13

Cyclimorph® (GlaxoWellcome) CD
Cyclimorph-10® Injection, morphine tartrate 10 mg, cyclizine tartrate 50 mg/mL. Net price 1-mL amp = £1.28
Dose: by subcutaneous, intramuscular, or intravenous injection, 1 mL, repeated not more often than every 4 hours, with not more than 3 doses in any 24-hour period
Cyclimorph-15® Injection, morphine tartrate 15 mg, cyclizine tartrate 50 mg/mL. Net price 1-mL amp = £1.33
Dose: by subcutaneous, intramuscular, or intravenous injection, 1 mL, repeated not more often than every 4 hours, with not more than 3 doses in any 24-hour period

■ Suppositories

Morphine (Non-proprietary) CD
Suppositories, morphine hydrochloride or sulphate 10 mg, net price 12 = £6.12; 15 mg, 12 = £5.11; 20 mg, 12 = £7.45; 30 mg, 12 = £8.32. Label: 2
Available from Aurum, Martindale, Medeva
Note. Both the strength of the suppositories and the morphine salt contained in them must be specified by the prescriber

BUPRENORPHINE

Indications: moderate to severe pain; peri-operative analgesia; opioid dependence (section 4.10)
Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; can give rise to mild withdrawal symptoms in patients dependent on opioids; effects only partially reversed by naloxone; **interactions:** Appendix 1 (opioid analgesics)
Dose: moderate to severe pain, *by sublingual administration*, initially 200–400 micrograms every 8 hours, increasing if necessary to 200–400 micrograms every 6–8 hours; CHILD over 6 months, 16–25 kg, 100 micrograms; 25–37.5 kg, 100–200 micrograms; 37.5–50 kg, 200–300 micrograms
By intramuscular or slow intravenous injection, 300–600 micrograms every 6–8 hours; CHILD over 6 months 3–6 micrograms/kg every 6–8 hours (max. 9 micrograms/kg)
Premedication, *by sublingual administration*, 400 micrograms
By intramuscular injection, 300 micrograms
Intra-operative analgesia, *by slow intravenous injection*, 300–450 micrograms

Temgesic® (Schering-Plough) CD
Tablets (sublingual), buprenorphine (as hydrochloride), 200 micrograms, net price 50-tab pack = £6.00; 400 micrograms, 50-tab pack = £13.44. Label: 2, 26
Injection, buprenorphine 300 micrograms (as hydrochloride)/mL. Net price 1-mL amp = 55p

CODEINE PHOSPHATE

Indications: mild to moderate pain
Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; use of cough suppressants containing codeine or similar opioid analgesics not generally recommended in children and should be avoided altogether in those under 1 year; **interactions:** Appendix 1 (opioid analgesics)
Dose: *by mouth*, 30–60 mg every 4 hours when necessary, to a max. of 240 mg daily; CHILD 1–12 years, 3 mg/kg daily in divided doses
By intramuscular injection, 30–60 mg every 4 hours when necessary

Codeine Phosphate (Non-proprietary)
Tablets PoM, codeine phosphate 15 mg, net price 20 = 41p; 30 mg, 20 = 55p; 60 mg, 20 = £1.08. Label: 2
Note. As for schedule 2 controlled drugs, travellers needing to take codeine phosphate preparations abroad may require a doctor's letter explaining why they are necessary
Syrup PoM, codeine phosphate 25 mg/5 mL. Net price 100 mL = 90p. Label: 2
Injection CD, codeine phosphate 60 mg/mL. Net price 1-mL amp = £1.85

Codeine Linctuses
Section 3.9.1

Note. Codeine is an ingredient of some compound analgesic preparations, section 4.7.1 and section 10.1.1 (*Codafen Continus®*)

DEXTROMORAMIDE

Indications: severe pain
Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; only short duration of action (2–3 hours); avoid in obstetric analgesia (increased risk of neonatal depression); **interactions:** Appendix 1 (opioid analgesics)
Dose: *by mouth*, 5 mg increasing to 20 mg, when required
By rectum in suppositories, 10 mg when required

Palfium® (Roche) CD
Tablets, both scored, dextromoramide (as tartrate) 5 mg, net price 60-tab pack = £4.66; 10 mg (peach), 60-tab pack = £9.21. Label: 2
Suppositories, dextromoramide 10 mg (as tartrate). Net price 10 = £2.29. Label: 2

DEXTROPROP HYDROCHLOI

Indications: mild t
Cautions; Contr see under Morphi sional hepatotoxi compound prepar dose, see notes a overdose; contra-i cidal or addiction 1 (opioid analgesi
Dose: 65 mg ever CHILD not recomn
Note. 65 mg dext 100 mg dextropro

Dextropropoxyp
Capsules, the equi hydrochloride 65 = £1.64. Label: 2
Available from Lilly
Note. Dextropropoxyp pound analgesic prepa

DIAMORPHINI

(Heroin Hydrochlor
Indications: see oedema
Cautions; Contr see under Morphi **actions:** Appendi
Dose: acute pain, *b lar injection*, 5 mg sary (up to 10 mg f *By slow intraven* responding intram Myocardial infarcti *tion* (1 mg/minut 2.5–5 mg if nece reduce dose by ha Acute pulmonary *injection* (1 mg/m Chronic pain, *by intramuscular inj* 4 hours; dose n needs; intramuscu corresponding or corresponding ora scribing in Palliati *infusion* (using sy Palliative Care, p.

Diamorphine (No
Tablets, diamorphi price 100-tab pac
Available from Aurui
Injection, powder hydrochloride. Ne mg amp = £1.40, amp = £4.65, 500
Available from Berk

Diamorphine Lin
See section 3.9.1

DIHYDROCOI

Indications: mode
Cautions; Conti see under Morphi

DEXTROPROPOXYPHENE HYDROCHLORIDE

Indications: mild to moderate pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; occasional hepatotoxicity; porphyria (section 9.8.2); compound preparations special hazard in overdose, see notes above; convulsions reported in overdose; contra-indicated in those who are suicidal or addiction prone; **interactions:** Appendix 1 (opioid analgesics)

Dose: 65 mg every 6–8 hours when necessary; CHILD not recommended

Note. 65 mg dextropropoxyphene hydrochloride ≡ 100 mg dextropropoxyphene napsylate

Dextropropoxyphene (Non-proprietary) PoM

Capsules, the equivalent of dextropropoxyphene hydrochloride 65 mg (as napsylate). Net price 20 = £1.64. Label: 2

Available from Lilly (Doloxene® NHS)

Note. Dextropropoxyphene is an ingredient of some compound analgesic preparations, section 4.7.1

DIAMORPHINE HYDROCHLORIDE

(Heroin Hydrochloride)

Indications: see notes above; acute pulmonary oedema

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

Dose: acute pain, *by subcutaneous or intramuscular injection*, 5 mg repeated every 4 hours if necessary (up to 10 mg for heavier well-muscled patients)

By slow intravenous injection, quarter to half corresponding intramuscular dose

Myocardial infarction, *by slow intravenous injection* (1 mg/minute), 5 mg followed by a further 2.5–5 mg if necessary; elderly or frail patients, reduce dose by half

Acute pulmonary oedema, *by slow intravenous injection* (1 mg/minute) 2.5–5 mg

Chronic pain, *by mouth or by subcutaneous or intramuscular injection*, 5–10 mg regularly every 4 hours; dose may be increased according to needs; intramuscular dose should be approx. half corresponding oral dose, and approx. one third corresponding oral *morphine* dose—see also Prescribing in Palliative Care, p. 14; *by subcutaneous infusion* (using syringe driver), see Prescribing in Palliative Care, p. 14

Diamorphine (Non-proprietary) CD

Tablets, diamorphine hydrochloride 10 mg. Net price 100-tab pack = £12.30. Label: 2

Available from Aurum

Injection, powder for reconstitution, diamorphine hydrochloride. Net price 5-mg amp = £1.22, 10-mg amp = £1.40, 30-mg amp = £1.68, 100-mg amp = £4.65, 500-mg amp = £20.68

Available from Berk (*Diagesil*®), CP, Hillcross, Medeva

Diamorphine Linctus CD

See section 3.9.1

DIHYDROCODEINE TARTRATE

Indications: moderate to severe pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above

Dose: *by mouth*, 30 mg every 4–6 hours when necessary (see also notes above); CHILD over 4 years 0.5–1 mg/kg every 4–6 hours

By deep subcutaneous or intramuscular injection, up to 50 mg repeated every 4–6 hours if necessary; CHILD over 4 years 0.5–1 mg/kg every 4–6 hours

Dihydrocodeine (Non-proprietary)

Tablets PoM, dihydrocodeine tartrate 30 mg. Net price 20 = 65p. Label: 2, 21

Available from most generic manufacturers

Oral solution PoM, dihydrocodeine tartrate 10 mg/5 mL. Net price 150 mL = £2.40. Label: 2, 21

Available from Martindale

Injection CD, dihydrocodeine tartrate 50 mg/mL. Net price 1-mL amp = £1.72

Available from Aurum

DF 118 Forte® (Martindale) PoM

Tablets, dihydrocodeine tartrate 40 mg. Net price 100-tab pack = £12.05. Label: 2, 21

Dose: severe pain, 40–80 mg 3 times daily; max. 240 mg daily; CHILD not recommended

▣ Modified release

DHC Continus® (Napp) PoM

Tablets, m/r, dihydrocodeine tartrate 60 mg, net price 56-tab pack = £6.58; 90 mg, 56-tab pack = £10.36; 120 mg, 56-tab pack = £13.83. Label: 2, 25

Dose: chronic severe pain, 60–120 mg every 12 hours; CHILD not recommended

Note. Dihydrocodeine is an ingredient of some compound analgesic preparations, see section 4.7.1

DIPIPANONE HYDROCHLORIDE

Indications: moderate to severe pain

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

Dose: see preparation below

Diconal® (GlaxoWellcome) CD

Tablets, pink, scored, dipipanone hydrochloride 10 mg, cyclizine hydrochloride 30 mg. Net price 50-tab pack = £7.59. Label: 2

Dose: acute pain, 1 tablet gradually increased to 3 tablets every 6 hours; CHILD not recommended

CAUTION. **Not recommended** in palliative care, see p. 13

FENTANYL

Indications: chronic intractable pain due to cancer, see below; other indications (section 15.1.4.3)

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; local reactions such as rash, erythema and itching reported; **interactions:** Appendix 1 (opioid analgesics)

FEVER OR EXTERNAL HEAT. Monitor patients for increased side-effects if fever present (increased absorption possible); avoid exposing application site to external heat (may also increase absorption)

Administration: see under preparation, below

LONG DURATION OF ACTION. In view of the long duration of action, patients who have experienced severe side-effects should be monitored for up to 24 hours after patch removal

Durogesic® (Janssen-Cilag) CD

Patches, self-adhesive, transparent, fentanyl, '25' patch (releasing approx. 25 micrograms/hour for 72 hours), net price 5 = £28.97; '50' patch (releasing approx. 50 micrograms/hour for 72 hours), 5 = £54.11; '75' patch (releasing approx. 75 micrograms/hour for 72 hours), 5 = £75.43; '100' patch (releasing approx. 100 micrograms/hour for 72 hours), 5 = £92.97. Label: 2

ADMINISTRATION: apply to dry, non-irritated, non-irradiated, non-hairy skin on torso or upper arm, removing after 72 hours and siting replacement patch on a different area (avoid using the same area for several days). Patients who have not previously received a strong opioid analgesic, initial dose, one '25 micrograms/hour' patch replaced after 72 hours; patients who have received a strong opioid analgesic, initial dose based on previous 24-hour opioid requirement (oral morphine sulphate 90 mg over 24 hours = one '25 micrograms/hour' patch, consult product literature for details); CHILD not recommended

Note. When starting, evaluation of the analgesic effect should **not** be made before the system has been worn for **24 hours** (to allow for the gradual increase in plasma-fentanyl concentration)—previous analgesic therapy should be phased out gradually from time of first patch application; dose adjustment should normally be carried out in 72-hour steps of '25 micrograms/hour'. More than one patch may be used at a time for doses greater than '100 micrograms/hour' (but applied at *same time* to avoid confusion)—consider additional or alternative analgesic therapy if dose required exceeds 300 micrograms/hour (**important:** it may take 17 hours or longer for the plasma-fentanyl concentration to decrease by 50%, therefore replacement opioid therapy should be initiated at a low dose, increasing gradually).

HYDROMORPHONE HYDROCHLORIDE

Indications: severe pain in cancer

Cautions: see Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

Contra-indications: see Morphine Salts and notes above

Side-effects: see Morphine Salts and notes above

Dose: see under preparations below

Palladone® (Napp) CD

Capsules, hydromorphone hydrochloride 1.3 mg (orange/clear), net price 56-cap pack = £8.67; 2.6 mg (red/clear), 56-cap pack = £17.34. Label: 2, counselling, see below

Dose: 1.3 mg every 4 hours, increased if necessary according to severity of pain; CHILD under 12 years not recommended

COUNSELLING. Swallow whole or open capsule and sprinkle contents on soft food

Palladone® SR (Napp) CD

Capsules, m/r, hydromorphone hydrochloride 2 mg (yellow/clear), net price 56-cap pack = £18.42; 4 mg (pale blue/clear), 56-cap pack = £25.24; 8 mg (pink/clear), 56-cap pack = £49.22; 16 mg (brown/clear), 56-cap pack = £93.52; 24 mg (dark blue/clear), 56-cap pack = £140.30. Label: 2, counselling, see below

Dose: 4 mg every 12 hours, increased if necessary according to severity of pain; CHILD under 12 years not recommended

COUNSELLING. Swallow whole or open capsule and sprinkle contents on soft food

MEPTAZINOL

Indications: moderate to severe pain, including postoperative and obstetric pain and renal colic; peri-operative analgesia, see section 15.1.4.3

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; effects only partially reversed by naloxone

Dose: *by mouth*, 200 mg every 3–6 hours as required; CHILD not recommended

By intramuscular injection, 75–100 mg every 2–4 hours if necessary; obstetric analgesia, 100–150 mg according to patient's weight (2 mg/kg); CHILD not recommended

By slow intravenous injection, 50–100 mg every 2–4 hours if necessary; CHILD not recommended

Meptid® (Monmouth) PoM

Tablets, orange, f/c, meptazinol 200 mg, net price 112-tab pack = £24.57. Label: 2

Injection, meptazinol 100 mg (as hydrochloride)/mL, net price 1-mL amp = £1.92

METHADONE HYDROCHLORIDE

Indications: severe pain, see notes above; cough in terminal disease (section 3.9.1); adjunct in treatment of opioid dependence (section 4.10)

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

Dose: *by mouth or by subcutaneous or intramuscular injection*, 5–10 mg every 6–8 hours, adjusted according to response; CHILD not recommended

Methadone (Non-proprietary) CD

Tablets, scored, methadone hydrochloride 5 mg. Net price 50 = £3.11. Label: 2

Available from Martindale (*Physeptone®*)

Injection, methadone hydrochloride, 10 mg/mL, net price 1-mL amp = 86p, 2-mL amp = £1.55, 3.5-mL amp = £1.78, 5-mL amp = £1.92

Available from CP, Martindale (*Physeptone®*)

NALBUPHINE HYDROCHLORIDE

Indications: moderate to severe pain; premedication; peri-operative analgesia; myocardial infarction

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)

Dose: moderate to severe pain, *by subcutaneous, intramuscular, or intravenous injection*, 10–20 mg for 70 kg patient, adjusted as required; CHILD up to 300 micrograms/kg repeated once or twice as necessary

Premedication, *by subcutaneous, intramuscular, or intravenous injection*, 100–200 micrograms/kg

Induction, *by intravenous injection*, 0.3–1 mg/kg over 10–15 minutes

Intra-operative analgesia, *by intravenous injection*, 250–500 micrograms/kg at 30-minute intervals

Myocardial infarction, *by slow intravenous injection*, 10–20 mg repeated after 30 minutes if necessary

Nubain® (Du Pont) PoM

Injection, nalbuphine hydrochloride 10 mg/mL, Net price 1-mL amp = 73p; 2-mL amp = £1.[illegible]

PAPAVERETUM

IMPORTANT. Do **not** confuse with pa[illegible] 7.4.5)

A mixture of 253 parts of morphine 23 parts of papaverine hydrochlori[illegible] of codeine hydrochloride

REFORMULATION. *BP 1998* includes the nation concerning the reformulation *papaveretum injection* contains the thre *phine*, *papaverine* and *codeine*; in reform tion to remove *noscapine*, the amounts alkaloids have been maintained; thus th material per mL has decreased. Before *lower strength injection* (which provides *5 mg of the major component, morphine* per mL of the four-component material *7.7 mg of papaveretum per mL*. Likewis[illegible] lation the *higher strength injection* (wh *equivalent of 10 mg of morphine*) contai[illegible] of the four-component material; it now c[illegible] *papaveretum per mL*.

The CSM has advised that to avoid [illegible] ures of 7.7 mg/mL or 15.4 mg/mL shoul[illegible] scribing purposes.

Indications: postoperative analg[illegible] cation

Cautions; Contra-indications; see Morphine Salts and notes abo

Dose: *by subcutaneous, intramus venous injection*, 7.7–15.4 mg re[illegible] hours if necessary (ELDERLY ir[illegible] CHILD up to 1 month 115.5 micr[illegible] months 115.5–154 micrograms/k[illegible] 154–231 micrograms/kg

INTRAVENOUS DOSE. In general the should be 25–50% of the correspondir[illegible] intramuscular dose

Papaveretum (Non-proprietary) P[illegible]

Injection, papaveretum 7.7 mg/mL equivalent of 5 mg of anhydrous [illegible] net price 1-mL amp = 92p; 15.4 r[illegible] ing the equivalent of 10 mg of an phine/mL), 1-mL amp = £1.00

Available from Martindale

Note. The name *Omnopon®* was form veretum preparations.

■ With hyoscine

Papaveretum and Hyoscine In papaveretum 15.4 mg (providing t[illegible] 10 mg of anhydrous morphine), h[illegible] bromide 400 micrograms/mL. Ne[illegible] amp = £1.72

Dose: premedication, by subcutaneo[illegible] injection, 0.5–1 mL

Available from Martindale

■ With aspirin

Section 4.7.1

PENTAZOCINE

Indications: moderate to severe p[illegible] above

Cautions; Contra-indication: see under Morphine Salts and n[illegible] sional hallucinations; avoid in p[illegible] on opioids and in arterial or p[illegible] tension and heart failure; p[illegible] 9.8.2); **interactions:** Appendix [illegible] gesics)

PAPAVERETUM

IMPORTANT. Do **not** confuse with papaverine (section 7.4.5)

A mixture of 253 parts of morphine hydrochloride, 23 parts of papaverine hydrochloride and 20 parts of codeine hydrochloride

REFORMULATION. *BP 1998* includes the following explanation concerning the reformulation of papaveretum: *papaveretum injection* contains the three alkaloids *morphine*, *papaverine* and *codeine*; in reformulating the injection to remove *noscapine*, the amounts of the other three alkaloids have been maintained; thus the total amount of material per mL has decreased. Before reformulation the *lower strength injection* (which provides *the equivalent of 5 mg of the major component, morphine*) contained 10 mg per mL of the four-component material; it now contains *7.7 mg of papaveretum per mL*. Likewise, before reformulation the *higher strength injection* (which provides *the equivalent of 10 mg of morphine*) contained 20 mg per mL of the four-component material; it now contains *15.4 mg of papaveretum per mL*.

The CSM has advised that to avoid confusion the figures of 7.7 mg/mL or 15.4 mg/mL should be used for prescribing purposes.

Indications: postoperative analgesia; premedication

Cautions; Contra-indications; Side-effects: see Morphine Salts and notes above

Dose: *by subcutaneous, intramuscular, or intravenous injection*, 7.7–15.4 mg repeated every 4 hours if necessary (ELDERLY initially 7.7 mg); CHILD up to 1 month 115.5 micrograms/kg, 1–12 months 115.5–154 micrograms/kg, 1–12 years 154–231 micrograms/kg

INTRAVENOUS DOSE. In general the intravenous dose should be 25–50% of the corresponding subcutaneous or intramuscular dose

Papaveretum (Non-proprietary) CD

Injection, papaveretum 7.7 mg/mL (providing the equivalent of 5 mg of anhydrous morphine/mL), net price 1-mL amp = 92p; 15.4 mg/mL (providing the equivalent of 10 mg of anhydrous morphine/mL), 1-mL amp = £1.00

Available from Martindale

Note. The name *Omnopon*® was formerly used for papaveretum preparations.

■ With hyoscine

Papaveretum and Hyoscine Injection CD

papaveretum 15.4 mg (providing the equivalent of 10 mg of anhydrous morphine), hyoscine hydrobromide 400 micrograms/mL. Net price 1-mL amp = £1.72

Dose: premedication, by subcutaneous or intramuscular injection, 0.5–1 mL

Available from Martindale

■ With aspirin

Section 4.7.1

PENTAZOCINE

Indications: moderate to severe pain, but see notes above

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; occasional hallucinations; avoid in patients dependent on opioids and in arterial or pulmonary hypertension and heart failure; porphyria (section 9.8.2); **interactions:** Appendix 1 (opioid analgesics)

Dose: *by mouth*, pentazocine hydrochloride 50 mg every 3–4 hours preferably after food (range 25–100 mg); CHILD 6–12 years 25 mg

By subcutaneous, intramuscular, or intravenous injection, moderate pain, pentazocine 30 mg, severe pain 45–60 mg every 3–4 hours when necessary; CHILD over 1 year, *by subcutaneous or intramuscular injection*, up to 1 mg/kg, *by intravenous injection* up to 500 micrograms/kg

By rectum in suppositories, pentazocine 50 mg up to 4 times daily; CHILD not recommended

Pentazocine (Non-proprietary) CD

Capsules, pentazocine hydrochloride 50 mg. Net price 20 = £3.68. Label: 2, 21

Tablets, pentazocine hydrochloride 25 mg. Net price 20 = £1.59. Label: 2, 21

Injection, pentazocine 30 mg (as lactate)/mL. Net price 1-mL amp = £1.67; 2-mL amp = £3.21

Suppositories, pentazocine 50 mg (as lactate). Net price 20 = £19.93. Label: 2

Note. The brand name *Fortral*® NHS (Sanofi Winthrop) is used for all the above preparations of pentazocine

denotes preparations that are considered to be less suitable for prescribing (see p. vi)

PETHIDINE HYDROCHLORIDE

Indications: moderate to severe pain, obstetric analgesia; peri-operative analgesia

Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; avoid in severe renal impairment; not suitable for severe continuing pain; convulsions reported in **overdosage; interactions:** Appendix 1 (opioid analgesics)

Dose: acute pain, *by mouth*, 50–150 mg every 4 hours; CHILD 0.5–2 mg/kg

By subcutaneous or intramuscular injection, 25–100 mg, repeated after 4 hours; CHILD, *by intramuscular injection*, 0.5–2 mg/kg

By slow intravenous injection, 25–50 mg, repeated after 4 hours

Obstetric analgesia, *by subcutaneous or intramuscular injection*, 50–100 mg, repeated 1–3 hours later if necessary; max. 400 mg in 24 hours

Premedication, *by intramuscular injection*, 25–100 mg 1 hour before operation; CHILD 0.5–2 mg/kg

Adjunct to nitrous oxide–oxygen, *by slow intravenous injection*, 10–25 mg repeated when required

Postoperative pain, *by subcutaneous or intramuscular injection*, 25–100 mg, every 2–3 hours if necessary; CHILD, *by intramuscular injection*, 0.5–2 mg/kg

Note. In the postoperative period, the patient should be closely monitored for pain relief as well as for side-effects especially respiratory depression

Pethidine (Non-proprietary) CD

Tablets, pethidine hydrochloride 50 mg, net price 20 = £1.91. Label: 2

Available from Martindale, Roche

Injection, pethidine hydrochloride 50 mg/mL, net price 1-mL amp = 50p, 2-mL amp = 47p; 10 mg/mL, 5-mL amp = £1.12, 10-mL amp = £1.18

Various strengths available from Martindale

Pamergan P100® (Martindale) CD
Injection, pethidine hydrochloride 50 mg, promethazine hydrochloride 25 mg/mL. Net price 2-mL amp = 73p
Dose: by intramuscular injection, premedication, 2 mL 60–90 minutes before operation; CHILD 8–12 years 0.75 mL, 13–16 years 1 mL
Obstetric analgesia, 1–2 mL every 4 hours if necessary
Severe pain, 1–2 mL every 4–6 hours if necessary
Note. Although usually given intramuscularly, may be given intravenously after dilution to at least 10 mL with water for injections

PHENAZOCINE HYDROBROMIDE

Indications: severe pain
Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; **interactions:** Appendix 1 (opioid analgesics)
Dose: *by mouth or sublingually*, 5 mg every 4–6 hours when necessary; single doses may be increased to 20 mg; CHILD not recommended

Narphen® (Napp) CD
Tablets, phenazocine hydrobromide 5 mg. Net price 100-tab pack = £28.51. Label: 2

TRAMADOL HYDROCHLORIDE

Indications: moderate to severe pain
Cautions; Contra-indications; Side-effects: see under Morphine Salts and notes above; in addition to hypotension, hypertension also occasionally reported; anaphylaxis, hallucinations and confusion also reported; caution if history of epilepsy (convulsions reported, usually after rapid intravenous injection); avoid in pregnancy and breast-feeding; not suitable as substitute in opioid-dependent patients; **interactions:** Appendix 1 (opioid analgesics)
GENERAL ANAESTHESIA. Not recommended for analgesia during potentially very light planes of general anaesthesia (possibly increased operative recall reported)
Dose: *by mouth*, 50–100 mg not more often than every 4 hours; total of more than 400 mg daily by mouth not usually required; CHILD not recommended
By intramuscular injection or by intravenous injection (over 2–3 minutes) *or by intravenous infusion*, 50–100 mg every 4–6 hours
Postoperative pain, 100 mg initially then 50 mg every 10–20 minutes if necessary during first hour to total max. 250 mg (including initial dose) in first hour, *then* 50–100 mg every 4–6 hours; max. 600 mg daily; CHILD not recommended

Tramadol Hydrochloride (Non-proprietary) PoM
Capsules, tramadol hydrochloride 50 mg. Net price 100-cap pack = £13.43. Label: 2
Available from Cox, Ethical Generics Ltd, Galen (*Tramake®*), Generics, Norton, Tillomed

Tramake Insts® (Galen) PoM
Sachets, effervescent powder, sugar-free, lemon-flavoured, tramadol hydrochloride 50 mg (contains 9.7 mmol Na^+/sachet), net price 60-sachet pack = £8.95; 100 mg (contains 14.6 mmol Na^+/sachet), 60-sachet pack = £17.90. Label: 2, 13
Excipients: include aspartame (section 9.4.1)

Zamadol® (ASTA Medica) PoM
Capsules, tramadol hydrochloride 50 mg. Net price 100-cap pack = £15.20. Label: 2

Zydol® (Searle) PoM
Capsules, green/yellow, tramadol hydrochloride 50 mg. Net price 100-cap pack = £17.71. Label: 2
Soluble tablets, tramadol hydrochloride 50 mg, net price 20-tab pack = £3.19, 100-tab pack = £15.95. Label: 2, 13
Injection, tramadol hydrochloride 50 mg/mL. Net price 2-mL amp = £1.30

■ Modified release

Zamadol® SR (ASTA Medica) PoM
Capsules, m/r, tramadol hydrochloride 50 mg (green), net price 60-cap pack = £8.60; 100 mg, net price 60-cap pack = £17.20; 150 mg (dark green), 60-cap pack = £25.80; 200 mg (yellow), 60-cap pack = £34.40. Label: 2
Dose: 50–100 mg twice daily increased if necessary to 150–200 mg twice daily; total of more than 400 mg daily not usually required; CHILD under 12 years not recommended
COUNSELLING. Swallow whole or open capsule and swallow contents immediately without chewing

Zydol SR® (Searle) PoM
Tablets, m/r, f/c, tramadol hydrochloride 100 mg, net price 60-tab pack = £19.12; 150 mg (beige), 60-tab pack = £28.68; 200 mg (orange), 60-tab pack = £38.24. Label: 2, 25
Dose: 100 mg twice daily increased if necessary to 150–200 mg twice daily; total of more than 400 mg daily by mouth not usually required; CHILD not recommended

4.7.3 Neuropathic pain

Neuropathic pain occurs as a result of damage to neural tissue.

Patients with neuropathic pain (including central pain, phantom limb pain, causalgia, and reflex sympathetic dystrophy) are generally managed with a tricyclic antidepressant; certain antiepileptic or anti-arrhythmic drugs are used as adjuncts to antidepressants. Neuropathic pain may respond only partially to opioid analgesics, which may be considered when other measures fail.

Corticosteroids may also be used for compression neuropathies.

Nerve blocks may be considered for control of localised pain. Transcutaneous electrical nerve stimulation (TENS) may also provide useful relief of localised pain; central electrical stimulation of the spinal cord may help in more widespread pain.

Ketamine (section 15.1.1), a N-methyl-D-aspartic acid (NMDA) antagonist, may also be useful in some forms of neuropathic pain [unlicensed indication; specialist use only].

The management of trigeminal neuralgia, postherpetic neuralgia, atypical facial pain, and temporomandibular joint dysfunction are outlined below; for the management of neuropathic pain in palliative care, see p. 12; for the management of diabetic neuropathy, see section 6.1.5.

▬ denotes preparations that are considered to be less suitable for prescribing (see p. vi)

Trigeminal neuralgia

Carbamazepine (section 4.8.1
acute stages of trigeminal neu
frequency and severity of attacks
other forms of headache. Plas
concentration should be monitor
are given. Occasionally extreme
treatment should be started with
increased slowly.

Some cases of trigeminal neu
phenytoin (section 4.8.1) given a
mazepine. A combination of phe
mazepine is required only in refr
those unable to tolerate high doses

Postherpetic neuralgia

Postherpetic neuralgia may foll
zoster infection (shingles), partic
erly. Attempts at preventing the
postherpetic neuralgia have not
effective. Treatment is therefore ba
the neuralgia once it develops. An
be used early in the acute phase,
25 mg daily at night and the dose
ally to about 75 mg daily [unlicen
Where amitriptyline fails to mana
quately, the addition of the antiep
valproate or **carbamazepine** may
[unlicensed indications].

A topical analgesic preparation
saicin 0.075% (section 10.3.2) is lic
postherpetic neuralgia.

Atypical facial pain

Chronic oral and facial pain (e.g.
pain or arthritic pain) may call for p
conventional analgesics or of oth
drugs. Tricyclic antidepressants ma
facial pain [unlicensed indication]
associated with depression.

Temporomandibular joint dy

Temporomandibular joint dysfunc
related to anxiety in some patients wh
or grind their teeth (bruxism) durin
night; the patient should be referred t
géon. The muscle spasm (which ma
source of pain) can be treated empiri
overlay appliance which provides a
occlusion and may also interfere with
addition, diazepam may be helpful b
prescribed only on a short-term basi
acute phase. Analgesics such as aspirin
may also be required.

4.7.4 Antimigraine d

4.7.4.1 Treatment of the a migraine attack

Acute attacks of migraine may be reliev
gesics or a specific treatment such as t
5HT$_1$ agonist or ergotamine. An anti-e
also be given if nausea and vomiting are

15.1.4.1 Anxiolytics and neuroleptics

Anxiolytic benzodiazepines are widely used whereas neuroleptics such as **chlorpromazine** and **droperidol** (section 4.2.1) are rarely used in the UK for premedication; although chlorpromazine is licensed to prevent shivering in induction of hypothermia, it is no longer in current use for this purpose. **Trimeprazine** (section 3.4.1) is used as a premedicant for children (but see notes above).

Clomethiazole (chlormethiazole, section 4.1.1) is licensed for use as an intravenous infusion to maintain sleep during surgery carried out under regional anaesthesia, but is no longer in current use for this purpose.

Benzodiazepines

Benzodiazepines possess useful properties for premedication including anxiolysis, sedation, and amnesia; short-acting benzodiazepines taken by mouth are the most common premedicants. They have no analgesic effect so an opioid analgesic may sometimes be required for pain.

Benzodiazepines can alleviate anxiety at doses that do not necessarily cause excessive sedation and they are of particular value during short procedures or during operations under local anaesthesia (including dentistry). Amnesia reduces the likelihood of any unpleasant memories of the procedure (although benzodiazepines, particularly when used for more profound sedation, can sometimes induce sexual fantasies). Benzodiazepines are also used in intensive care units for sedation, particularly in those receiving assisted ventilation.

Benzodiazepines may occasionally cause marked respiratory depression and facilities for its treatment are essential; flumazenil (section 15.1.7) is used to antagonise the effects of benzodiazepines.

Diazepam is used to produce mild sedation with amnesia. It is a long-acting drug with active metabolites and a second period of drowsiness can occur several hours after its administration. Peri-operative use of diazepam in children is not generally recommended; its effect and timing of response are unreliable and paradoxical effects may occur.

Diazepam is relatively insoluble in water and preparations formulated in organic solvents are painful on intravenous injection and give rise to a high incidence of venous thrombosis (which may not be noticed for several days after the injection). Intramuscular injection of diazepam is painful and absorption is erratic. An emulsion preparation for intravenous injection is less irritant and is followed by a negligible incidence of venous thrombosis; it is not suitable for intramuscular injection. Diazepam is also available as a rectal solution.

Temazepam is given by mouth and has a shorter duration of action and a more rapid onset than diazepam given by mouth. It has been used as a premedicant in inpatient and day-case surgery; anxiolytic and sedative effects last about 90 minutes although there may be residual drowsiness.

Lorazepam produces more prolonged sedation than temazepam and it has marked amnesic effects. It is used as a premedicant the night before major surgery; a further, smaller dose may be required the following morning if any delay in starting surgery is anticipated. Alternatively the first dose may be given early in the morning on the day of operation.

Midazolam is a water-soluble benzodiazepine which is often used in preference to intravenous diazepam; recovery is faster than from diazepam. Midazolam is associated with profound sedation when high doses are given intravenously or when used with certain other drugs.

DIAZEPAM

Indications: premedication; sedation with amnesia, and in conjunction with local anaesthesia; other indications (section 4.1.2, section 4.8.2, and section 10.2.2)

Cautions; Contra-indications; Side-effects: see notes above and sections 4.1.2 and 4.8.2

Dose: *by mouth*, 5 mg on night before minor or dental surgery then 5 mg 2 hours before procedure

By intravenous injection, into a large vein 10–20 mg over 2–4 minutes as sedative cover for minor surgical and medical procedures; premedication 100–200 micrograms/kg

By rectum in solution, 10 mg; ELDERLY 5 mg; CHILD not recommended (see notes above)

Note. Diazepam rectal solution doses in the BNF may differ from those in the product literature

Preparations
Section 4.1.2

LORAZEPAM

Indications: sedation with amnesia; premedication; other indications (section 4.1.2 and section 4.8.2)

Cautions; Contra-indications; Side-effects: see notes above and under Diazepam (section 4.1.2 and section 4.8.2)

Dose: *by mouth*, 2–3 mg the night before operation; 2–4 mg 1–2 hours before operation

By slow intravenous injection, preferably diluted with an equal volume of sodium chloride intravenous infusion 0.9% or water for injections, 50 micrograms/kg 30–45 minutes before operation

By intramuscular injection, diluted as above, 50 micrograms/kg 1–1½ hours before operation

Preparations
Section 4.1.2

MIDAZOLAM

Indications: sedation with amnesia, and in conjunction with local anaesthesia; premedication, induction

Cautions; Contra-indications; Side-effects: see notes above and under Diazepam (section 4.1.2 and section 4.8.2); respiratory depression and respiratory arrest reported, particularly with high doses or on rapid injection; **interactions:** Appendix 1 (anxiolytics and hypnotics)

Dose: sedation, *by intra*
seconds, 2 mg (elderly 1
minutes by increments c
adequate; usual ran
70 micrograms/kg), elde
Premedication, *by intr*
100 micrograms/kg 30–(
usual dose 5 mg (2.5 mg
Induction, *by slow int*
300 micrograms/kg (eld
kg); CHILD over 7 years,
Sedation of patients re
intravenous infusi
300 micrograms/kg giv
30–200 micrograms/kg/
initial dose) in hypovol
hypothermia; low doses
analgesic also used; avc
prolonged administratic
14 days not established)

Midazolam (Non-propri
Injection, midazolam (as
net price 50-mL vial =
Available from Aurum

Hypnovel® (Roche) POM
Injection, midazolam (as
net price 5-mL amp = £
= 85p

TEMAZEPAM

Indications: premedicat
anxiety before investig
(section 4.1.1)

Cautions; Contra-in
see notes above and
4.1.2 and section 4.8.2)

Dose: *by mouth*, premed
10–20 mg) 1 hour befc
kg (max. 30 mg)

Preparations
Section 4.1.1

15.1.4.2 Non-opic

Since non-steroidal
(NSAIDs) do not depres
gastro-intestinal motility
ence, they may be usefu
to the use of opioids for
pain. NSAIDs may be i
severe pain.

Diclofenac, flurbipr
10.1.1), and **ketorolac**
ative use. Diclofenac, ke
be given by injection a
muscular injections of
are given deep into the
pain and tissue damag
given by intravenous in
prevention of postopera
irritant on intramuscular
reported; it can also be
tion.

Suppositories of diclo
be effective alternative
these drugs. Flurbiprofe
positories.

effects. It is used as a premedicant the night before major surgery; a further, smaller dose may be required the following morning if any delayed starting surgery is anticipated. Alternatively, the first dose may be given early in the morning on the day of operation.

Midazolam is a water-soluble benzodiazepine which is often used in preference to intravenous diazepam; recovery is faster than from diazepam. Midazolam is associated with profound sedation when high doses are given intravenously or when used with certain other drugs.

DIAZEPAM

Indications: premedication; sedation with amnesia, and in conjunction with local anaesthesia; other indications (section 4.1.2, section 4.8.2, and section 10.2.2)

Cautions; Contra-indications; Side-effects: see notes above and sections 4.1.2 and 4.8.2

Dose: *by mouth*, 5 mg on night before minor or dental surgery then 5 mg 2 hours before procedure

By intravenous injection, into a large vein 10–20 mg over 2–4 minutes as sedative cover for minor surgical and medical procedures; premedication 100–200 micrograms/kg

By rectum in solution, 10 mg; ELDERLY 5 mg; CHILD not recommended (see notes above)

Note. Diazepam rectal solution doses in the BNF may differ from those in the product literature

Preparations
Section 4.1.2

LORAZEPAM

Indications: sedation with amnesia; premedication; other indications (section 4.1.2 and section 4.8.2)

Cautions; Contra-indications; Side-effects: see notes above and under Diazepam (section 4.1.2 and section 4.8.2)

Dose: *by mouth*, 2–3 mg the night before operation; 2–4 mg 1–2 hours before operation

Slow intravenous injection, preferably diluted with an equal volume of sodium chloride intravenous infusion 0.9% or water for injections, 50 micrograms/kg 30–45 minutes before operation

By intramuscular injection, diluted as above, 50 micrograms/kg 1–1½ hours before operation

Preparations
Section 4.1.2

MIDAZOLAM

Indications: sedation with amnesia, and in conjunction with local anaesthesia; premedication, induction

Cautions; Contra-indications; Side-effects: see notes above and under Diazepam (section 4.1.2 and section 4.8.2); respiratory depression and respiratory arrest reported, particularly with high doses or on rapid injection; **interactions:** Appendix 1 (anxiolytics and hypnotics)

Dose: sedation, *by intravenous injection* over 30 seconds, 2 mg (elderly 1–1.5 mg) followed after 2 minutes by increments of 0.5–1 mg if sedation not adequate; usual range 2.5–7.5 mg (about 70 micrograms/kg), elderly 1–2 mg

Premedication, *by intramuscular injection*, 70–100 micrograms/kg 30–60 minutes before surgery; usual dose 5 mg (2.5 mg in elderly)

Induction, *by slow intravenous injection*, 200–300 micrograms/kg (elderly 100–200 micrograms/kg); CHILD over 7 years, 150 micrograms/kg

Sedation of patients receiving intensive care, *by intravenous infusion*, initially 30–300 micrograms/kg given over 5 minutes, then 30–200 micrograms/kg/hour; reduce dose (or omit initial dose) in hypovolaemia, vasoconstriction, or hypothermia; low doses may be adequate if opioid analgesic also used; avoid abrupt withdrawal after prolonged administration (safety after more than 14 days not established)

Midazolam (Non-proprietary) PoM
Injection, midazolam (as hydrochloride) 1 mg/mL, net price 50-mL vial = £6.00
Available from Aurum

Hypnovel® (Roche) PoM
Injection, midazolam (as hydrochloride) 2 mg/mL, net price 5-mL amp = £1.01; 5 mg/mL, 2-mL amp = 85p

TEMAZEPAM

Indications: premedication before minor surgery; anxiety before investigatory procedures; hypnotic (section 4.1.1)

Cautions; Contra-indications; Side-effects: see notes above and under Diazepam (section 4.1.2 and section 4.8.2)

Dose: *by mouth*, premedication, 20–40 mg (elderly, 10–20 mg) 1 hour before operation; CHILD 1 mg/kg (max. 30 mg)

Preparations
Section 4.1.1

15.1.4.2 Non-opioid analgesics

Since non-steroidal anti-inflammatory drugs (NSAIDs) do not depress respiration, do not impair gastro-intestinal motility, and do not cause dependence, they may be useful alternatives (or adjuncts) to the use of opioids for the relief of postoperative pain. NSAIDs may be inadequate for the relief of severe pain.

Diclofenac, flurbiprofen, ketoprofen (section 10.1.1), and **ketorolac** are licensed for postoperative use. Diclofenac, ketoprofen and ketorolac can be given by injection as well as by mouth. Intramuscular injections of diclofenac and ketoprofen are given deep into the gluteal muscle to minimise pain and tissue damage; diclofenac can also be given by intravenous infusion for the treatment of prevention of postoperative pain. Ketorolac is less irritant on intramuscular injection but pain has been reported; it can also be given by intravenous injection.

Suppositories of diclofenac and ketoprofen may be effective alternatives to the parenteral use of these drugs. Flurbiprofen is also available as suppositories.

KETOROLAC TROMETAMOL

Indications: short-term management of moderate to severe acute postoperative pain

Cautions: reduce dose in elderly and in those weighing less than 50 kg; reduce dose and monitor in mild renal impairment (avoid if moderate or severe); heart failure, hepatic impairment and other conditions leading to reduction in blood volume or in renal blood flow (including those taking diuretics); cardiac decompensation, hypertension or similar conditions (fluid retention and oedema reported); **interactions:** Appendix 1 (NSAIDs)

GASTRO-INTESTINAL EFFECTS. Elderly and debilitated more prone to risk of gastro-intestinal effects (risk increases with increased dose and duration); see also under Contra-indications and Side-effects below

Contra-indications: history of hypersensitivity to aspirin or any other NSAID (severe anaphylactic reactions reported), history of asthma, complete or partial syndrome of nasal polyps, angioedema or bronchospasm; history of peptic ulceration or gastro-intestinal bleeding; haemorrhagic diatheses (including coagulation disorders) and operations with high risk of haemorrhage or incomplete haemostasis; confirmed or suspected cerebrovascular bleeding; moderate or severe renal impairment; hypovolaemia or dehydration; pregnancy (including labour and delivery) and breast-feeding

Side-effects: side-effects reported include anaphylaxis (with rash, bronchospasm, laryngeal oedema and hypotension), fluid retention (see Cautions), nausea, dyspepsia, abdominal discomfort, bowel changes, peptic ulceration, gastro-intestinal bleeding (elderly at greater risk, see also above), pancreatitis, drowsiness, dizziness, headache, sweating, dry mouth, excessive thirst, mental and sensory changes, psychotic reactions, convulsions, myalgia, aseptic meningitis, hyponatraemia, hyperkalaemia, raised blood urea and creatinine, urinary symptoms and acute renal failure, flushing or pallor, bradycardia, hypertension, palpitations, chest pain, purpura, thrombocytopenia, prolonged bleeding time, dyspnoea and pulmonary oedema, skin reactions (some severe, including Stevens-Johnson and Lyell's syndromes), postoperative wound haemorrhage, haematoma, epistaxis, oedema, liver function changes (discontinue if clinical symptoms); pain at injection site; for general side-effects of NSAIDs, see section 10.1.1

Dose: *by mouth*, 10 mg every 4–6 hours (ELDERLY every 6–8 hours); max. 40 mg daily; max. duration of treatment 7 days; CHILD under 16 years, not recommended

By intramuscular injection or by intravenous injection over not less than 15 seconds, initially 10 mg, then 10–30 mg every 4–6 hours when required (every 2 hours in initial postoperative period); max. 90 mg daily (ELDERLY and patients weighing less than 50 kg max. 60 mg daily); max. duration of treatment 2 days by either route; CHILD under 16 years, not recommended

Note. Pain relief may not occur for over 30 minutes after intravenous or intramuscular injection. When converting from parenteral to oral administration, total combined dose on the day of converting should not exceed 90 mg (60 mg in the elderly and patients weighing less than 50 kg) of which the oral component should not exceed 40 mg; patients should be converted to oral route as soon as possible

4

THE PALLIATIVE CARE HANDBOOK

Guidelines on clinical management

FOURTH EDITION

PORTSMOUTH HEALTHCARE NHS TRUST
PORTSMOUTH HOSPITALS NHS TRUST
THE ROWANS (PORTSMOUTH AREA HOSPICE)

in association with all the Wessex Specialist Palliative Care Units

CONTENTS

INTRODUCTION

Palliative care:

- is the active total care of patients and their families, usually when their disease is no longer responsive to potentially curative treatment, although it may be applicable earlier in the illness;
- provides relief from pain and other symptoms;
- aims to achieve the highest possible quality of life for patients and families;
- responds to physical, psychological, social and spiritual needs;
- extends as necessary to support in bereavement.

This handbook contains guidelines to help GPs, community nurses and hospital staff as well as specialist palliative care teams. It aims to provide a checklist for the management of common problems in palliative care, with some information on drug treatment. It is not a comprehensive textbook.

Further advice can be sought from the specialist staff identified on the back cover; more detailed drug information may be found in the British National Formulary.

The former term 'radiotherapist' is used in place of 'clinical oncologist', for reasons of clarity and brevity.

Cautionary note: some of the drug usage recommended is outside product licence, either by way of indication, dose, or route of administration. However, the approaches described are recognised as reasonable practice within palliative medicine in the UK.

Abbreviations

csci = continuous subcutaneous infusion (via a syringe driver)
sl = sublingual
sc = subcutaneous injection

*** indicates that these drugs or conditions are best managed by specialist staff**

GENERAL PRINCIPLES OF SYMPTOM MANAGEMENT

- Accurate and full assessment is essential for both diagnosis and treatment
- Be aware of the importance of non-physical factors in symptomatology - emotional, psychological, social and spiritual problems are often mixed together with physical symptoms
- When symptoms are difficult to control there may be more than one cause, or there may be hidden emotional, psychological, social and spiritual factors
- Use appropriate therapies to maintain best possible quality of life and independence, and to allow patient and carers to focus on other important issues
- Be careful that drug side effects do not become worse than the original problem
- Sensitive explanation and inclusion of patient and carers in decision making are essential parts of symptom management
- A multiprofessional approach is essential, and may be facilitated by the use of a drug card and/or a shared information card
- Consider referral for a specialist palliative care opinion:
  - if there is a problem which does not respond as expected
  - in complex situations which may benefit from specialist expertise
  - for support for the hospital or primary health care team
- Continually reassess

PAIN

Pain is a common, although not inevitable symptom in cancer and successful treatment requires an accurate diagnosis of the cause and a rational approach to therapy. There are many components to cancer pain and all relevant physical and psycho-social factors need to be taken into account. Pain in the cancer patient need not be caused by the cancer, and can be due to previous treatment or to an unrelated cause.

Most pains arise by stimulation of nociceptive nerve endings; the characteristics may depend on the organ involved. The analgesic ladder approach (see over) is the basis for prescribing but careful choice of appropriate adjuvant drugs such as anticholinergics for colic, NSAIDs for bone pain and benzodiazepines for muscle spasm, will greatly increase the chance of effective palliation.

A burning or shooting component to the pain is likely to be due to nerve entrapment or infiltration resulting from compression or erosion respectively.

Diagnosis

There is no easy way of measuring pain in a clinical situation; as such, it is generally held that pain is what the patient says it is.

Causes / Risk Factors

1 Physical	Nociceptive pain caused by somatic, visceral or bone injury
	Neuropathic pain caused by nerve injury
2 Non-physical	Anger, anxieties, fears, sadness, helplessness
	Spiritual, social and family distress

If pain is difficult to control, remember:

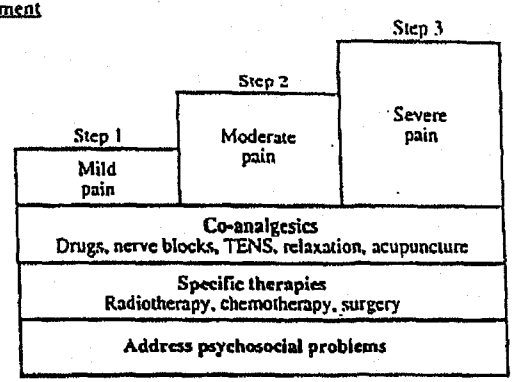
> All pains have a significant psychological component, and fear, anxiety and depression will all lower the pain threshold. Remember also the likely effects of life changes associated with terminal disease including loss of financial security, loss of body image and compromised sexual function. Together with more existential and religious uncertainties, these factors can have a major impact on the way a person perceives and copes with pain.

Assessment

1 Identify the site (with any radiation), severity, duration, timing and aggravating and relieving factors

2 Use a body diagram with the patient's own words

Management



The WHO analgesic ladder

The WHO analgesic ladder has been adopted to emphasize that it is essential to use an analgesic which is appropriate to the severity of the pain; patients whose pains do not respond to weak opioids warrant and deserve to be managed with strong opioids. However, alternative methods of pain control as indicated in the boxes at the base of the diagram must be considered in all patients, whatever the severity of their pain.

Step 1 **Non opioids**

Paracetamol	oral or rectal 500mg - 1g qds (maximum 4g / day)
NSAIDs	diclofenac (tabs SR 75mg bd)
	naproxen (tabs/susp/suppos 500mg bd)
	ibuprofen (maximum 2.4g per day)

Step 2 **Weak opioids**

Dextropropoxyphene 32.5mg with paracetamol 325mg (coproxamol)
Codeine 30mg with paracetamol 500mg (cocodamol 30/500)

Several other drugs are available in this category including dihydrocodeine and tramadol (avoid in epilepsy or if on antidepressives) although none has any particular advantage over the two preparations listed above

Step 3 **Strong opioids**
See following pages

Strong opioids

1 **Morphine** is the strong opioid of choice for oral use

Several preparations are available including:

Immediate release oral morphine
a) Oramorph liquid 10mg/5ml, 100mg/5ml (4 hourly)
b) Oramorph unit dose vials 10mg/5ml, 30mg/5ml, 100mg/5ml (4 hourly)
c) Sevredol tablet 10mg, 20mg, 50mg (4 hourly)

Sustained release oral morphine tablets and capsules
a) MST Continus 5mg, 10mg, 15mg, 30mg, 60mg, 100mg, 200mg (12 hourly)
b) Oramorph SR 10mg, 30mg, 60mg, 100mg (12 hourly)
c) MXL 30mg, 60mg, 90mg, 120mg, 150mg, 200mg (24 hourly)
d) Morcap SR 20mg, 50mg, 100mg (12 or 24 hourly)

Sustained release oral suspensions
a) MST Continus 20mg, 30mg, 60mg, 100mg, 200mg (12 hourly)

Morphine suppositories are available if the rectal route is preferred - consult local pharmacy for availability

2 **Diamorphine** is the strong opioid of choice for parenteral use because of its greater solubility - maximum recommended concentration 250mg/ml

3 **Phenazocine*** is useful if there is genuine morphine intolerance. One 5mg tablet is equipotent with 25mg morphine but has a longer duration of action
a) Narphen 5mg (6 - 8 hourly)

4 **Fentanyl TTS patch.** Useful especially when there is difficulty swallowing, vomiting or intractable constipation; dose titration is more difficult and expensive. Possibility of withdrawal symptoms when converting from morphine - responds to small doses of immediate release oral morphine
a) Durogesic 25mcg/hr, 50mcg/hr, 75mcg/hr, 100mcg/hr (72 hourly)

Conversion from oral morphine to transdermal fentanyl

Morphine (mg/day)	<135	135 -224	225 -314	315 -404	405 -494	495 -584	585 -674	675 -764	765 -854
Fentanyl (mcg/hour)	25	50	75	100	125	150	175	200	225

5 **Hydromorphone*** has recently become available in this country; it may be useful if there is genuine morphine intolerance
a) Palladone capsules 1.3mg, 2.6mg (4 hourly)
b) Palladone SR capsules 2mg, 4mg, 8mg, 16mg, 24mg (12 hourly)

6 **Dextromoramide** (Palfium) and **pethidine** have a short duration of action. They are useful for painful procedures but should not be used regularly for chronic cancer pain

Use of morphine

1 Instructions to the patient
- Emphasise the need for regular administration and explain about breakthrough medication
- Warn about possible side effects
- Reassure that when used for pain relief, morphine is not addictive and that there is a very wide range of doses available so that they are not prejudicing future pain relief by starting treatment now

2 Start by using an immediate release morphine (liquid or tablet) for dose titration giving it every 4 hours. The eventual effective dose may range from 2.5mg to more than 200mg but only a minority of patients will need more than 30mg 4 hourly. Give a double dose at bedtime to avoid waking at 2 - 3 am but ensure that at least 5 doses are given per 24 hours

3 Start with a low dose and increase by 30 - 50% increments each day until pain controlled or side effects prevent further increase. Doses can be rounded up or down according to individual need. A common dose sequence is:
5 - 10 - 15 - 20 - 30 - 40 - 60 - 90 - 120 - 150 - 200mg
Avoid unwieldy doses such as 22.75mg which will lead to confusion and error

4 Prescribe the same dose as the 4 hourly dose for prn use to be repeated as often as necessary (hourly if necessary) for breakthrough pain while still continuing with the regular dose and review every 24 hours

5 Use continuing pain as an indication to increase the dose and persisting side-effects, eg drowsiness, vomiting, confusion, particularly in association with constricted pupils, as an indication to reduce the dose. If both pain and side-effects are present, consider other approaches

6 Once pain is controlled, consider converting to 12 or 24 hourly sustained release preparation for convenience using the same total daily dose. Always make available immediate release morphine for breakthrough pain (see 4)

7 When oral administration is not possible because of dysphagia, vomiting or weakness, consider changing to diamorphine by subcutaneous infusion using a syringe driver. The conversion from oral morphine to subcutaneous diamorphine (total daily dose) varies between 1/3 - 1/2 allowing some flexibility depending on the requirement for increased or decreased opioid effect

Unwanted effects of morphine

1 Constipation is virtually inevitable - use prophylactic laxatives (see p22)

2 Nausea normally clears within a week; more common at higher doses. May need antiemetic, eg haloperidol 1.5mg nocte, metoclopramide 10mg tds. prochlorperazine 5 - 10mg tds

3 Drowsiness normally clears within 5 days; otherwise suggests overdosage. If persistent reduce dose, consider other forms of analgesia or other opioid

Changing from one opioid to another

There are theoretical proposals in the literature for opioid rotation*, that is changing from one strong opioid to another if pain does not come under good control without unacceptable side effects. Research evidence is lacking, and most problems can be solved by improving the titration or by using adjuvant drugs

Opioid equivalents

This table provides only an approximate guide to opioid equivalents, because comprehensive data are lacking. Doses always need to be re-titrated after a change of opioid. The total daily doses shown are broadly equivalent to oral morphine 30mg

Drug	Total daily dose
Coproxamol	8 tablets
Codeine	360mg
Dihydrocodeine	300mg
Tramadol	120mg
Buprenorphine#	0.6mg
Pethidine (intramuscular)#	200mg
Morphine	**30mg**
Diamorphine (subcutaneous)	10mg
Phenazocine*	7.5mg
Hydromorphone*	4mg
Oxycodone (only available in UK as suppositories)	20mg
Methadone*	10mg
Dextromoramide#	15mg

Notes

\# We do not recommend for regular use in chronic cancer pain

* Best used by specialist staff

Management of specific pains

A Bone pain

1 Consider early referral for palliative radiotherapy - usually single fraction

2 NSAIDS are effective for pain on movement but beware side effects especially when used with corticosteroids; discontinue if not helping

3 Regular iv infusions of **bisphosphonates*** of proven benefit in bone metastases from breast or prostate cancer and myeloma: **pamidronate** 60 - 90mg, **sodium clodronate** 1500mg every 3 - 4 weeks

4 Consider orthopaedic surgery for painful lytic metastases at risk of fracture

B Abdominal pain

1 Constipation is a common cause; avoid assuming pain must be due to cancer

2 For colic use an anticholinergic such as oral **propantheline** or subcutaneous **hyoscine butylbromide** (Buscopan) 30 - 90mg/24hrs usually by syringe driver

3 For liver capsule pain consider **dexamethasone** 4 - 8mg/day +/- NSAID

4 For pain arising from upper GI tumour consider coeliac plexus block (see H)

5 NSAIDs are a common cause of iatrogenic abdominal pain

C Neuropathic pain*

Often burning or shooting, and may not respond in a predictable way to pain relieving medication. May presage cord compression. Specialist palliative care team will be pleased to advise but the following approach is suggested

1 Titrate to maximum tolerated dose of opioid

2 **Amitriptyline** 10 - 75mg or **dothiepin** 25mg - 75mg nocte; increase dose to maximum tolerated and stop if no benefit after 7 days at that dose

3 According to response either add or substitute anticonvulsant eg **sodium valproate** 400 - 800mg/day, **clonazepam** 500mcg nocte or up to tds, **carbamazepine** 200 - 1200mg/day (usefulness is often limited by side effects); discontinue if no benefit after 5 days on highest dose tolerated

4 **Dexamethasone** 8mg daily - stop if no improvement after 5 days

5 To consider; TENS, acupuncture, **clonidine***, **ketamine***, **midazolam***, **mexilitine***, neural blockade

D Rectal pain

1 Rectal drugs: **steroids, diazepam, nifedipine*, baclofen***

2 Local radiotherapy

3 **Tricyclic antidepressives** (amitriptyline, dothiepin - see C)

4 If anal spasms, try **glyceryl trinitrate** ointment 0.1 - 0.2% bd

E Muscle pain

1 Paracetamol, NSAIDs

2 Muscle relaxants: **diazepam, baclofen, dantrolene**

3 Physiotherapy, aromatherapy, relaxation, heat pad

F Bladder spasm

1 Oxybutinin 5mg tds

2 Amitriptyline 10 - 75mg nocte

3 If catheterized, intravesical **bupivacaine** 0.25%, 20 mls for 15 mins tds

G Acute pain of short duration

For example pain on moving a fractured limb or changing a painful dressing

1 **Dextromoramide** given sublingually 20 mins prior to procedure

2 Entonox

H Pains amenable to nerve blocks

Some techniques are easily learned by the non-specialist whilst others should be performed only by pain management specialist anaesthetist. Neural blockade can be temporary with local anaesthetic or semi-permanent with neurolytic agents such as phenol. By reducing local inflammation, injected steroids are particularly useful when pain is due to compression of the nerve

1 Intrathecal opioid and local anaesthetic infusions may help in difficult pains

2 Back pain due to metastases often responds to epidural injection of high dose steroid and local anaesthetic. Caudal injections are easily performed and are useful for sacral pain. Thoracic and cervical epidurals are much more difficult

3 Chest wall pain eg due to mesothelioma - can be very difficult to control; intercostal and paravertebral blocks are easy to perform; success claimed for cervical cordotomy or thoracic epidurals in very specialized hands

4 Upper abdominal pain especially due to pancreatic tumour - 80% success claimed for coeliac plexus block

5 Lower abdominal and pelvic pain - lumbar plexus block worthwhile benefit but less successful

6 Hip pain - psoas compartment block

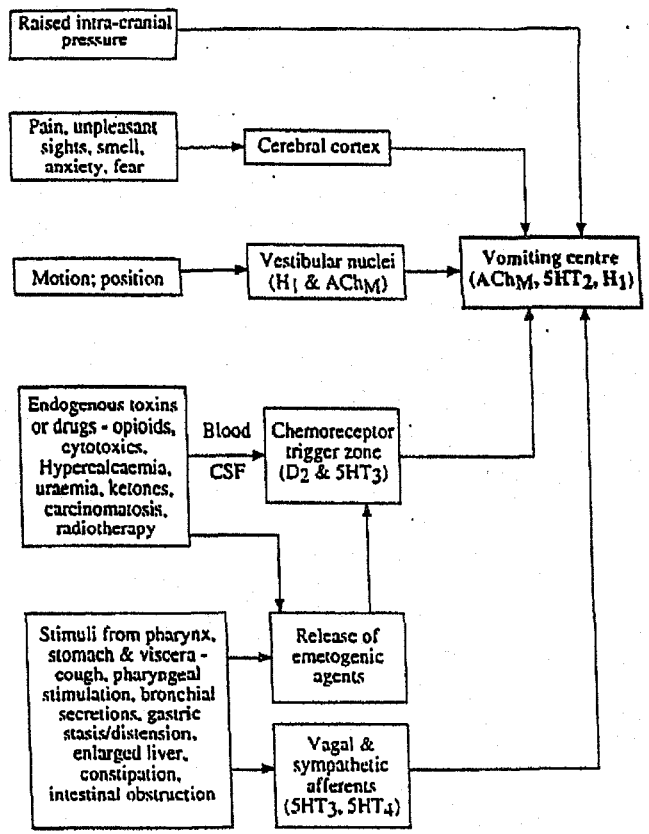
7 Perineal pain - saddle anaesthesia using intrathecal phenol. Like all neurolytic techniques this is the province of the specialist

8 Rib pain - temporarily abolished by intercostal injection of local anaesthetic proximal to lesion. Longer term benefit from infiltration with depot steroid. Care needed but technique well within capability of trained non-specialist

9 Pancoast tumour and similar - brachial plexus block

NAUSEA AND VOMITING

Causes / Risk factors



Management

There are many causes of nausea and vomiting and more than one cause may often be identified in any particular patient. Mechanisms are outlined opposite. See next page for profiles of antiemetics and standard dose regimes

Cause	Therapy
Raised intracranial pressure	1 Dexamethasone (see p32) 2 Cyclizine
Anxiety etc	1 Benzodiazepines - diazepam 2 - 15mg daily 2 Midazolam 10 - 30mg/day via syringe driver
Motion, positional	1 Cyclizine 2 Hyoscine
Endogenous toxins, drugs	1 Haloperidol 2 Prochlorperazine 3 Methotrimeprazine 4 Metoclopramide
Chemotherapy (short term)	1 Consult oncology colleagues 2 Lorazepam for anticipatory vomiting 3 Dexamethasone in reducing doses over 5 days 4 $5HT_3$ antagonists only effective in early emesis
Gastric stasis	1 Domperidone 2 Metoclopramide 3 Cisapride
Gastric irritation	1 Antacids 2 Proton pump inhibitors 3 Misoprostol 200mcg bd if caused by NSAIDs
Indeterminate	1 Cyclizine 2 Prochlorperazine 3 Methotrimeprazine 4 Dexamethasone 4 - 8mg daily
Constipation	See separate section on p20
Intestinal obstruction	See separate section on p16

Mechanisms of action of antiemetics

Receptor Sites	Type of Receptor
Vomiting centre	Muscarinic (ACh_M) Histamine (H_1) $5HT_2$
Vestibular nuclei	Muscarinic (ACh_M) Histamine (H_1)
Chemoreceptor trigger zone (CTZ)	Dopamine (D_2) $5HT_3$
Upper gastrointestinal tract	$5HT_3$ $5HT_4$ Dopamine (D_2) prokinetic

Antiemetic therapy

In established nausea/vomiting gastric stasis interferes with oral absorption: use other routes. Use oral route for prophylaxis of nausea

Use appropriate non-drug measures and treat basic causes if possible. If nausea/vomiting are caused by other medication consider stopping, reducing dose, changing drug, formulation or route of administration

Caution: most antiemetics have sedative effects

A Anticholinergic/antimuscarinic (ACh_M)

Hyoscine hydrobromide 0.3 - 0.6mg 6 - 8 hourly sl or sc
0.8 - 2.4mg per day by csci
500 - 1500mcg/72 hrs by transdermal patch

B H_1 antihistamines

Cyclizine 50mg three times daily orally or by im or sc injection
100 - 150mg in 24hrs by csci
Also has anticholinergic action

C Dopamine (D2) antagonists

Haloperidol Antiemetic of choice for opioid induced vomiting
1.5 - 5mg at night, oral or sc
2.5 - 5mg over 24 hours by csci

Methotrimeprazine Some activity at several sites (ACh_M, D_2, H_1, $5HT_2$)
Sedative at higher doses (25 - 100mg in 24 hours)
Antiemetic activity at low doses (6.25 - 25mg in 24 hours)
Use at lowest effective dose unless sedation required
Dose varies from 6.25 daily to 25mg tds orally or sc
May be given as csci

Prochlorperazine 5 - 10mg tds orally
25mg suppository tds rectally
12.5mg tds by deep im injection
3 - 6mg bd as buccal tablets
Do not give sc

Metoclopramide Also prokinetic.
10 - 20mg three times daily orally or im
In high doses (more than 100mg daily) acts as 5HT3 antagonist and possibly as 5HT4 agonist

Domperidone Also prokinetic
Less likely to cause sedation or extrapyramidal problems
10 - 20mg tds orally
30 - 60mg suppository tds rectally

D 5HT3 antagonists

Mainly used in early emesis caused by chemotherapy/radiotherapy; no good evidence of efficacy in other situations

Ondansetron 8mg bd - tds orally; may also be used sc, im or iv

E 5HT4 agonists

Cisapride 10mg tds orally
Metoclopramide See above
Domperidone See above

Note: **csci = continuous subcutaneous infusion**
See section on syringe drivers, p25

INTESTINAL OBSTRUCTION*

Intestinal obstruction in the patient with advanced cancer is often a difficult and complex situation and early discussion with the specialist palliative care team is recommended. It is usually a result of multiple incomplete obstructions within a bowel which is tethered and infiltrated by cancer. There are thus both mechanical and functional elements

Diagnosis

1 Vomiting often with little preceding nausea
2 Constipation - some flatus may still be passed
3 Abdominal distension and discomfort
4 Bowel sounds may be hyperactive or scanty
5 Colic may not be prominent, but tends to indicate a single site of obstruction
6 Previous operation notes or abdominal x-ray may indicate site(s)
7 Rectal examination to exclude simple constipation

Causes / Risk factors

1 Most common with primary tumours of ovary and colon but may occur with almost any primary tumour, including carcinoma of breast
2 Tumour mass within the intestinal lumen
3 Tumour outside the intestine causing compression or adhesions
4 Infiltration within the muscular coats, preventing normal peristalsis (pseudo-obstruction)
5 Interference with intestinal motility by tumour infiltration of the mesentery
6 Pancreatic carcinomas may cause gastric stasis by an unknown mechanism
7 Other causes including adhesions, post radiation fibrosis, constipation, metabolic disturbances, septicaemia

Management

1 Consider surgery (or occasionally radiotherapy) if both
a) single site, large bowel or marked gaseous distension and
b) appropriate depending on patient's condition and wishes - reassess often
2 If inoperable, avoid 'drip and suck' - NG tube increases nausea
3 Treat dry mouth (see p20)

4 Drug therapy

Shrinkage of tumour masses

Cytotoxic chemotherapy may occasionally be helpful if the patient's overall condition is good, especially in primary carcinomas of the ovary or colon

Dexamethasone 4 - 8mg daily may help to relieve peri-tumour oedema and thus relieve obstruction; particularly helpful with gastric outlet obstruction. May need to be given im or sc in first instance

Colic

Avoid/stop stimulant and bulking laxatives and prokinetic antiemetics (metoclopramide, domperidone, cisapride)

Hyoscine hydrobromide 0.3mg qds sl

Hyoscine butylbromide 20mg qds orally or 40 - 80mg daily by csci

Mebeverine 135mg tds orally

Loperamide may help

Constant aching abdominal pain

Strong opioids - Diamorphine by csci

Nausea and vomiting

Aim to abolish nausea and to reduce vomiting to a minimum

Cyclizine (see p14)

Haloperidol (see p15)

Methotrimeprazine (see p15)

Prokinetic agents ($5HT_4$ agonists) may help where there is gastric stasis, ileus or pseudo-obstruction but are contra-indicated in the presence of colic or if there has been a gastro-jejunostomy

Laxatives

Use pure faecal softeners to coax stool through narrowed loops of bowel

Docusate sodium up to 200mg tds

Magnesium hydroxide mixture 20 - 30ml od - bd

Anti-secretory agents

H_2 blockers (ranitidine, nizatidine) may be useful in high obstructions to reduce the volume of gastric secretions

Hyoscine butylbromide is a relatively mild anti-secretory agent

Octreotide* (see p18) has powerful anti-secretory properties

OCTREOTIDE*

Octreotide* (Sandostatin) is the longer acting synthetic analogue of the naturally occurring hormone somatostatin. Somatostatin's normal physiological function is to help to regulate pituitary and gastrointestinal endocrine and exocrine secretions, gastrointestinal motility and mesenteric blood flow. Note that experience is limited, efficacy variable, and that octreotide is expensive

Uses in palliative care*

NB These uses are outside the product licence - see cautionary note, p3

1 **Intestinal obstruction**
Octreotide decreases the volume of intestinal secretions, and thus reduces intestinal distension, itself a potent stimulus of secretion. It does this by reducing fluid and electrolyte secretion. It also reduces gastrointestinal motility. Both actions may reduce nausea, vomiting and abdominal distension

2 **Fistulae**
Octreotide decreases the output from a variety of fistulae, occasionally leading to closure of the fistula. It has been used in tracheo-oesophageal, pancreatic, entero-cutaneous, entero-vesical and entero-vaginal fistulae

3 **Diarrhoea**
Octreotide has been used in the management of diarrhoea caused by subacute intestinal obstruction (spurious diarrhoea) or entero-enteric fistulae, as well as in severe secretory diarrhoea and carcinoid syndrome

Dose

1 The effective dose ranges from 200 - 600 mcg per day (carcinoid: 100mcg od)

2 Several days may pass before full effect is seen

3 It may be possible to reduce the dose if control is achieved

Administration

1 Warm drug to room temperature to avoid stinging on injection

2 Octreotide is said to be **compatible** with diamorphine, metoclopramide, haloperidol, midazolam and hyoscine. It is **incompatible** with dexamethasone and cyclizine

Cautions

1 Risk of gallstone formation after prolonged use

2 Insulin requirements in diabetic patients may fall; glucose intolerance in others

3 Side-effects uncommon - steatorrhoea, hepatic and thyroid dysfunction

MOUTH PROBLEMS

Good mouth care is essential to the well being of debilitated patients

Diagnosis

1 Assess oral cavity daily using a pen torch and spatula. Note the state of the lips, teeth/dentures, mucous membranes and tongue, also the type/volume of saliva

2 Assess nutritional status - quality of diet and adequacy of fluid intake

3 Assess mental state - will determine the patients' ability and willingness to participate in their care

Causes / Risk factors

1 Poor oral hygiene

2 Poor nutritional state, dehydration, drowsiness, anaemia

3 Oral thrush and other infections

4 Oral tumour

5 Drugs - opioids, tricyclic antidepressives and hyoscine cause dry mouth; some cytotoxics can cause ulceration

6 Local radiotherapy can cause decreased saliva production and oral ulcers

Management

1 Review medications causing dry mouth/ulceration

2 Treat oral infections

3 **Drug therapy**
Frequency of care depends on the patient's condition

General care

Corsodyl mouthwash - antiseptic and inhibits plaque formation. Use regularly after meals and brushing

Betadine and **Oraldene** are antibacterial and antifungal but have little antiplaque activity

Glycerine thymol has mainly mechanical cleansing properties but is transiently refreshing

Ascorbic acid 1g effervescent tablet - allow a quarter or a half of one tablet to effervesce on coated tongue

Specific care

Lack of Saliva

Sips of iced water
Salivary stimulants - lime juice, fresh melon, pineapple, sugar-free gum
Saliva substitutes - Glandosane spray, Saliva-Orthana
Pilocarpine tablets 5 - 10mg tds for radiotherapy induced dryness

Oral Thrush

Nystatin oral suspension - patients must be instructed on correct usage
Fluconazole - 50mg daily for 7 days
Sodium hypochlorite (Milton) - for soaking dentures overnight

Painful Mouth

Difflam mouthwash - anaesthetic action
Adcortyl in Orobase - apply topically (without rubbing in)
NSAID - Piroxicam melt daily for oral cancer pain
Sucralfate suspension - for chemotherapy induced ulcers
Xylocaine spray

Excessive Salivation

Amitriptyline 10mg at night
Hyoscine by patch, syringe driver, orally or sublingually (see p14)
Glycopyrronium by syringe driver - if hyoscine causes confusion or over-sedation

ANOREXIA

Diagnosis

1 A reduced interest in food, which at its most severe may manifest as nausea
2 Often associated with taste changes
3 May increase (appetite diminishes) as the day goes on
4 Distinguish from mouth problems, dysphagia, early satiety due to gastric stasis

Causes / Risk factors

1 Extensive malignancy (but occasionally occurs as a presenting symptom)
2 Uncontrolled symptoms
3 Psychological, emotional and spiritual distress, especially depression
4 Drugs, especially cytotoxics, digoxin

Management

1 Treat nausea, pain and other symptoms
2 Reduce psychological distress with support and counselling
3 Treat depression
4 Review drugs
5 Aim to provide frequent, small, attractive portions within pleasant and social surroundings
6 **Drug therapy** - if drugs are needed and there are no contra-indications
Alcohol before meals
Megestrol acetate 160 - 320mg daily
Medroxyprogesterone 100mg tds
Dexamethasone 2 - 4mg each morning or **prednisolone** 10mg daily to tds
Steroids should always be used with caution, and the dose reduced to the minimum effective at any time, because of the risks of muscle wasting, skin thinning and (rarely) osteoporosis; may also precipitate diabetes. Patients with a history of tuberculosis who have not been treated with triple chemotherapy should receive prophylactic isoniazid

CONSTIPATION

It is extremely important to relieve constipation in patients with advanced disease. Even anorexic patients will need bowel movements to remove faeces formed from gut secretions/cells/bacteria. It is better to anticipate and prevent constipation than to wait until treatment is needed

Diagnosis

1 Passing harder stools, or passing stools less frequently

2 Rectal examination - empty or impacted?

3 Exclude intestinal obstruction (see p16)

Causes / Risk factors

1 Drugs - especially opioids, tricyclic antidepressives, iron, antispasmodics

2 Immobility and lack of privacy

3 Dehydration, due to poor fluid intake, vomiting, polyuria, sweating

4 Diet lacking in fibre

5 Hypercalcaemia

6 Concurrent disease - painful anal conditions, hypothyroidism

Management

1 As far as possible, alleviate cause - encourage fibre intake, keep mobile

2 **Drug therapy: use softeners if stool is hard, stimulants if unable to expel stool**

Patients taking opioids need to be prescribed laxatives as a routine

Combination preparations (stimulant & softener)

Bisacodyl 10 - 20mg nocte with docusate sodium 200mg od - tds
Codanthramer (two strengths) susp or capsules 5 - 15ml, 2 - 4 capsules od/bd
Codanthrusate is an alternative

Stimulants

Bisacodyl 10 - 20mg nocte
Senna 2 - 4 tablets nocte
Sodium picosulphate elixir 10 - 20ml bd

Softener

Docusate sodium 200mg nocte or up to 600mg daily

Osmotics

Lactulose 10 - 15ml bd
Magnesium hydroxide mixture 20 - 30ml od - bd

3 Rectal measures are often needed in established constipation - use suppositories, micro-enemas, phosphate or arachis oil enemas

DIARRHOEA

Diagnosis

The patient who speaks of "diarrhoea" may either be referring to the frequency of bowel motions, or to the fact that motions are loose; it is therefore important to define the problem by history or examination if a diagnosis is to be reached

Causes / Risk Factors

1 Excess laxative use

2 Infections, including *Clostridium difficile*, *Candida* spp

3 Impacted faeces with overflow (spurious diarrhoea)

4 Subacute intestinal obstruction

5 Previous treatment: pelvic radiotherapy, extensive bowel resection

6 Pancreatic insufficiency, characterized by bulky, offensive stools which float

Management

1 **Specific tretment**

Ensure no excess laxative use

Screen for infections, and prescribe appropriate antibiotics

Octreotide* (see p18) for faecal fistulae, subacute obstruction, carcinoid

Prednisolone enemata or foam for radiation induced diarrhoea

Pancreatic enzymes (Creon capsules; 2 strengths) for steatorrhoea

2 **Symptomatic treatment**

Loperamide 2 - 4mg every 6 hours; binds to opioid receptors in gut

Cophenotrope (Lomotil) 2 tablets four times a day

Codeine Phosphate 30 - 60mg tds - qds

Fistulae

Management

1 Assess fistula size and site, and patient's overall condition

2 A colostomy bag is often needed for collecting effluent. A good seal is needed and advice should be given about skin care and frequent emptying of bag

3 A well-fitted appliance minimizes the risk of odour. **Metronidazole** may be helpful if there is a blind loop or overgrowth of anaerobes

4 **Octreotide*** may be helpful in reducing effluent (p18)

ASCITES

Diagnosis

1 Clinical examination - shifting dullness, fluid thrill, ballot abdominal organs
2 Abdominal ultrasound
3 Diagnostic tap
4 Exclude urinary retention, organomegaly, tumour, gastrointestinal distension

Causes / Risk factors

1 Peritoneal tumour
2 Venous compression or thrombosis
3 Hypoalbuminaemia

Management

1 Take no action if symptoms are not troublesome
2 Perform paracentesis if appropriate, unless bowel is distended. Unsuccessful if fluid is loculated (consider ultrasound scan). Drain 2 litres in first hour then 6 litres per day. Monitor carefully: sudden release of abdominal tension may allow venous pooling and rapid reaccumulation of ascites, with hypotension. If leakage continues after drain is removed, consider placing ostomy bag over the puncture site
3 If patient has oedema use stockings and/or massage (see p51)
4 Peritoneo-venous shunt can be valuable in severe recurrent ascites
5 If concurrent intestinal obstruction: see p16
6 Drug therapy

Cytotoxic chemotherapy (local or systemic) if appropriate

Diuretics: Frusemide (especially if dependent oedema) 40 - 80mg daily
Spironolactone (especially if hypoalbuminaemia) 100mg od/bd
Adjust doses according to response

Steroids: Dexamethasone 2 - 4mg om can help to mobilize fluid

Antiemetics: Domperidone or metoclopramide (see p15) for gastric stasis

Analgesics: If painful stretching of abdominal wall, see pp5 - 11

SYRINGE DRIVERS

A syringe driver is a small portable battery operated pump which administers drugs subcutaneously by continuous infusion. It offers an alternative route of drug administration without limiting patient mobility or independence, and by maintaining very steady blood levels may improve symptomatic control

See cautionary note, p3

Indications

For administering medication when the oral route is inappropriate or difficult

1 Severe nausea and/or vomiting
2 Dysphagia
3 Severe oral tumours, sores or infection
4 Profoundly weak, unconscious or heavily sedated patients
5 Poor absorption of oral medication

If problems resolve, consider a return to oral medication

Practical Points

1 The syringe driver should be set according to the rate of infusion required
2 Site inflammation may occur for various reasons, and the infusion site should be checked at least daily. Management includes changing the drug, changing to an alternative site or adding a small dose of steroid (hydrocortisone 50 - 100mg per day). If the problem persists, seek advice
3 Certain drug combinations are incompatible and cause precipitation. This may be overcome by:
   - using a larger syringe to allow greater dilution
   - using water rather than saline for dilution or vice versa
   - separating drugs into two syringe drivers
   - drawing up dexamethasone last when used in combination
   - substituting the drug with an equivalent alternative
   - avoiding exposure to sunlight as non-observable chemical reactions may occur
4 Use as few drugs in a syringe driver as possible
5 Diazepam, prochlorperazine and chlorpromazine should never be used in the syringe driver

Drugs used in the syringe driver

Cyclizine 50 - 150mg over 24 hours

Antihistamine and antimuscarinic antiemetic which acts at the vomiting centre in the brain. Often causes site irritation

Dexamethasone Up to 16mg over 24 hours

Used to relieve raised intracranial pressure, liver capsule and neuropathic pain, and as antiemetic. May precipitate when mixed in syringe with other drugs

Diamorphine 10mg - 1g over 24 hours

Preferred to morphine for subcutaneous use as it has greater solubility, requiring a smaller volume. See section on opioid equivalents - p9

Glycopyrronium 200 - 600mcg over 24 hours

Used to reduce respiratory secretions if hyoscine causes confusion or over-sedation. Precipitates with dexamethasone. Cheaper than hyoscine

Haloperidol 2.5 - 10mg over 24 hours

Antidopaminergic antiemetic - see pp12 - 15. Higher doses occasionally used for sedation - see p39. Extrapyramidal side-effects occur with high doses

Hyoscine butylbromide 20 - 80mg over 24 hours

Anti-spasmodic used to relieve gastrointestinal spasm, pain and nausea and vomiting. Useful for drying secretions

Hyoscine hydrobromide 0.4 - 2.4mg over 24 hours

Useful for reducing secretions; some smooth muscle antispasmodic activity. An excellent sedative but may cause agitation or confusion (eg in elderly)

Methotrimeprazine 6.25 - 25mg (antiemetic - see p15)
25 - 100mg (sedative - see p39) over 24 hours

Related to chlorpromazine but more potent; also has analgesic activity

Metoclopramide 10 - 30mg over 24 hours

Anti-emetic - see pp12 - 15. Extrapyramidal effects may occur at higher doses particularly in younger women

Midazolam 5 - 60mg over 24 hours

Benzodiazepine sedative with short half-life; anticonvulsant. Higher doses should only be used for terminal sedation

Octreotide* See p18

BREATHLESSNESS

Diagnosis

Breathlessness is usually multifactorial. Investigations such as chest x-rays/scans or blood gases may be of limited value. A therapeutic trial of medications, singly or in combination, is often necessary to find out what works in an individual patient. There is inevitably a psychological component - breathlessness is always frightening

Causes / Risk factors

A	**Impaired gas exchange**	
1	Airflow obstruction	
	a) Large airways	tumour extrinsic compression laryngeal palsy radiation stricture
	b) Small airways	chronic obstructive airways disease lymphangitis carcinomatosa
2	Decreased effective lung volume	effusions pneumothorax extensive tumour collapse infection ascites
3	Increased lung stiffness	pulmonary oedema lymphangitis carcinomatosa fibrosis
4	Decreased alveolar gas exchange	pulmonary embolism pericardial effusion thrombotic tumour
5	Pain	pleurisy chest wall infiltration rib/vertebral fractures
6	Neuromuscular failure	paraplegia phrenic nerve palsy cachexia paraneoplastic syndromes
B	**Increased demand**	
1	Anxiety	
2	Anaemia	
3	Metabolic acidosis	

Management

General treatments

These can be employed whilst investigating a more specific cause; general and specific managements should be used in parallel

A **Non drug treatments**

General and specific reassurance (that the patient will not suffocate)
Explanation of the mechanisms of breathlessness
Fan or cool air across the face is often helpful
Proper positioning for easier breathing
Explore the significance of breathlessness for the patient
Breathing exercises, relaxation training) 'pulmonary rehabilitation' by
Counselling and readaptation) physiotherapist/specialist nurse
Acupuncture, aromatherapy, reflexology

B **Drug treatments**

Nebulised saline often helps where there are tenacious secretions

Opioids are often helpful in easing the subjective sensation of breathlessness; there is no evidence that they shorten life. If opioid naive, start on 2.5mg of oral **morphine** 4 hourly and titrate upwards. If the patient already takes morphine for pain, the dose may have to be increased by up to 50% for co-existing breathlessness. The use of nebulised opioids is not supported by scientific evidence; they may induce bronchospasm

Benzodiazepines are often used in combination with opioids for their anxiolytic effect. Use **diazepam** 2 - 15mg daily for background control with addition of quick-acting **lorazepam** 1 - 2mg sublingually for acute crises and panic. **Midazolam** 2.5 - 10mg sc stat or 5 - 50mg per 24 hours by csci if patient not able to take oral medication

Oxygen has variable effects; it is difficult to predict who will benefit other than by therapeutic trial, but some patients derive psychological benefit rather than any improvement in blood gases. Best used in 10 minute bursts before or after exercise unless hypoxic at rest when continuous use, usually by nasal prongs, may be appropriate

Specific treatments

1 **Steroids** such as dexamethasone 8 - 12mg daily may be useful in airway *compression by intrinsic or extrinsic tumour, post radiation* stricture/fibrosis, bronchoconstriction, and lymphangitis carcinomatosa
2 **Radiotherapy/brachytherapy, endoscopic laser/diathermy, bronchial stents** may all help large airway obstruction due to intrinsic or extrinsic compression
3 **Antibiotics** for infection, if appropriate - symptomatic medication can be given whether antibiotics are prescribed or not
4 **Drainage of pleural effusion** with or without pleurodesis
5 **Paracentesis** of ascites, and/or diuretics (see p24)
6 **Chest drain** for pneumothorax
7 **Diuretics** for pulmonary oedema
8 **Inhaled bronchodilators** - can be helpful for patients with carcinoma of bronchus who may have previously undiagnosed COAD
9 **Hyoscine/glycopyrronium** - for drying excessive upper airway secretions
10 **Anticoagulation** for pulmonary emboli. Warfarin is potentially hazardous in malignant disease and has many drug interactions.It therefore needs meticulous monitoring. Low molecular weight heparin given by sc injection may be as effective and safer
11 **Aspiration of pericardial effusion** with or without formation of a pericardial window
12 **Analgesics** - pain on respiration can lead to inadequate ventilation. Opioids, NSAIDs, nerve blocks, radiotherapy and rarely cordotomy may be appropriate for pleurisy, tumour infiltration of the chest wall, rib/vertebral fractures
13 **Teflon vocal cord injection** for laryngeal nerve palsy (seek ENT opinion)
14 **Blood transfusion** should be considered if haemoglobin < 9 g/dl
15 **Physiotherapy** for bronchiectatic secretions

COUGH

Diagnosis

1 Ask about sputum (and if possible observe) - quantity, consistency, colour
2 Is cough affected by position?
3 Examine chest

Causes / Risk factors

1 Nasopharyngeal - post-nasal drip, candidosis, tumour
2 Laryngeal - tumour, inflammation, infection
3 Bronchial - inflammation tumour, infection, ACE inhibitors, tracheo-oesophageal fistula
4 Pulmonary - pneumonia, alveolitis, abscess, bronchiectasis, oedema, fibrosis
5 Gastric reflux with inhalation

Management

1 More upright body position
2 Steam inhalations, nebulised saline qds for thick secretions
3 Chest physiotherapy where appropriate
4 Treat infections unless the chest infection is a terminal event
5 Radiotherapy may help if cough is caused by tumour
6 **Drug therapy**

General: Inhalations: **tinct benz co, menthol**
Simple linctus
Low dose opioids: **codeine, pholcodine, methadone, morphine**

Specific:

1 Nasopharyngeal - post-nasal drip: **antibiotics, nasal steroid spray**
2 Laryngeal - **steroids via inhaler or nebuliser**
- **local anaesthetics*** via nebuliser - bupivacaine 0.5%, 5ml tds, at least 30 minutes before any food or drink; risk of idiosyncratic bronchospasm, sometimes severe
3 Bronchial - **bronchodilators** in standard doses
- **steroids** orally, inhaled or nebulised
- **local anaesthetics*** (see above)
4 Gastric reflux - **antacids containing dimethicone**
- **prokinetic agents** (see p15)

HICCUP

Causes / Risk factors

1 Peripheral (diaphragm, phrenic nerve stimulation)
gastric distension or irritation
liver enlargement/involvement
intrathoracic nodes/tumour
2 Central (medullary stimulation)
raised intracranial pressure
brain stem CVA/tumour
uraemia

Management

1 Rebreathing with a paper bag (raises pCO_2 levels)
2 Drinking cold water or taking a teaspoon of granulated sugar (pharyngeal stimulation)
3 **Drug therapy**

Peripheral causes: **Metoclopramide** 10mg qds
Domperidone 10 -20mg 4 - 8 hourly
Antacids containing dimethicone (Gaviscon, Asilone)
Dexamethasone 4 - 12mg od
Ranitidine 150mg bd

Central causes: **Chlorpromazine** 10 - 25mg tds
Haloperidol 0.5mg tds
Diazepam 2mg tds
Dexamethasone 4 - 12mg od
Nifedipine 10mg tds
Baclofen 5mg tds

None of these treatments is consistently reliable

RAISED INTRACRANIAL PRESSURE

Diagnosis

1 Primary carcinoma known to spread to the brain
2 Severe headache worse when lying down
3 Vomiting, convulsions, mental symptoms, diplopia, restlessness
4 Papilloedema may be present
5 CT/MRI scan may be appropriate

Causes/risk factors

1 Cerebral metastases
2 Primary cerebral tumour
3 Other causes - abscess, cerebro-vascular accident, hypertension

Management

1 Raise head of the bed
2 Drug therapy

Dexamethasone up to 16mg per day. Avoid doses after 2pm as may contribute to insomnia. Gradually reduce dose to minimum effective, monitoring carefully to check that symptoms remain controlled. Withdraw dexamethasone if no improvement after 7 days on 16mg daily. Carbamazepine and phenytoin may reduce therapeutic effect by 50%

Anti-convulsants should be considered in the presence of cerebral malignancy, eg phenytoin 200-300mg at night, carbamazepine 0.8-1.2g per day in divided doses (also available as suppositories), sodium valproate 600mg to 2gm daily in divided doses

Midazolam given by csci as an anti-convulsant when oral anti-convulsant can no longer be taken; dose 30 - 100mg by csci over 24 hours titrated to effect

Diazepam suppositories (5 - 10mg) may stop convulsions if they occur

Analgesics for headache

3 Consider cranial irradiation if there is a good response to dexamethasone

SPINAL CORD COMPRESSION

Diagnosis

Be alert for early signs, which can be subtle (eg heaviness of the legs). Do not wait for signs to become unequivocal: early diagnosis and urgent treatment (within hours) are vital to improved outcome, mobility and continence. Once paralysed, only 5% walk again, but some survive more than one year.

1 Often back pain with or without radiation in the territory of a nerve root, followed by leg weakness, sensory changes and bladder or bowel disturbance, but can be any combination of these
2 If higher level, there is likely to be a sensory level with brisk reflexes; if cauda equina compression, reflexes may be diminished

Causes/risk factors

1 Epidural invasion from vertebral body metastases or paravertebral nodes
2 Bony deformity from vertebral body collapse
3 Blood borne epidural or intradural metastases
4 Primary spinal cord tumour

Management

Depending on patient's general condition:

1 Immediate
- Dexamethasone 16mg per day
- Urgent referral to radiotherapist or neuro/orthopaedic surgeon
- Emergency CT/MRI scan

2 a) If gradual onset, or if rapid onset but paraplegia present less than 24 hours, surgical decompression may be possible; otherwise radiotherapy
b) If rapid onset and established paraplegia, radiotherapy may not help except for pain relief

3 Established paraplegia:
- pressure area care
- urinary catheter
- bowel regulation - allow some constipation and use regular enemas or suppositories
- physio and OT assessment - wheelchair, home modifications
- psychological readjustment

4 Specialist palliative care assessment for management and/or rehabilitation is recommended

DEPRESSION

In palliative care it is important to distinguish between clinical depression, profound sadness and dementia. The diagnosis is further complicated by the fact that many of the usual somatic symptoms of depression such as anorexia, weight loss and sleep disturbance may already be present in patients with malignant disease. A therapeutic trial of antidepressives may be acceptable.

Diagnosis

1 Persistent, pervasive low mood with loss of pleasure and enjoyment
2 Diurnal variation in mood; may be agitation
3 Sleep disturbance, especially with frequent or early morning waking
4 Anorexia that does not improve with steroids
5 Morbid guilt, feelings of helplessness and worthlessness/low self esteem
6 Depression may be hidden behind a brave but hollow smile or behind anger

Causes/risk factors

1 Past history of depression
2 Need to adjust to many life changes over a short period of time
3 Poor symptom control
4 Immobility and isolation with poor quality of life and lack of support
5 Inadequate or inaccurate information about illness or prognosis
6 Drugs - corticosteroids (predominantly on withdrawal), some cytotoxics, some anti-hypertensives, some neuroleptics, benzodiazepines

Management

1 Minimise the causes, especially 3 - 5 above
2 Provide psychological support.
3 **Drug therapy**

for depression with agitation or insomnia
amitriptyline or **dothiepin** 25 - 100mg at night (start at a low dose; higher doses often confuse); **lofepramine** and **mianserin** may be safer in the elderly
for retarded depression
protriptyline 5 - 10mg tds
if no response to above
sertraline (50mg increasing to 100mg daily) or **fluoxetine** (20mg daily), but these may exacerbate anorexia and nausea; dose titration is not required
for depression with neuroses or panic
trazodone (100 - 300mg at night) or **clomipramine** (10-75mg per day)

ANXIETY

Diagnosis

1 Feeling of being on edge, restless or agitated
2 Inability to concentrate
3 Difficulty in getting to sleep
4 Physical effects such as sweating, tachycardia, staring eyes with dilated pupils

Causes/risk factors

1 Past history of anxiety
2 Poor symptom control
3 Inadequate/inaccurate information
4 Unfamiliar surroundings
5 Steroid treatment/salbutamol therapy
6 Withdrawal of drugs eg opioids/benzodiazepines
7 Uncertainty about the future
8 Concern for family/finances etc

Management

1 Support for patient and family
2 Appropriate information and discussion with patient and family
3 Relaxation techniques
4 Drug treatment, eg
Diazepam 2mg bd and 5mg at night
Propranolol 40mg bd to tds for somatic symptoms
Lorazepam 0.5 - 1mg given sublingually may be helpful in panic attacks

If the patient is unable to swallow or has a syringe driver for other reasons, consider **midazolam** 10 - 20mg per 24 hours by csci

INSOMNIA

Diagnosis

Insomnia is a subjective complaint of poor sleep. This can mean insufficient, interrupted or non-restorative sleep or sleep at the wrong time. It is important to distinguish an inability to get to sleep (part of anxiety spectrum; responds to anxiolytics) and a tendency to wake early or repeatedly (part of depression spectrum; responds to antidepressives)

Causes/risk factors

1 Anxiety or depression
2 Poor symptom control
3 Nocturia
4 Environmental changes - inpatient admission, interruptions by staff
5 Fear - eg of going to sleep or of nightmares. Beware of well-intentioned reassurance that 'you will die in your sleep'
6 Drugs - stimulants (caffeine etc), steroids (worse if given later than midday), diuretics, opioids (nightmares & hallucinations), fluoxetine, propranolol (nightmares)
7 Drug withdrawal - alcohol, benzodiazepines, barbiturates

Management

1 Minimise the causes - control symptoms as far as possible, keep interruptions to a minimum, reduce drug therapy or give stimulants early in the day, counsel about fears and anxieties
2 Establish a good sleep pattern - allow a siesta to prevent going to bed too early
3 Encourage a consistent bedtime ritual
4 A warm milky drink at bedtime may help
5 Encourage relaxation techniques
6 Drug therapy (all given as a single dose at night):
  Lormetazepam (0.5 - 1.5mg) or **temazepam** (10 - 20mg) - for short-term use
  Zopiclone (3.75 - 7.5mg) - may have fewer residual effects than benzodiazepines
  Chlormethiazole (1 - 2 capsules) - short duration of action
  Chloral hydrate (500mg - 1g) - caution with alcohol
  Amitriptyline (10 - 100mg) or **dothiepin** (25 - 75mg) if repeated or early morning waking

DROWSINESS

Causes/risk factors

Organic

1 Impending death
2 Infection, especially within respiratory and urinary tracts
3 Raised intracranial pressure

Biochemical

1 Metabolic abnormalities: uraemia, especially if on opioids
  hypercalcaemia
  hyper/hypoglycaemia
  hepatic failure (palpable liver?)
  respiratory failure (blood gas analysis likely to be inappropriate)
2 Drugs: opioids, tricyclic antidepressives, benzodiazepines, anticholinergics, antipsychotics, antihistamines

Other

1 Fatigue
2 Insomnia
3 Psychological withdrawal
4 Postictal

Management

1 Assess accurately; if patient is near to death due to advanced disease, further interventions are unlikely to be appropriate
2 Correct physical causes listed above if indicated
3 Drug therapy
  Dexamethasone up to 16mg daily for raised ICP
  Protriptyline for retarded depression
  Dexamethasone 2 - 4mg daily may act as stimulant

CONFUSION

Delirium is typified by confusion, often with visual illusions or hallucinations with increased or decreased psychomotor activity and fluctuating level of consciousness. It must be distinguished from dementia, which is associated with poor short-term memory and no impairment of consciousness, and which will not be considered here.

Diagnosis

1 Disturbance of consciousness with reduced ability to focus attention
2 Change in cognition (memory deficit, disorientation, language disturbance) or development of a perceptual disturbance that is not dementia
3 Short history (usually hours to days) with a tendency to fluctuate during the day
4 Evidence from the history, examination, or investigations that there may be a physical cause

Causes/risk factors

1 Drugs - opioids, tricyclic antidepressives, anticholinergics, benzodiazepines, phenothiazines, NSAIDs, cimetidine, some cytotoxics, baclofen, any other drug with sedative effects; corticosteroids may cause a syndrome resembling hypomania
2 Infection, especially within respiratory and urinary tracts
3 Biochemical abnormalities - especially hypercalcaemia, uraemia, liver failure
4 Environment changes - unfamiliar excessive stimuli, inpatient admission
5 Poor symptom control - pain, constipation, urinary retention, anxiety, depression
6 Alcohol or drug withdrawal
7 Intracerebral causes: space-occupying lesions, infections, strokes

Morphine toxicity exacerbated by uraemia* is an important cause of confusion. Look for constricted pupils, myoclonic jerks, skin hyperaesthesia

Management

1 Treat or minimise the possible causes, especially drugs and infections
2 Minimise stimuli - nurse in a room with diffused lighting, little extraneous noise, and few staff changes
3 Attempt to keep patient in touch with reality and environment - eye contact and touch are often helpful
4 Allay fear and suspicion - explain all procedures, don't change position of patient's bed, if possible have a friend or relative of patient present
5 Stress that patient is not going mad and that there may well be lucid intervals
6 Drug therapy

If paranoid, deluded, agitated or hallucinating

Haloperidol 1.5 - 3mg up to three times a day orally
Thioridazine 10 - 25mg up to four times a day orally

Review early as symptoms may be exacerbated by sedative effects. Watch for extrapyramidal side-effects

If agitated patient and unable to swallow

Midazolam 10mg im stat then 10-100mg over 24 hours sc
Methotrimeprazine 25 - 100mg over 24 hours sc

Dexamethasone up to 16mg per day - if cerebral tumour/raised ICP
Oxygen if cyanosed/hypoxic

TERMINAL RESTLESSNESS

This may be akin to delirium in someone very close to death, or may occasionally reflect unresolved psychological or spiritual distress

Causes/risk factors

1 Physical discomfort - unrelieved pain, distended bladder or rectum, inability to move, insomnia, uncomfortable bed, breathlessness
2 Infection
3 Raised intracranial pressure
4 Biochemical abnormalities - hypercalcaemia, uraemia, hypoxia
5 Drugs - opioid toxicity (especially in conjunction with uraemia), hyoscine, phenothiazines
6 Psychological/spiritual distress - anger, fear, guilt. Beware especially if patient has been unwilling to discuss illness

Management

Must be a multi-disciplinary approach involving family or main carers

1 Accurately assess the patient
2 Ameliorate all physical elements if possible, eg analgesia, catheterisation
3 Listen to the patient and discuss anger, fear and guilt if possible
4 May be very distressing for the family who will need much support. Their presence may help or worsen the patient's agitation
5 **Drug therapy**

Diazepam	20 - 60mg per 24 hours orally or rectally
Midazolam	10 - 60mg per 24 hours by cscl or im
Methotrimeprazine	25 - 100mg per 24 hours orally or by cscl

WEAKNESS

Causes / Risk factors

1 Cachexia - cancer-related, inadequate nutrition
2 Metabolic - hyponatraemia, hypokalaemia, uraemia, hypercalcaemia, anaemia, diabetes mellitus, adrenal insufficiency, hyperthyroidism, hypothyroidism, liver failure
3 Neuromuscular damage - by tumour to brain, spinal cord or peripheral nerves, MND, myopathy, peripheral neuropathy, myasthenia gravis, Lambert-Eaton myasthenic syndrome
4 Drugs - steroids, sedatives, diuretics, antihypertensives (via hypotension)
5 Emotional - anxiety, depression, fear, isolation, apathy
6 Prolonged bed rest
7 Infection

Management

1 Take a good history and examine thoroughly to elucidate and treat possible reversible causes
2 Review drug regimen and minimise possible causes
3 Correct any metabolic/biochemical abnormalities as far as possible
4 Provide dietary support as appropriate (see p21)
5 Rehabilitation for specific weakness by a multiprofessional team. Help with coping and acceptance if appropriate

HYPERCALCAEMIA

Hypercalcaemia is commonly found in the terminal phase of cancer, particularly of breast and squamous carcinomas. It occurs in 30 % of myeloma

Diagnosis

1 Corrected serum calcium of greater than 2.6 mmol/l; symptoms usually only become troublesome above 2.9 mmol/l

2 Any combination of the following: thirst, polyuria, constipation, nausea, abdominal pain, loss of appetite, fatigue, confusion, and emotional disturbances

Causes / Risk factors

1 Bone metastases

2 PTHrP-secreting tumours, eg carcinoma of lung

3 Dehydration, renal impairment

4 Tamoxifen flare

Management

1 Decide if further treatment is appropriate - is this a terminal event?

2 Correct dehydration

Mild to moderate (2.7 - 3.0mmol/L)

initially oral or iv rehydration

Moderate to severe (3.0 - 3.5 mmol/L)

initially iv rehydration with 2-4 litres saline per 24 hours with frusemide (enhances urinary calcium excretion)

3 Relieve associated symptoms

4 Bisphosphonates: **Pamidronate** 30 - 60mg iv over 4 hours or
Sodium clodronate 1500mg iv

These take 48 - 72 hours to be effective, so avoid rechecking calcium before day 4. Their effect lasts 20 to 30 days so recheck calcium three weeks after treatment. Oral **sodium clodronate** has no place in the acute treatment of hypercalcaemia but may be used to maintain normocalcaemia and as prophylaxis particularly for myeloma and breast carcinoma

ANAEMIA

Diagnosis

1 Symptoms - tiredness, weakness, breathlessness

2 Blood counts - haemoglobin, RBC indices, platelets and WBC

Causes / Risk factors

1 Increased rate of RBC loss

- Bleeding - acute or chronic (microcytic, reticulocytes, thrombocytosis)
- Haemolysis - primary or secondary - autoimmune, drugs, infection (macrocytosis, reticulocytes, raised bilirubin)

2 Reduced RBC production

- Chronic disease and renal disease (normochromic, normocytic)
- Bone marrow infiltration - leukaemia, lymphoma, carcinoma (prostate, breast)
- Aplastic - especially drugs
- Sideroblastic secondary to malignancy
- Infection, debility
- Deficiency of iron (microcytic), B 12 or folate (macrocytic)

Management

1 Treat cause if appropriate - see bleeding/haemorrhage, review medication

2 Consider transfusion if symptomatic, specific benefit is anticipated and if Hb < 9 g/dl and not macrocytic. Transfusion carries the risk of causing acute heart failure in debilitated patients and the elderly. If transfusion is appropriate use packed cells with diuretic cover at a rate of 2-4 units maximum per day, depending on clinical status

If chronic anaemia, patients adapt even if Hb 8.0 - 9.5 g/dl. Do not transfuse unless a specific benefit has been identified

3 Reassess one week after transfusion to assess any symptomatic relief afforded by the transfusion and review as symptoms may have had other causes. If little relief then transfusion need not be repeated if the haemoglobin falls again: consider other causes and treatments

BLEEDING/HAEMORRHAGE

Causes / Risk factors

1 Tumour invasion
2 Platelet or coagulation disorders, disseminated intravascular coagulation
3 Infection - eg haemoptysis, haematuria, vaginal bleed, fungating wounds
4 Drugs - heparin, warfarin, aspirin, NSAID (may cause GI bleeds)
5 Peptic ulceration

Management

General

1 Stop anticoagulants and review medication; Consider reversing warfarin with fresh frozen plasma (rapid) or vitamin K 1 - 5mg iv (acts in a few hours)
2 Consider replacement of blood, platelets, clotting factors, fluids
3 Treat any infection which may be exacerbating bleeding
4 Consider radiotherapy: helpful in > 75% cases of haemoptysis, also helpful for haematuria, visceral and cutaneous bleeding
5 Consider chemotherapy and palliative surgical techniques including endoscopic laser or cautery for tumour where feasible and appropriate
6 Embolisation is occasionally used for liver and renal malignancy
7 Severe terminal haemorrhage - stay with the patient, physical touch helps
If slow, use suction as appropriate and consider iv as below
If rapid, consider im or iv midazolam or diamorphine
If a terminal haemorrhage is anticipated carers can be given a supply of rectal diazepam 10mg. Dark towels or sheets may help to mask the blood
8 Drug therapy
tranexamic acid 500mg - 1.5g bd - qds orally (stabilises clots)
ethamsylate 500mg qds orally (enhances platelet adhesion)

Specific

1 Nasal bleeding	• packing and cautery
2 Oral bleeding	• oxycellulose (Surgicell), sucralfate suspension
3 Haemoptysis	• consider radiotherapy
4 Upper GI bleeding	• consider stopping any NSAIDs • H_2 blockers or proton pump inhibitors
5 Lower GI bleeding	• rectal steroids • tranexamic acid 0.5g in 50mls of water bd rectally
6 Skin	• Kaltostat dressing • topical adrenaline 1 in 1000 to soak dressings

ITCHING

Causes/risk factors

1 Allergies
2 Hepatic disease - biliary obstruction
3 Chronic renal failure
4 Lymphoma
5 Parasites - scabies, fleas
6 Skin diseases - eczema, psoriasis
7 Iron deficiency

Management

1 Alleviate causes if possible
2 Avoid provocative influences, eg rough clothing, vasodilators, overheating
3 Try to break the itch/scratch cycle - clip nails short, wear cotton gloves, apply paste bandages
4 Avoid washing with soap and bubble bath; add a handful of sodium bicarbonate to a cool bath. Pat rather than rub dry
5 Use emulsifying ointment as a soap substitute, a bath emollient, eg **Oilatum** or **Balneum** and an emollient after bathing, eg **Aqueous cream** or **Diprobase cream**. Apply surface cooling agents with emollients, eg 0.25% - 1% **Menthol in Aqueous cream, Calamine lotion BP**
6 Drug therapy

Sedating antihistamines	**Chlorpheniramine** 4mg qds **Hydroxyzine** 25mg nocte
Non-sedating antihistamines	**Loratidine** 10mg od
In obstructive jaundice	Consider referral for stent **Cholestyramine** 6-8 g per day
	Aludrox 10-15 mls tds or qds
	Stanazolol 5mg bd
	Ondansetron 8mg od
Other drugs	**Cimetidine** 400mg bd, **diazepam** 2mg tds **Chlorpromazine** po or **methotrimeprazine** by csci may be needed in intractable itch

7 Consider early advice from dermatologist or palliative care physician

SWEATING

Causes/risk factors

1 Fever & environmental temperature changes
2 Emotional - fear and anxiety (confined to axillae, palms and soles)
3 Extensive malignancy, lymphomas and carcinoid - drenching night sweats
4 Autonomic disturbance
5 Intense pain
6 Drugs - alcohol, tricyclic antidepressives, opioids, steroids
7 Hormonal disturbance - menopause, tamoxifen, goserelin

Management

1 Alter environment - fans, reduce room temperature
2 Treat underlying disease
3 Alleviate other causes as far as possible
4 **Drug therapy** - various drugs have been used with varying success:

Cimetidine 400 - 800mg nocte
Clonidine 50mcg bd
NSAIDs, eg diclofenac SR 100mg nocte
Propantheline 15mg tds
Thioridazine 10 - 30mg nocte
Dexamethasone 4mg daily - effective in lymphoma
Propranolol 40mg once to four times daily

PRESSURE AREA CARE

Causes/risk factors

1 Extrinsic factors - pressure, shear, friction, incontinence
2 Immobility, malnutrition, dehydration, old age
3 Contributing medical condition and treatment (eg steroids)
4 Cachexia

Management - General

1 Assess patient using appropriate "risk factor scale" (preferably Waterlow) at regular intervals - daily for high risk, weekly for low risk
2 Assess patient for pressure relieving aids according to risk - static or air mattress, bed cradle
3 Assess for aids to movement as appropriate - monkey pole, cot sides, slings
4 Turn bedbound patients every 4 hours as appropriate, encourage chair-bound patients to stand every 2 hours
5 Improve nutritional state if possible - offer dietary advice, dietary supplements, drugs. Refer to dietitian if appropriate
6 Avoid rubbing pressure areas. Use barrier creams sparingly if patient is incontinent - consider catheterisation
7 Assess pain particularly at dressing changes
8 **Drug therapy**

Ascorbic acid and zinc may be useful in sore prevention
Antibiotics may be used as appropriate if infected
Metronidazole (topical or systemic) may be used if offensive (putrid) odour
Flamazine is useful for painful excoriated skin
Paracetamol or **NSAID** may alleviate wound pain
When dressing changes are painful consider -
short acting **morphine** preparations, **dextromoramide** or **Entonox**
applying **lignocaine** gel to wound or dressings
If wound pain uncontrolled mix **diamorphine** 10mg with **Intrasite** gel

Management - Pressure sores

1 **Grade 1** - skin discoloration, non-blancheable redness
Management - relieve pressure

2 **Grade 2** - partial thickness skin loss or damage
Management - leave blisters intact and apply Opsite or **Duoderm**

3 **Grade 3** - extends to subcutaneous fat
Management - dress with alginate (**Sorbsan**) or hydrocolloid (**Granuflex**)
- if sloughy use hydrogel (**Intrasite** or **Granugel**) +/- **Granuflex**

4 **Grade 4** - deep fascia or bony involvement
Management - if necrotic - use hydrogel (**Intrasite** or **Granugel**) + cover with **Granuflex**
- if green - use alginate (**Sorbsan**) and take a wound swab
- if malodorous - use **Intrasite** mixed with **metronidazole** gel, and a charcoal dressing (**Clinisorb**) may be added
- if red - granulating: use **Intrasite** covered with **Granuflex**

FUNGATING WOUNDS

Causes / Risk factors

Tumour infiltration of epithelium and its surrounding blood and lymphatic vessels

General Management

1 Assess wound and patient's overall condition. Consider management goal
2 Radiotherapy may reduce bleeding and discharge; surgery and skin grafting may aid healing
3 Consider antibiotics if appropriate
4 Clean wound with 0.9% sodium chloride solution
5 Ensure adequate analgesia

Specific Management

1 Depending on the wound problem:

light exudate	-	use **Granuflex** or **Sorbsan**
heavy exudate	-	use **Sorbsan, Kaltostat** or **Intrasite** covered with absorbent pads
cavity	-	use alginate rope (**Sorbsan**), foam dressing (**Allevyn**) or **Dermasorb**, filling 50% of cavity
bleeding	-	use alginate (**Kaltostat** or **Sorbsan**)
	-	may need to soak dressings with saline before removing
	-	can use adrenaline 1:1000 to stop bleeding
infected	-	use **Intrasite** or **Granugel** mixed with **metronidazole** gel, and charcoal dressing (**Clinisorb**)
painful	-	see p47

2 Drug therapy

Analgesics	-	NSAID, morphine
Antibiotics	-	metronidazole orally (cheap) or topically (expensive)
Anti-pruritic	-	sedative antihistamine, eg chlorpheniramine

LYMPHOEDEMA

Diagnosis

Differentiate from heart failure, low albumin, venous insufficiency

Causes / Risk factors

1 Primary congenital lymphoedema
2 Secondary obstruction from radiotherapy, surgery, tumour spread
3 Recurrent streptococcal infections

Management

1 Early referral to the local lymphoedema service produces best results in achieving maximal improvement and long-term control (cure is not possible)
2 Explanation of lymph flow and cause of swelling will encourage compliance
3 Clear infections before beginning treatment, usually with at least 2-week course of penicillin V or erythromycin
4 Instructions on daily skin care - often with aqueous or Diprobase cream. Also general advice - avoid injections and any cuts, dry carefully after washing
5 Monitor progress by measuring limbs regularly
6 Regular gentle, superficial, proximal massage can be very effective, with specific exercises where appropriate
7 Containment hosiery of appropriate size and strength should be worn all day
8 Compression bandaging may be necessary initially for a few weeks
9 Occasionally a multi-chamber sequential pneumatic compression is effective in reducing limb volume. This needs to be built up to four hours per day and should be used in conjunction with hosiery and massage/exercises
10 With advanced disease and severe obstruction, pain may be exacerbated by compression or massage - the level of intervention will need to be balanced against the patient's overall condition and tolerance of the treatment
11 **Drug therapy**

Diuretics may be appropriate in addition to the above, especially where there is an element of heart failure

Steroids may shrink lymphadenopathy or tumour but can increase fluid retention

Antibiotics may be needed long term if there is recurrent cellulitis

PSYCHOLOGICAL AND SPIRITUAL CARE

Palliative care extends far beyond pain relief and the alleviation of symptoms. An essential component of palliative care is the need to address psychological and spiritual needs of both the patient and their family/carers. This does not necessarily require specialist help. All doctors and nurses should be prepared to address these issues and make initial assessments

The way in which patients adapt to their illness will be influenced by several variables including:

- age and stage of family development
- the nature of the disease
- the pattern of the illness
- the individual and family's previous experience with disease and death
- the socio-economic status
- culture
- personality and learned coping mechanisms

Documenting a **family tree** often helps to reveal:

- family dynamics
- family support and location
- the health of the spouse
- previous experience of illness and death
- family history of illness eg cancer of breast
- vulnerability to bereavement

A **social history** is important to ensure that the patient and family have optimal support at home. Aspects to be considered include:

- with whom does the patient live?
- where does the patient live?
  - house, flat, bungalow
  - owner, rented, tied accomodation
  - which floor? (accessibility)
  - are appropriate support services involved?
  - have appropriate allowances been applied for?
  - present or previous occupation and social contacts

Knowledge of these aspects is important for effective discharge planning. Before discharge confirmation should be sought from the patient, family and primary healthcare team that the planned arrangements are both appropriate and acceptable

BREAKING BAD NEWS

Good communication underpins successful patient care, especially if the patient is seriously ill. A key aspect of communication is that of breaking bad news.

Bad news is any information which alters a patient's view of their future for the worse. The bigger the gap between what the patient expects and the reality, the worse the news is. The way in which bad news is given has been shown to affect how the patient and family cope in the future.

Patients often feel that they lack information and thus lack control over their situation. By giving adequate opportunity for discussion it is possible to:

- reduce uncertainty about the future, or at least discuss it
- reduce inappropriate hope (which is demoralising) - but may be difficult
- encourage informed choice of management options
- enable appropriate adjustments to the reality of the situation
- maintain trust between the patient, the carers and the professionals

Remember that it is impossible not to communicate. Avoidance of discussion and negative body language usually leaves the patient feeling abandoned, anxious, guilty or depressed. A conspiracy of silence or the raising of false hope may deny the patient the opportunity to use his/her remaining time the way s/he would wish.

When it can be anticipated that bad news is to be given, consider the following points:

1 **The meeting:**
- ensure you have time, and are not exhausted
- arrange for privacy, sufficient seating; avoid interruptions
- whenever possible, offer the opportunity to have a close family member or friend present

2 Ask what the patient understands of their situation. 'What do you think is going on?' 'Would you like me to tell you more about your illness?' Do not impose information. If the patient does not want to know, would s/he like you to explain to a family member? Ask them and document this.

3 **Give a warning shot to the patient.** By using the patient's own phrases and avoiding medical jargon wherever possible, start to give a range of possibilities. This may include using euphemisms, eg. shadow, lump, growth - which may subsequently require fuller explanation. Allow the patient to absorb the information at their own pace. If they do not ask questions or deny or protest at information given, do not continue to give more information at this stage; every patient has the right to know about their illness but also has the right not to know. Allow denial.

4 **Avoid assumptions.** If a patient asks a question, never assume that you know what they are referring to. Ask a question to clarify, or you may give an inappropriate answer - 'How long will it be?' may be referring to discharge home, not prognosis. If in doubt, reflect the question back: 'How long will what be?'.

5 **Explanations must be clear and simple**, in terms the patient can understand. Diagrams often help, but may also become a barrier between patient and professional. Avoid detailed explanations and treatment options; these are best discussed at a subsequent meeting. "Once he told me it was cancer, I did not hear anything else."

6 **Be positive:** optimism is supportive, pessimism is not. Say for example 'we may not be able to cure you but there are things we can do to make you feel better and cope with your illness'.

7 **Confirm** that the patient has understood the information so far. 'Is this making sense?'

8 **Allow ventilation of feelings.** Do not discourage emotions and acknowledge distress - say for example 'have you been surprised by what I have told you?', 'How are you feeling?', 'You look as if you are having a bit of a tough time', or 'I'm sorry' - simple but powerful. Use prompts as necessary, such as 'Is there anything that you are worried about?' or 'Is there anything (else) you would like to ask me - anything at all?'. Listen and allow them time to think how to phrase the questions.

9 **Summarise** the situation and arrange for a follow up meeting, stating the day and time if possible. In summarising, emphasise the positive, and outline future treatment plans if appropriate. Printed information may be useful.

10 **Ask who may be told** about the diagnosis - 'Would you like me to talk to your family?'.

11 **Ensure that the General Practitioner is informed** of what was said, although what was said and what the patient heard may be quite different. Giving the patient a recording of the interview is popular and effective. Offer to speak with other family members.

12 **The Do's and Don'ts of Communicating Bad News** printed on the following two pages is based on advice given by a Macmillan Nursing team, and is reproduced with permission, from 'Improving communication between doctors and patients: A working party report'. London: Royal College of Physicians, 1997.

The Do's and Don'ts of Communicating Bad News

Do:

- Wherever possible, sit down to be on the same level as the patient - this is reassuring and courteous and signifies that you are 'with' them
- Spend the first part of the interviewing listening to what the patient is saying or asking
- Note questions or topics avoided by the patient
- Watch for non-verbal messages, eg posture, eye contact, hands, facial expression
- Respect the patient's right to 'denial'. Patients will often 'selectively perceive' only that information they can cope with at that point in time
- Remember that more than 60% of what you communicate is by non-verbal means, eg posture, eye contact, attitude
- Allow pauses for taking in and digesting what you said - move at patient's pace
- Attempt to give information that is appropriate for that individual patient's needs at that particular point in time
- Realise that most patients become aware of their situation gradually rather than in a 'once off' confrontation
- Realise that it is possible to communicate the 'gentle' rather than the 'bitter' truth by one's attitude and by emphasising positive aspects of the present or future situation
- Realise that patients can and do cope positively with truth about their illness
- Realise that certain euphemisms may be appropriate, eg tumour or growth Try to find out what the patient understands by these words
- Use the word "cancer" if appropriate
- Realise that the patient who 'denied' or did not want the information about his illness in the past may need and be ready for information at another time
- Realise that there is no general rule as to how much to tell
- Try to include all the family (including children) in the sharing of information
- Realise that hope is best communicated by genuine concern and reassurance of continuing care 'no matter how things develop'
- Express your humanity and warmth

- Realise that patients will often be shocked on hearing bad news and that their many questions may only surface later
- End meeting in which bad news is imparted by arranging to meet again in the near future to answer any questions. This also demonstrates to the patient your commitment to them
- Write any information or insight you may have given or received in the patient's notes
- Tell staff on duty what you have said. They may be involved in future discussions

On the other hand:

- **Do not ask the relatives whether or not the patient should be told. (This is unfair both on them and the patient)**
- Do not agree not to tell the patient because the family forbids this
- Do not be afraid of patients or relatives expressing negative feelings or crying. This reaction may be entirely appropriate and not caused by your clumsiness
- Do not tell lies which would lead to a breakdown of trust at a later stage
- Do not give more information than the patient needs or is asking for
- Do not use language that is too technical for the patient or family to understand
- Do not use misleading euphemisms, eg ulcer
- Do not have general rules about "telling", eg "Everybody must be told everything" or "Nobody must be told anything"
- Do not always answer direct questions directly. It may be appropriate to do so but often direct questions such as "It may be cancer" or "Am I dying?" contain a hidden question such as "Will I have uncontrolled pain?" or "Should I make a will?". These hidden questions can be discovered by replying initially with a question such as "I wonder what makes you ask that?". One may discover that the patient already knows, tells you and is, in fact, looking for clarification or reassurance
- Do not talk from the end of the bed with one foot in the door!

And finally:

- **Be aware that it is unethical and technically a breach of confidentiality to tell the relatives without the patient's consent**

DEALING WITH DENIAL AND COLLUSION

Denial

Denial is a basic primitive coping mechanism to protect us from information or events with which we cannot cope. By blotting out unpleasant facts it allows us to continue to function. Denial may be practised by the patient, by the family and/or by the professionals. Denial can be a very normal protective measure but in some situations it can be harmful and should then be challenged.

Professionals who feel that denial is unhealthy need to be sure that they are intervening in the best interest of the patient, not just because they feel the patient and family should fully accept the situation.

It should nevertheless be remembered that, in order for patients to be able to deal with their emotions, they usually need good symptom control.

Management

1 The first step in assessing denial must be to establish that the patient has been told the diagnosis in terms which he/she can understand. Is there written confirmation in the notes? What terms were used?

2 If the patient is in denial, decide if this is healthy or unhealthy. There are two main aspects to consider:
   (i) Is the denial reducing emotional distress?
   (ii) Is the denial affecting help-seeking behaviour and compliance?
   If the patient is functioning well and the denial is not prejudicing treatment, then it may be quite healthy. On the other hand, if the denial acts as a barrier and prevents the patient from seeking treatment (for example, a woman denying the significance of early breast cancer) then it should be tackled. It is also appropriate to intervene in cases where the patient is in denial but is displaying a great deal of distress or pain that is not responding to treatment.

   If the patient has dependants for whom provision must be made and planning is blocked by the patient's denial then this too is a situation where the denial should be challenged.

   By gently exploring the patient's understanding and helping them to a more realistic view point it may help to resolve distressing symptoms/situations.

3 Denial can be difficult for professionals to work with, particularly when they prefer to communicate openly. However we must respect the needs of the patient and their ability to cope with the information at that particular time. Any attempts to modify denial should be for a specific reason, for example improving compliance with treatment, reducing emotional distress or planning care of dependants.

   Phrases such as 'what if"...?' and 'it's sometimes best to plan for the worst and hope for the best' can help to open up the conversation, but it is unrealistic to expect all patients to come to terms with their mortality, indeed some are too ill and too close to death to open up the conversation.

4 Carers may deny the seriousness of the illness and expect too much of the patient. They need extra support to understand that life cannot continue as before.

5 Doctors and nurses may also deny the seriousness of the patient's condition and thus continue with or initiate inappropriate treatments. Teamwork and cross-referral often help in the transition from curative to palliative treatment.

Collusion

Collusion occurs when the family conspire among themselves or with professionals to withold information from, or lie to, the patient.

Collusion is a common probem particularly in the early stages of illness. We must remember that families are often well-intentioned and acting in what they believe to be the best interest of the patient. In trying to shield the patient, the family's actions are of a protective and loving nature attempting to spare their loved one from further pain and distress.

We should also respect the fact that the patient has the right to information about his/her diagnosis first. Has the patient given permission for you to disclose information about their diagnosis to their family? It is important to establish whether the family is trying to protect themselves or the patient.

BEREAVEMENT

Grief is a natural process experienced by anyone who has to adjust to a significant loss. To recognise when and what type of intervention is needed an appreciation of what is 'normal' is required. Parkes describes bereavement in terms of phases of grief:

1 **Initial shock**, numbness and disbelief before emotional reality of the loss is felt. Seeing the body after death, attending the funeral or visiting the grave are often important in facilitating acceptance of the reality of the death.

2 **The pain of separation** which affect behaviour and emotions. The bereaved usually suffer overwhelming periods of sadness as they are faced with the day-to-day reality of their loss. They may try to reduce this by avoiding reminders of the deceased. They may also find themselves 'searching' for the bereaved, dreaming about them or actually seeing or hearing them. Visual or auditory hallucinations at this time are normal. Agitation, restlessness and an inability to concentrate can result from the conflict between this searching and avoiding behaviour - attempts to avoid the reality of the situation.

A range of emotions other than sadness may be experienced. Anxiety may be due to loss of the familiar routine and feelings of insecurity. Anger may be directed towards the deceased for abandoning them, towards God, or (justly or unjustly) towards professionals. It may simply manifest as general irritability. Feelings of guilt may occur when anger is directed internally.

It is common for physical symptoms related to over-activity of the autonomic nervous system to be experienced, eg palpitations, insomnia, diarrhoea and fatigue. A transient hypochondriasis can occur, but it is abnormal if it persists.

3 **Despair or depression.** As the pangs of grief and anxiety reduce in frequency and severity the bereaved may lose interest and purpose in life. They feel hopeless and become withdrawn. This may last for months.

4 Eventually the loss is accepted and life without the deceased is adjusted to.

5 **The final phase of resolution and reorganisation** is entered as emotional energy is reinvested in new relationships and activities, although anniversaries often trigger renewed grief.

For some, part of the work of grieving may be undergone before the actual death of the deceased (anticipatory grieving). **Although described in sequence, bereavement reactions usually oscillate between phases.**

For most people, no formal psychotherapeutic intervention is needed as their personality, previous life experiences, social network and loving relationship with the bereaved enables them to come to terms with their loss, and often to grow personally through it. All that is often required is a watchful eye to check that their grief is continuing normally.

6 For those with unresolved/abnormal grief professional intervention is required. The needs of children and adolescents are often quite complex and they may also benefit from specialist support. Recognition of those likely to develop an abnormal grief reaction can also allow early supportive intervention and prevent its development. Risk factors include an:

- unexpected/untimely death
- unpleasant death
- ambivalent relationship
- excessively dependent relationship
- child/adolescent (may be protected/excluded)
- social isolation
- excessive use of denial preventing anticipatory grieving
- unresolved anger
- previously unresolved losses
- previous psychiatric illness
- history of alcoholism/drug abuse
- other concurrent stressful life events

For many a trained volunteer who listens may be all that is needed in order for the bereaved to recognise and express their feelings and fears, enabling them to make sense for themselves of the events which have occurred. Reassurance that what they are experiencing is 'normal' is extremely helpful. A chaplain may also be helpful to those whose faith is shaken, destroyed or awakened.

Some find meeting with a group of individuals who have undergone a similar experience can be supportive. These groups may or may not have a trained facilitator.

Written information explaining what may be experienced and giving useful contact numbers is often appreciated.

UNRESOLVED/ABNORMAL GRIEF

There is no clear boundary between what is 'normal' and what is 'abnormal' grief, and it is often a question of unusual intensity, of reaction or timing. The following guide indicates when professional intervention may be required.

1 **Delayed grief** is defined by an absence of grieving within the first weeks or months after the death. It is often precipitated many years later by further loss. It is more likely to be severe and chronic when it finally occurs. Help is often needed in emotionally accepting the reality of the past loss.

2 **Inhibited grief** occurs when all reminders of the bereaved are avoided. This mechanism of avoidance may work for some, but can present as irritability, restlessness or depression. Guided mourning is employed to encourage the bereaved to face the reality of the loss.

3 **Chronic grief (mummified grief)** may be severe and occurs when a person fails to progress through all the tasks of mourning. There is no fixed time period. Assistance is needed in helping the bereaved to move on in the grieving process.

4 **Persistent hypochondriasis** can occur and may block grief. The bereaved may take on the symptoms of the deceased or develop symptoms related to anxiety or depression. Explaining to the patient what is happening may be all that is required. However, note that mortality and morbidity of widows and widowers is increased in the first year after the death, mainly due to cardiovascular disease.

5 **Psychiatric disorder.** A severe depressive illness may develop with delusional ideas of guilt and suicidal intent. It can require hospitalisation. **Mania** can be precipitated as can **phobic disorders**, and **alcoholism** and addiction to drugs, especially hypnotics.

Some of these abnormal grief reactions can be dealt with by the primary health care teams, social workers or trained counsellors. In addition, many areas have their own voluntary bereavement and counselling groups including branches of CRUSE (126 Sheen Road, Richmond, Surrey TW9 1UR): see health centres, hospitals or Citizens' Advice Bureaux for information, or contact The National Association of Bereavement Services, 10 Norton Folgate, London E1 6DB. Others require specialist help from psychotherapists or psychiatrists, and it is important for all professionals to realise their own skills and limitations.

FORMULARY

This list of drugs, dressings and other preparations recommended in this booklet is intended as an aid to pharmacists and others. The list is neither exhaustive nor exclusive, and other products may be recommended or be more appropriate in some circumstances. Often, only one drug is recommended from a whole class of compounds: this should not be taken to imply that other preparations may not be equally effective. Generic names are given for drugs with single constituents, proprietary names for most compound formulations and for dressings.

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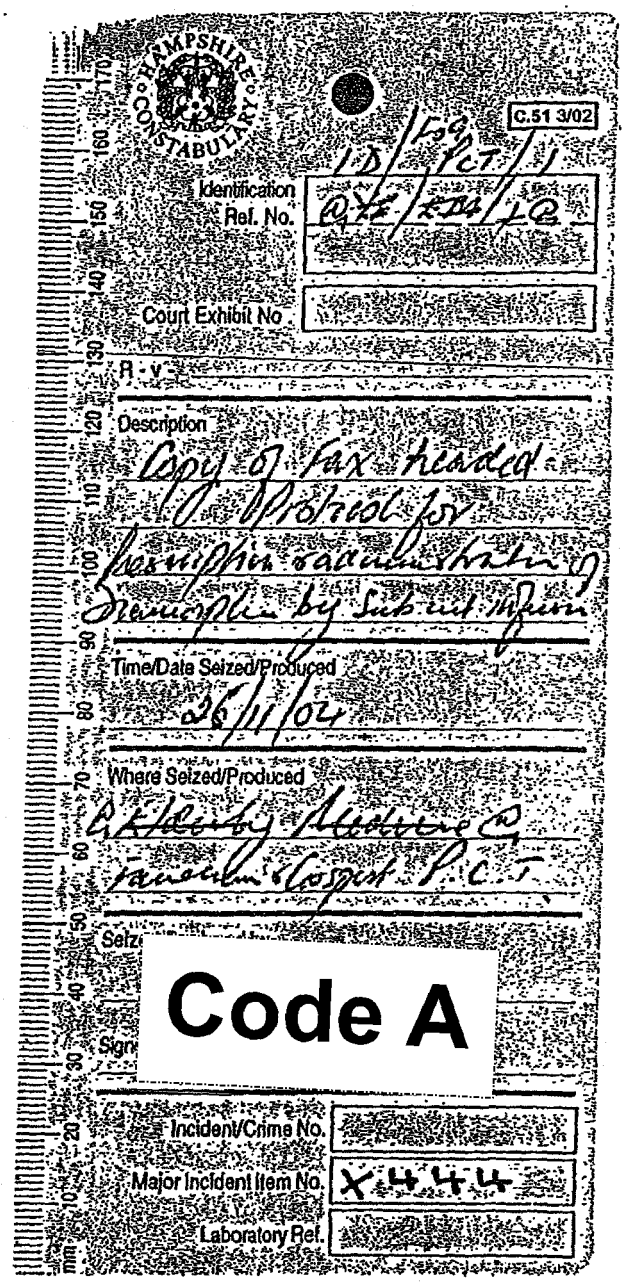
USEFUL TELEPHONE NUMBERS

The Rowans (Portsmouth Area Hospice)			
Inpatient unit and out of hours advice		01705 250001	ext 209
Portsmouth HealthCare NHS Trust			
at The Rowans (9 am - 5 pm)		01705 250001	ext 203
Consultant in Palliative Medicine			ext 203
Palliative Care Nurses (Community)			(Answerphone) ext 326
Consultant Clinical Psychologist			ext 216
Charles Ward (Elderly Medicine)	QAH	01705 286059	
Portsmouth Hospitals NHS Trust			
Hospital Macmillan Nurses	SMH	01705 286000	ext 2408
			or bleep 419
	QAH	01705 286904	bleep 409
Macmillan Radiographer	SMH	01705 286000	ext 3425
			or bleep 288
Macmillan Centre	SMH	01705 788700	
Pain Clinic	QAH	01705 286312	
Pharmacy	QAH	01705 286117	
Drug Information	SMH	01705 866771	bleep 468
Countess Mountbatten House		01703 477414	
Macmillan Service, Midhurst		01730 812341	
St Wilfrid's Hospice, Chichester		01243 775302	
Haslar Oncology/Palliative Care Nurses		01705 584255	ext 2695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C.51 3/02
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Description
Time/Date Seized/Produced
Where Seized/Produced
Code A
Incident/Crime No.
Major Incident Item No.
X444
Laboratory Ref.

:OM : ELDERLY MEDICINE PHONE NO. : Code A 26 Oct. 2004 01:50PM P1

F.A.O. Code A

PROTOCOL FOR PRESCRIPTION AND ADMINISTRATION OF DIAMORPHINE BY SUBCUTANEOUS INFUSION

INTRODUCTION

In community hospitals, particularly at weekends and bank holidays, medical cover is provided on an emergency call out basis.

This can lead to a situation whereby patients who are experiencing increasing pain may not be able to have their pain control needs immediately met. To overcome this and also to give guidance to nurses who may be unsure as to how much analgesia (diamorphine) to administer within a variable dose prescription.

DOSAGE

Guidance from the palliative care service indicates that if pain has not been controlled in the previous 24 hours by 'Xmg' of diamorphine, then up to double the dose should be administered the following day, i.e. up to 2x 'Xmg' should be given.

PAIN CONTROL CHART

It is suggested that a pain control chart (see appendix) should be completed on a four hourly basis for all patients receiving a diamorphine infusion.

PRESCRIPTION

Diamorphine may be written up as a variable dose to allow doubling on up to two successive days, e.g. 10-40 mg, 20-80 mg, 60-240 mg or similar. The reason for prescribing should be recorded in the medical notes.

ADMINISTRATION

If pain has been adequately controlled within the previous 24 hours, the nurse should administer a similar dose of diamorphine over the next 24 hours.

If the previous 24 hour dose has made the patient unduly drowsy etc., the nurse should use his/her discretion as to whether the dose to be administered for the next 24 hours can/should be reduced, within the prescribed dosage regime. If the minimum dose appears to have made the patient too drowsy, the on-call doctor should be contacted

DIAMORPHINE INFUSION AND PAIN CONTROL CHART

DATE						
DOSE						
TIME INFUSION STARTED	0 hours					
PAIN CONTROLLED YES/NO	+4 hours					
	+8 hours					
	+12 hours					
	+16 hours					
	+20 hours					
	+24 hours					
NO. OF TOP UP DOSES OF DIAMORPHINE						
TOTAL DOSE TOP UPS IN 24 HOURS						
COMMENTS						

DIAMORPHINE INFUSION AND PAIN CONTROL CHART

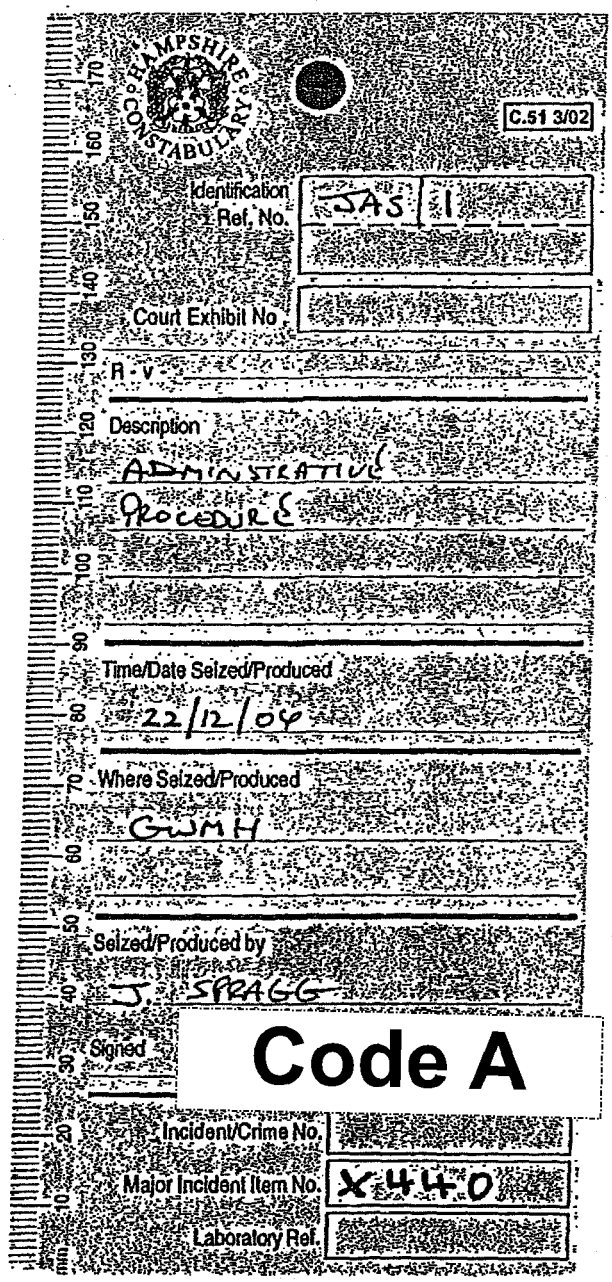
DATE		29/9	30/9	1/10	2/10	3/10
DOSE		10 mg	20 mg	40 mg	80 mg	80 mg
TIME INFUSION STARTED	0 hours	1400	1400	1400	1400	1400
PAIN CONTROLLED YES/NO	+4 hours (1800)	Y	Y	N	Y	
	+8 hours (2200)	Y	Y	N	Y	
	+12 hours (0200)	N	Y	Y	Y	
	+16 hours (0600)	N	N	Y	Y	
	+20 hours (1000)	N	Y	N	Y	
	+24 hours (1400)	N	Y	Y	Y	
NO. OF TOP UP DOSES OF DIAMORPHINE		3	1	3	0	
TOTAL DOSE 'TOP UPS' IN 24 HOURS		10 mg	5 mg	20 mg	0 mg	
COMMENTS						

If the patient's pain has not been controlled, the nurse should use his/her discretion as to the dose to be given within the next 24 hours, i.e. he or she may administer up to double the previous 24 hours dose.

INFORMATION TO PATIENTS and RELATIVES

Where patients are mentally capable of receiving such information, they must be told that an infusion of a painkiller (diamorphine) is being started and that the dose will be adjusted if necessary to allow them to be as comfortable as possible without being unduly sedated.

When patients are unable to understand such information, by reason of either their physical or mental status, the decision that diamorphine is being, or about to be, administered, should be communicated to their next-of-kin/relatives, again indicating that the aim is to make the patient as comfortable as possible and that the dose will be adjusted to keep the patient as comfortable as possible without being unduly sedated. If relatives express concern about the administration of diamorphine, despite the above discussion, the medical staff should be informed and the medical staff should make every effort to discuss the administration of diamorphine with the patient's next-of-kin/family. A resume of the discussion should be recorded in the patient's notes.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Court Exhibit No.
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Where Seized/Produced
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Seized/Produced by
J. SPRAGG
Signed
Code A
Incident/Crime No.
Major Incident Item No.
X440
Laboratory Ref.

PORTSMOUTH
HealthCare
NHS
TRUST

ADMINISTRATIVE PROCEDURES FOLLOWING A DEATH IN GOSPORT WAR MEMORIAL HOSPITAL.

Few people are familiar with the administrative procedure surrounding death and relatives are likely to need guidance through the system. Administrative procedures should be carried out as smoothly and efficiently as possible, so that no unnecessary distress or delay is caused to relatives.

1. The body should be removed from the ward by the Porters with due regard to the sensibilities of other patients and visitors.

2. Nursing Staff should provide the relatives with printed information, before they leave the ward, detailing what they will need to do, regarding the collection of the Medical Certificate of Cause of Death (Death Certificate), personal belongings etc.

3. Cash and valuables should be listed on a Patient Property Form, and placed in the night safe or with the Patients Affairs Officer in accordance with the Code of Financial Procedures (8.5.1).

4. Rings/ earrings or other valuables that cannot be removed from the body, should be listed on a Patients Property Form. (8.5.2).

5. Clothing and other items should be appropriately packed, in an acceptable bag. Soiled clothing should be in a separate bag. All items should be listed. All property should be deposited with the Patients Affairs Officer.

6. A telephone call should be made as soon as is reasonably possible by Ward Staff to the G.P. informing him/her of the death.

7. Patient Notes should be given to the Patients Affairs Officer in preparation for the Ward Doctor / G.P. who will view the body if necessary and complete the Gosport War Memorial Hospital, Medical Certificate of Cause of Death.

8. To ensure all the necessary administrative procedures are organised as well as possible for the benefit of relatives, and that all interested parties have a central point of reference. All deaths occurring in Gosport War Memorial Hospital must be recorded in the Hospital Medical Certificate of Cause of Death book, along with any cremation forms if necessary, and not issued from any other source.

9. If the deceased is to be cremated, the doctor will complete Form B (Cremation Acts, 1902 & 1952) and request a second doctor for the completion of Form C.

10. The body will only be removed from the hospital by the Funeral Directors, when all necessary documentation is completed.

11. All new medical staff should be informed of the local procedure for completing the Medical Certificate of Cause of Death and Cremation form, and the hospital administrative procedures regarding death.

12. Deaths must be registered with the Registrar within 5 Days.

13. The deceased's possessions, valuables, death certificate are collected together by the Patients Affairs Officer, in readiness for relatives, who should be given an appointment time. It may be appropriate to arrange the registrar's appointment to coincide with this meeting. The Patients Affairs Office should be quiet and pleasant and the interview must have sufficient uninterrupted time to advise and answer any questions.

14. Relatives should be given clear guidance by the Patients Affairs Officer, on how to register the death, and where appropriate advice on Funeral arrangements, pensions etc.

15. Some relatives will wish to view the body. The viewing chapel will be pleasantly decorated and well kept. The body should be decently laid out, and a nurse from the deceased patient's ward should always check this and accompany the relatives into the viewing chapel. Facilities for all religious denominations should be made available. Relatives may be accompanied by a minister of religion.

16. The Patients Affairs Officer will liaise with the Funeral Directors, with regard to relatives wishes, the collection of the body, upon completion of the Medical Certificate of Cause of Death and Cremation form (a record is kept in the Patients Affairs Office of the names of Doctors completing cremation forms), and any other items e.g. Pacemakers, personal jewellery etc.

17. The Hospital will ensure that bodies are correctly identified at all stages. The movement of bodies and their transfer to Funeral Directors must be fully documented.

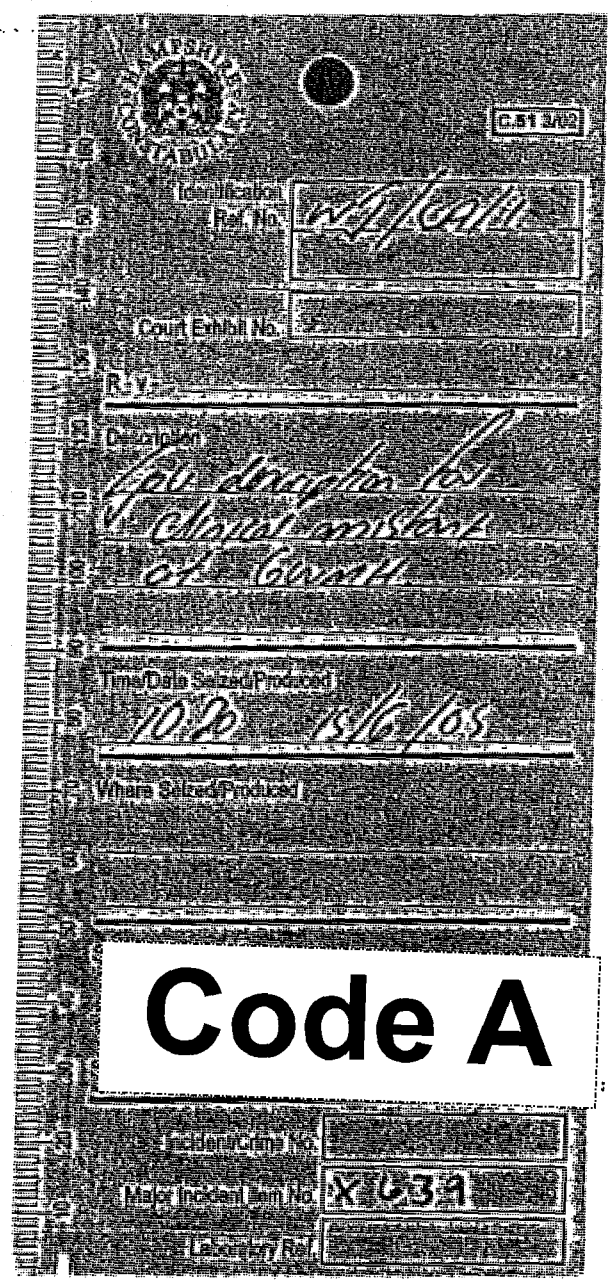
18. Both the ward staff and Patients Affairs Officer should inform other departments of the death, including medical records and clinics. Much unhappiness can be caused by appointment letters being sent for the deceased, to relatives.

19. The Patients Affairs Officer will register the death if there is no relative or friend available.

20. Gosport War Memorial Hospital has a duty at common law to dispose of bodies of patients who die in this Hospital, where no arrangements are made by relatives. The Hospital should arrange to pay for a funeral where:

- Relatives cannot be traced.
- Relatives cannot afford to pay for the funeral but do not qualify for Social Fund Funeral Payments.

In conclusion it is essential that the administrative procedures following a death are carried out in a efficient and professional manner, without being officious. Thereby ensuring that the relatives final contact with the hospital, regarding the care of their loved ones, continues the standards of care expected by Portsmouth Healthcare NHS Trust.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Court Exhibit No.
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Where Seized/Produced
Code A
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Major Incident Item No.
X639
Laboratory Ref.

PORTSMOUTH AND SOUTH EAST HAMPSHIRE HEALTH AUTHORITY

JOB DESCRIPTION FOR THE POST OF CLINICAL ASSISTANT
TO THE GERIATRIC DIVISION IN GOSPORT

LOCATION	GOSPORT WAR MEMORIAL HOSPITAL	11 PATIENTS
	NORTHCOTT ANNEXE	12 PATIENTS
	REDCLYFFE ANNEXE	23 PATIENTS

ACCOUNTABLE TO:- CONSULTANT PHYSICIANS IN GERIATRIC MEDICINE

LIAISES WITH:-

INTERNAL
- CONSULTANT PHYSICIANS IN GERIATRIC MEDICINE
- LOCAL MANAGER FAREHAM/GOSPORT
- HOSPITAL/PREMISES MANAGER GOSPORT
- WARD SISTERS
- MEDICAL RECORDS DEPARTMENT
- HEADS OF PARAMEDICAL SERVICES
- PHARMACY
- DIETICIANS

EXTERNAL
- GENERAL PRACTITIONERS
- SOCIAL SERVICES
- VOLUNTARY SERVICE ORGANISATIONS

JOB SUMMARY

This is a new post of 5 Sessions a week worked flexibly to provide a 24 hour Medical Cover to the long Stay patients in Gosport. The patients are slow stream or slow stream rehabilitation, but holiday relief and shared care patients are admitted. An important aspect of this role is for the postholder to be seen not only as a medical adviser but as a friend and counsellor to patients, relatives and staff.

All Consultant Physicians in Geriatric Medicine have an equal right of Admission, but at present the beds in Gosport are under the control of Dr Wilkins and Dr Grunstein.

DUTIES

1. To visit the Units on a regular basis and to be available "On Call" as necessary.
2. To ensure that all new patients are seen promptly after Admission.
3. To be responsible for the day to day Medical Management of the patients.
4. To be responsible for the writing up of the initial case notes and to ensure that follow up notes are kept up to date and reviewed regularly.
5. To complete, upon discharge, the Discharge Summary and HRM 60.
6. To ensure the prompt preparation of death certificates and for cremation certificates where appropriate.
7. To take part in the weekly Consultant rounds.

8. To prescribe, as required, drugs for the patients under the care of the Consultant Physicians in Geriatric Medicine.

9. To participate wherever possible in multi-disciplinary case conferences and discussions related to the patients in the Unit.

10. To provide clinical advice and professional support to other Members of the Caring Team.

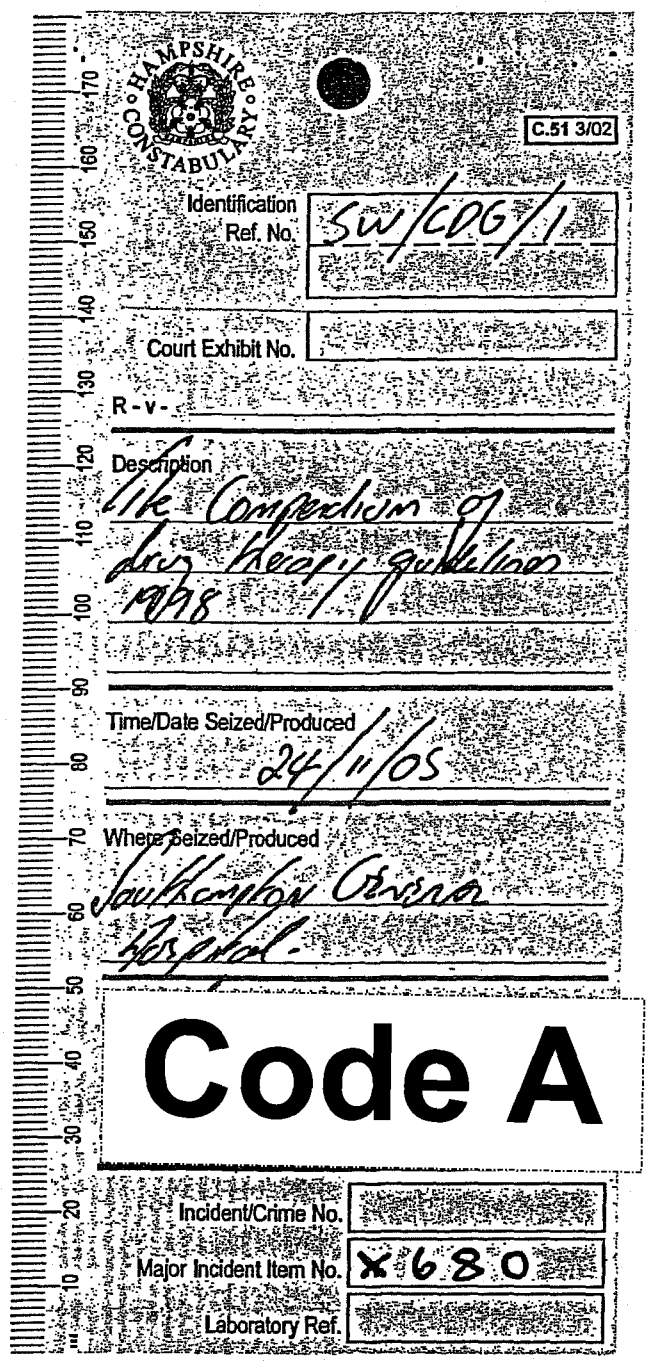
11. To identify opportunities to improve services so that a high level of care can be provided within the resources available.

12. To be available when required to advise and counsel relatives.

13. To be responsible for liaison with the General Practitioners with whom the patient is registered, and with other Clinicians and Agencies as necessary.

There may be a possibility that the sessions can be split between two separate General Practitioners, ideally from the same Practice.

5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Court Exhibit No.
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Description
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Time/Date Seized/Produced
24/11/05
Where Seized/Produced
Southampton General Hospital
Code A
Incident/Crime No.
Major Incident Item No.
X680
Laboratory Ref.

PORTSMOUTH HOSPITALS NHS TRUST

Portsmouth Hospitals and Portsmouth HealthCare

PORTSMOUTH HealthCare TRUST

Compendium of

DRUG THERAPY GUIDELINES 1998

For ADULT Patients Only

Portsmouth Hospitals & Portsmouth Healthcare
NHS Trusts

Compendium of

DRUG THERAPY GUIDELINES

1998

A collection of guidelines on prescribing, administering and handling medicines

FOR ADULT PATIENTS ONLY

INTRODUCTION

This compendium is a collection of hospital guidelines from both trusts. The guidelines relate to the drug treatment of various conditions, and the handling, storage, prescription and administration of medicines.

Each guideline has been prepared by a group of experts. All of the clinical guidelines have been approved by senior consultants in the relevant field. Finally each document in the compendium has been reviewed by the Formulary & Medicines Committee - a panel of consultants, pharmacists and nurses from both Trusts.

The Compendium contains drug-related guidelines from many different clinical specialties. Having all guidelines between one set of covers must be better than having them scattered and hence less accessible. It is envisaged that the Compendium should be available in all clinical areas so that junior doctors, nurses and pharmacists moving from one specialty to another can still look in the same place for drug-related information.

This is the second edition. The Compendium will be updated and re-issued annually. At the moment there are several key clinical areas which remain to be included, but the Compendium will grow with each successive edition.

If you would like to suggest that a guideline be included in the Compendium please contact the Editor, or your directorate pharmacist. Guidelines which are already written can be incorporated into the next edition of the Compendium. Assistance can also be given with the production of new guidelines on request.

If you have any suggestions or comments concerning guidelines that appear in this edition of the Compendium, please contact the named member of staff cited at the bottom of the guideline, or the Editor.

The Editor and the Formulary & Medicines Group wish to stress that the contents of the Compendium are offered as a source of information based on the best advice available at the time of printing. Staff should recognise that new information appears constantly and may need to be taken into account.

Code A Editor
Drug Information (bleep 468)

Code A Pharmacy Manager
Secretary, Formulary & Medicines Group

CONTENTS

GUIDELINES AVAILABLE ELSEWHERE

Administration of I.V. Drugs Policy - available from Nurse Advisers/ Managers.
Choosing the Right Pump for I.V. Drugs (poster) - available as above.
A Guide to Wound Types and Dressings (poster) - contact Lyn Taylor (blp 533).
Policy for Control & Administration of Medicines - in Policy & Procedures Manual.
Handling and Disposal of Sharps Policy - in Policy and Procedures Manual.
Handbook of Nutritional Support in Adults - Dietitians or Dr Venkat Raman.
Infection Control Guidelines - Control of infection.

Approved by Elderly Care and Formulary & Medicines Group. January 1997.

MANAGEMENT OF ACUTE CONFUSION IN THE ELDERLY

Patients with this common problem may receive inadequate investigation as they are difficult to approach and may be at risk because of over- or -under sedation. The problem requires assessment, management and a multidisciplinary approach.

It is important to obtain as much information as possible on premorbid psychiatric and medical problems, onset of the illness, history of falls or head injury and drugs.

In many cases, referral to the Old Age Psychiatry Department will be necessary. Advice is available from a Consultant or Senior Registrar on ext. 4111 or 4066.

WANDERING CONFUSED PATIENTS

A medical screen (Appendix A) should be carried out as soon as possible and any medical problems treated appropriately. Referral to the Department of Old Age Psychiatry should be made if the confusion persists after treatment of the acute medical problem or at an earlier stage if behavioural difficulties pose a significant management problem on the ward.

In the interim:
Patients should be approached from the front, using slow open gestures and clear speech to reduce the risk of the patient misinterpreting actions, feeling threatened and becoming aggressive.

Sedation should be avoided as it may increase the risk of falls.

The patient should be in a well lit, relatively hazard-free area; the distal end of the ward is most appropriate. Avoid annexes or cubicles near the ward entrance.

The bed should be as low as possible and cot-sides avoided to reduce risk of injury.

Diversion should be promoted and movement within the ward allowed where possible. Family should be encouraged to stay with the patient for as long as possible to promote orientation.

Temperature, bowel habit and fluid balance should be monitored regularly and an awareness kept of nutritional need.

<u>Exceptions</u>
(1) The patient is becoming exhausted
(2) Mobility is becoming unsafe and the patient is at risk of injury
(3) Acute medical problems (eg MI) contra-indicate excessive activity
(4) The patient becomes aggressive

In these cases, the patient should be treated as Aggressive Confused Patient below.

Code A

Approved by Elderly Care and Formulary & Medicines Group. January 1997.

NOISY IMMOBILE PATIENTS

A medical screen (Appendix A) should be carried out as soon as possible and medical conditions treated appropriately.

Subsequently a further assessment of mental test score and activities of daily living should be made prior to referral to Social Services for help with future placement, unless the level of dependency is such that NHS continuing care would be appropriate.

A psychiatric opinion may be sought for advice on treatment if the behaviour of the patient is posing a problem.

In the interim:
The patient should be isolated as far as possible for the benefit of other patients but should be regularly monitored and diversion promoted. Family should be encouraged to stay as long as possible if this appears to calm the patient.

Temperature, bowel habit, fluid balance and pressure areas should be regularly monitored. There should be an awareness of the nutritional needs of the patient.

The problem underlying the patient's noisy behaviour should be identified where possible and treated appropriately:

Pain - regular analgesia following assessment of location and nature of pain.

Paranoia/hallucinations - haloperidol, starting at 1mg for a small frail elderly person, titrating up to 10mg given four times a day or thioridazine starting at 10mg three or four times a day. Adjust the dose without over-sedating.

Depression - particularly in a demented person may manifest as shouting or calling for attention. Try trazodone 100mg or Amitriptyline 25mg nocte. Titrate upwards.

Brain damage/dementia - patients may shout for no apparent reason in which case sedation should be limited to night-time and adjusted to promote a 'normal' sleep pattern. Drugs which may be tried consecutively as a single dose at night (but not together) are: temazepam (10-20mg), Welldorm (2 tablets), and heminevrin (1-3 capsules). Thioridazine (10 - 50mg) may be added to any of these in extreme cases.

Constipation - a rectal examination should be performed and constipation treated with a combination of laxatives and enemas depending on severity.

Exceptions
(1) The patient is becoming exhausted
(2) Mobility is being attempted, is unsafe and the patient is at risk of injury.

In these case, the patient should be treated as Aggressive Confused Patients below.

Approved by Elderly Care and Formulary & Medicines Group. January 1997.

AGGRESSIVE CONFUSED PATIENTS

In this group of patients there is a real risk of injury, not only to staff but to the patients themselves and other patients and therefore under common law it is reasonable to restrain them in order to prevent this. The aim should be to obtain rapid and effective sedation. Prior to sedation the next of kin should be informed of the need and reasons for sedation and advised that in this group of patients, the prognosis is often very poor. At the same time, information should be sought on premorbid psychiatric and medical problems, details of the acute illness and drugs.

All antipsychotic drugs are fraught with potential side-effects and variable effect and a meta-analysis of controlled trials of neuroleptic treatment in dementia suggested that no single neuroleptic is better than another (i). Haloperidol may be given orally or intramuscularly and has a wide dose-range which may allow better titration to effect. It is therefore suggested that this be used first. However, if the patient has Parkinson's disease or extra pyramidal signs an alternative (eg lorazepam) may be tried initially in view of the risk of haloperidol potentiating physical symptoms.

- Initially give 5mg haloperidol IM stat.
- 10mg doses haloperidol may be given hourly until sedation begins.
- It is important then to give regular sedation and not use haloperidol only as required when full blown agitation and aggression return
- In those for whom 5mg haloperidol achieves effective sedation, a maintenance dose of 0.5mg - 1mg tds may be tried
- In those for whom 20 - 30mg haloperidol is needed to achieve sedation, a maintenance of 5 - 10mg tds may be tried

If the patient becomes rigid and develops a high temperature, the neuroleptic malignant syndrome should be considered and haloperidol stopped.

In extreme cases where it is proving too difficult to restrain the patient for long enough for haloperidol to be effective, midazolam 1.5mg may be given IV over 30 seconds and followed at 2-minute intervals by further increments of 0.5-1mg until sedation is achieved. It is important to monitor respiration closely. Regular haloperidol should follow to maintain sedation.

Patients should be reassessed regularly and treatment adjusted to avoid under- or over-sedation.

Whilst sedation is being achieved, the patient should be nursed on a one-to-one basis and a psychogeriatric opinion sought as the patient may need to be sectioned under the Mental Health Act.

A full medical assessment (Appendix A) should be carried out and medical problems treated appropriately.

Reference

Schneider L S et al
'A meta-analysis of controlled trials of neuroleptic treatment in dementia'. J. Ann. Ger. Soc. 1990 38(5); 553-563.

Code A

Approved by Elderly Care and Formulary & Medicines Group. January 1997.

Appendix A

MEDICAL ASSESSMENT OF THE ACUTELY CONFUSED PATIENT

Full blood count, blood sugar, urea and electrolytes, chest X-ray and ECG should be done urgently, looking for evidence of infection, dehydration, electrolyte imbalance, dysrhythmia or myocardial infarction.

If there is an elevated white cell count and/or pyrexia, blood cultures and mid-stream urine should be taken.

If there are any abnormal respiratory signs, arterial blood gases should be done looking for hypoxia or hypercapnia.

In the absence of other causes of acute confusion, if there is any history of significant head injury or a fluctuating conscious level, an urgent brain CT scan should be done to exclude subdural haematoma.

Liver and thyroid function should be checked routinely.

In the sedated patient, hydration should be instituted using subcutaneous fluid unless there is dehydration or antibiotics are needed, in which case intravenous fluids should be given. Advice on the administration of sub-cutaneous fluids can be found elsewhere in this compendium (see index).

All correctable problems should be treated and as soon as this is done, sedation withdrawn gradually over a period of two to three days. The patient should be reassessed at least daily.

Approved by: Anaesthetics, Formulary and Medicines Group. May 1995

PROTOCOL FOR I.V. OPIATE ADMINISTRATION IN THEATRE RECOVERY AREAS

PURPOSE

The purpose of this protocol is to guide the delivery of intravenous opiates in support of the best achievable care for patients. It is not designed to restrict or limit professional judgement and decision making.

This area of practice will be evaluated and the protocol reviewed whenever there is a change of circumstance, or annually. Discussions with respect to this protocol will be via Associate Clinical Director Anaesthetics and Associate Director Theatres.

GENERAL

Intravenous opiates, including bolus dose opiates, may be given by recovery nurses who have the necessary knowledge and competence.

The opiate must be prescribed by an anaesthetist in accordance with the agreed protocols. The anaesthetist concerned must remain in theatre while intravenous opiates are being given or hand over responsibility for the totality of patient care to a named colleague.

INTRAVENOUS BOLUS OPIATE ADMINISTRATION

Patients in acute pain in recovery may have opiates administered by repeated intravenous boluses from a syringe until the patient is comfortable.

Bolus dose administration may also be used to establish patient comfort quickly, even in an opiate infusion is being administered.

The recovery nurse may give a bolus dose of the opiate - even the 'first dose' - (where the patient has not previously had a dose of this drug) in the presence of the anaesthetist.

An opiate infusion should be set at a maintenance level and bolus doses given separately by a syringe not from the infusion.

The anaesthetist prescribing the drug will remain in the theatre area whilst it is being administered or hand over the responsibility to a named colleague.

Prescription
Must include: opiate, dilution, dosage and maximum frequency.

Drugs and Concentrations

MORPHINE 10mg in 10ml made up with normal saline	= 1mg/ml
PETHIDINE 100mg in 10ml made up with normal saline	= 10mg/ml
or 50mg in 5ml made up with normal saline	= 10mg/ml

Code A

Approved by: Anaesthetics, Formulary and Medicines Group. May 1995

Drug Doses
MORPHINE - 2mg every 5 minutes
PETHIDINE - 20mg every 5 minutes

Monitoring
Respiratory rate, blood pressure, and pulse must be recorded.
a) prior to the bolus
b) every 5 minutes during administration
c) every 5 minutes for 15 minutes after the last dose.
Inform the anaesthetist respiratory rate drops below 10 per minute.

PATIENT CONTROLLED ANALGESIA (PCA)

See separate protocol in this Compendium.

CONTINUOUS OPIATE INFUSION BY PUMP

Prescription
The prescription must include the following:
i) Analgesic drug
ii) Rate of infusion
iii) Naloxone
iv) Oxygen

Drug concentration
MORPHINE 100mg in 500ml normal saline = 1mg in 5ml
PETHIDINE 500mg in 500ml normal saline = 1mg in 1ml

POST-OPERATIVE MANAGEMENT

- Respiratory rate will be counted hourly while opiate infusions are operating.
- If the rate drops below 8 breaths per minute and the patient is unrousable, the machine must be switched off and the houseman contacted.
- If the rate drops to 6 breaths per minute or below and consciousness is impaired, Naloxone should be given in 0.1mg increments IV or 0.4mg IM.
- Prescriptions for IV opiates must state the drug dilution and either maximum infusion rate or bolus dose and lockout period. It would be helpful if the above instructions for treating respiratory depression were reiterated on the prescription chart, and Naloxone prescribed as necessary.
- Doctors wishing to employ other analgesics or different dilutions are of course free to do so but it will avoid confusion if they do not ask recovery nurses to set up infusions other than as described above.

SAFETY

- The infusion must be run via a one-way valve into an existing infusion or via a separate cannula not directly into a 3-way tap to prevent infusion backflow.
- PCA pumps should be mounted at or below the level of the patient to avoid the risk of syphoning in the event of syringe breakage or pump malfunction.

Approved by Formulary & Medicines Group. Updated March 1998.

NEUROLEPTICS: Dosage Equivalence

The equivalences are a rough guide. Monitor patient closely after changing from one drug to another and titrate dosage according to the desired effects.

APPROXIMATE ORAL NEUROLEPTIC DOSE EQUIVALENCES

Chlorpromazine	100mg daily
Benperidol	2mg daily
Clozapine	50mg daily (50-90mg for some patients)
Droperidol	4mg daily
Flupenthixol	2mg daily
Fluphenazine	2mg daily
Haloperidol	3mg daily at a dosage <20mg/day
	5mg daily at a dosage >20mg/day
Pericyazine	24mg daily
Perphenazine	8-10mg daily
Pimozide	2mg daily
Prochlorperazine	15mg daily
Promazine	100-200mg daily
Sulpiride	200mg daily
Thioridazine	75-100mg daily
Trifluoperazine	2.5-5mg daily
Zuclopenthixol	25mg daily (25-60mg for some patients)

APPROXIMATE EQUIVALENT DOSES OF DEPOT NEUROLEPTICS

The doses of depot preparations below are also roughly equivalent to the daily doses of neuroleptics above.

20-40mg Flupenthixol decanoate	I/M every 2 weeks
10-25mg Fluphenazine decanoate	I/M every 2 weeks
60-100mg Haloperidol decanoate	I/M every 4 weeks
40-50mg Pipothiazine palmitate	I/M every 4 weeks
200mg Zuclopenthixol decanoate	I/M every 2 weeks

EQUIVALENT DOSE OF CHLORPROMAZINE BY VARIOUS ROUTES

100mg daily ORAL = 25-50mg daily I/M = 250mg daily RECTALLY

Code A

Approved by: Anaesthetics, Formulary and Medicines Group. May 1995

PATIENT CONTROLLED ANALGESIA (PCA)

PURPOSE

The purpose of this protocol is to guide staff on the use of patient controlled analgesia pumps within the ward area in order to provide the best achievable care for patients. It is not designed to restrict or limit professional judgement and decision making. This area of practice will be evaluated and the protocol reviewed annually, or whenever there is a change in circumstances.

GENERAL GUIDELINE

Syringes will be prepared by:	Anaesthetist Registered nurses competent in IV therapy
Syringes will be changed by:	Anaesthetist Registered nurses competent in IV therapy
PCA will be set up by:	Anaesthetist in Recovery Recovery nurses competent in IV therapy

PATIENT EDUCATION

Patients are visited by an anaesthetist and their pain management is discussed. This is complemented and reinforced by nursing staff as necessary, using information gathered in the nursing admission assessment and professional judgement. If PCA is considered suitable for the patient then, prior to surgery, the patient should be introduced to the concept of PCA and shown some of the equipment that will be used. This will give the patient an opportunity to ask any questions concerning the technique and to become familiar with it. A patient information sheet (Appendix 1) and PCA counselling points (Appendix 2) are available for reference by nurses.

PRESCRIPTION AND DOSE ADMINISTRATION RECORDS

At the end of surgery, the PCA prescription chart will be completed and signed by the anaesthetist (see Appendix 3).

Drug concentration

Electronic PCA pump:

Morphine	30mg in 30ml, made up with normal saline	= 1mg/ml
Pethidine	300mg in 30ml made up with normal saline	= 10mg/ml

Disposable PCA pump:

Morphine	60mg in 30ml made up with normal saline	= 1mg/0.5ml
Pethidine	600mg in 30ml made up with normal saline	= 10mg/0.5ml

Bolus doses:
Electronic PCA pumps give a 1ml bolus.
Disposable PCA pumps give a 0.5ml bolus.

Different concentrations of opiate are prescribed for each type of pump, to ensure the same amount of opiate is delivered from each bolus despite the different volume.

Prescription

The standard prescription regimen for PCA is as follows:

a) drug and concentration
b) bolus dose in 1ml or (0.5ml for disposable PCA pump)
c) lock out time of 6 minutes
d) rate of bolus delivery: stat
e) background infusion: zero.

Also included in the prescription must be:

1. naloxone
2. antiemetic
3. oxygen.

NB

- Prescribed settings must not be altered by ward staff without discussion with the prescribing anaesthetist.
- As PCA therapy is to be administered on wards, a prescription must appear in the PRN section of prescription sheet: "Pain relief, see PCA prescription sheet".
- The syringe contents, drug and concentration should be entered, as given, in the nursing notes with the date and time of set up.
- The ward history, available in pump memory, should be checked against the prescription and documented in the nursing notes.
- Nausea and vomiting can be a common problem with PCA therapy. Anti-emetics must be routinely prescribed and should be given.

Safety

All opiate infusions must be run through either a separate IV cannula or a one-way valve IV system to a cannula. This ensures that the infusion does not enter the infusion set. Do not use a three-way tap.

PCA pumps must be mounted at or below the level of the patient to avoid the risk of syphoning in the event of syringe breakage or pump failure.

POST-OPERATIVE MONITORING

Monitoring should be continuous to afford the best care in patient pain management (see Protocol for IV Opiate Administration in Theatre Recovery in this Compendium). At ward level these observations are important, the parameters to be monitored include:

- Pain score - 1-4 hourly
- Respiratory rate - hourly
- Sedation - 1-4 hourly
- Dosage information - (recorded from pump)
- Blood pressure - 1-4 hourly
- Pulse - 1-4 hourly

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Respiratory rate is measured because of the depressant effect of opiate drugs on respiration. Respiration is not the sole indicator of respiratory depression and may be a late sign. If respirations fall to eight breaths per minute or less the PCA should be stopped and medical advice sought. During that time the nurse should remain with and continuously observe the patient. If respiratory rate drops to six breaths per minute or below and sedation score is at three, naloxone should be given at 0.1mg increments intravenously or 0.4mg by intramuscular injection.

Pain score is an assessment of pain on a scale of 0-3. If the patient is uncomfortable despite what appears to be adequate dosage, check the IV site to ensure that the drug is being delivered to the patient. If there is no mechanical cause medical advice should be sought.

Sedation scoring is a reliable way of assessing overdosage. If the patient has a high degree of daytime sedation (Grade 3) for a prolonged period (greater than four hours) consider reducing the PCA dose and seek medical advice.

DISCONTINUING PCA THERAPY

PCA will be stopped when it is considered that the patient will be able to obtain acceptable analgesia from non-parenterally administered analgesia. In practice, this is likely to be between 24-48 hours post-operatively. A diminishing demand rate will indicate the reduced necessity for PCA. Before stopping PCA ensure that the patient has suitable alternative analgesia prescribed.

Controlled drug infusion solutions remaining after discontinuation of PCA therapy must be disposed of according to the medicine administration policy.

Approved by: Anaesthetics, Formulary and Medicines Group. May 1995

APPENDIX 1

PATIENT CONTROLLED ANALGESIA - PATIENT INFORMATION SHEET

After surgery, you may experience a degree of pain. People experience pain in different ways.

The standard method of giving pain relief after surgery is by injections of pain-killing drugs into a muscle in your leg or buttock, this can be repeated every four to six hours as required to control the pain.

An alternative method of giving pain-killing drugs is to give smaller amounts into a drip line into your arm vein. Such a system is called PATIENT CONTROLLED ANALGESIA (PCA). This method allows a more personal approach to your pain.

PCA consists of a store of a pain-killing drug which can be given in small agreed doses.

You will have a button to press. Push this as soon as you feel discomfort. Do not wait until the pain in unbearable. As you release the button, a small dose of the pain relief drug will be delivered into your drip line. It is impossible to take too much.

After you have pressed the button, the machine is designed not to respond again for a set period of time, usually a few minutes. The idea of this is to allow you to feel the effect of the drug before you decide if you need any more.

You will know when the pump has switched back on again as it will respond with a bleeping noise when you press and release the button. Press the button as often as you need to make yourself comfortable.

If, after a number of doses, you are still experiencing pain, you should call the nurse, as the dose size may need adjusting.

The idea of PCA is that you control how much pain-killer you take, and how often. It is impossible to take too much: the special safety features of the machine will prevent this.

The system has been shown to be a safe and effective method of post-operative pain control. There is no risk of addiction and you should have no fear of taking the drug if you are in pain.

If you have any questions about PCA or you are worried in any way, you can ask any of the nurses or ask to speak to the doctor.

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Approved by: Anaesthetics, Formulary and Medicines Group. May 1995

APPENDIX 2

PCA COUNSELLING POINTS

Once a patient has been selected as suitable for PCA therapy it is essential that they receive adequate pre-operative counselling. Your aim is for the patient to fully understand PCA therapy and what is expected of them. Encourage them to ask questions, allay any fears/anxieties/misconceptions they may have about PCA generally.

Naturally, as individuals, each patient will require differing levels of information. However, after counselling all patients should be aware that:

- PCA is to relieve pain after surgery.
- PCA is not 'new therapy'. They are not being used as guinea pigs.
- PCA is tried and tested and very successful, but is above all SAFE.
- There is no danger of patients overdosing and there are no recorded instances of dependency developing following PCA therapy.
- They will not be dependent on the nurse for pain relief and should be clear as to how the patient pendant works.

There are no 'hard and fast' rules when counselling patients, as levels of input will vary from patient to patient. However, the following points may be helpful:

- Introduce yourself - your name, position and what you have come for. It is courteous to introduce yourself and the patient will be more receptive if they know who you are and what you want.

- Ask if they have had surgery before.
  What type of analgesia was given? (details might be obtainable from their notes). Previous experience of post-op pain may affect their response.

- Explain that PCA is a well-used technique in Portsmouth, and in the UK and USA.

- Explain that PCA puts them in control of their pain relief - they do not need the nurse to administer or give permission for them to receive a dose.
  For some patients the idea of being responsible for their own pain relief is initially daunting. Most will be quite enthusiastic if the benefits to them are made clear. It may be necessary for periodic reinforcement.

- Explain that PCA is to relieve pain after surgery.
  Patients may think PCA will alleviate all pains (eg headaches) and even pre-existing pains (eg arthritis). The pain being relieved is that at the site of the operation. Post-operative patients often describe feelings of discomfort and heaviness rather than pain; it may be useful to use these terms.

- Explain that PCA is completely safe.
  Patients will understandably harbour fears regarding opiate type drugs. Reassurance regarding tolerance, dependence and their own competence will need to be provided, eg 'will it work when I need it?' 'Will I get hooked?' 'It looks very complicated'. It may be helpful to avoid the work 'morphine' and replace it with 'strong painkiller'. The key point is to stress the safety features inherent in the pump which prevent overdosing. Also, although the pump looks complicated, they need only concern themselves with one button.

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- Demonstrate the pump.
  Explain that once they have pressed the button and a dose is received, a period of time (eg 5 minutes) will need to elapse before they can press for another dose. They should press for doses if they are in pain; this will be recorded as demanded doses and will give us a pattern of demands. If there is a clear pattern of several demands within the lockout period it may be necessary to increase the dose. The pump will not automatically deliver a dose at the end of a lockout period if the button has been pressed during this phase.

- Discuss the amount of drug likely to be required.
  Patients will often ask 'How much shall I use?' to which the answer is 'as much as you need'. It is important they realise that no two people are alike and that the beauty of the PCA system is that they will be able to tailor the dose to their individual pain requirements. As a guideline, the idea is to achieve adequate pain relief without excessive sedation.

- Discuss the benefits of regular analgesic administration.
  Often the knowledge that rapid pain control results in earlier mobilisation and discharge will be particularly encouraging for patients who express a reluctance to use pain relieving drugs. Mention that they should call the nurse if they are not getting control of their pain.

NB Patients' concentration is unlikely to exceed a 10-15 minute duration, after which their interest diminishes. Therefore, ideally the counselling period should not exceed this time period. It is up to the 'counsellor' to select the quantity and depth of knowledge that is appropriate for each patient. Identification of individual needs is vital to the success of PCA. Too little information and they will not benefit; too much and they will be confused and still not benefit.

Code A

Approved by: Anaesthetics, Formulary and Medicines Group. May 1995

APPENDIX 3

PCA PRESCRIPTION

Surname (Mr/Mrs/Miss) (or addressograph)	Hospital No	Weight
First name:	Date of birth:	Ward:
Operation:		Consultant:

This chart is for use with any PCA device. On some models it will not be possible to set all the parameters listed, in which case deletions from the prescription should be made where relevant.

PCA device: GRASEBY 3300 *	Date and time of commencement:
Drug and concentration (mg/ml): * MORPHINE 1mg/1ml	Initial volume in syringe (ml): * 30
PCA bolus dose (mg): * 1mg	Lockout (mins): * 6
Limit (mg or ml): * Not applicable	
Prescriber's name: (block capitals)	Signature:
Bleep number:	

* Delete as necessary

All drugs diluted to appropriate volume with N/Saline

NB Other drugs or concentrations may be used but prescriber takes responsibility for management of analgesia over a 24-hour period.

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CALCULATION OF DRUG DOSAGES

There are several methods of calculating drug dosages, the use of `first principles' being one. If, however, you have difficulty in the application of arithmetic principles to drug dosage calculation, the following guidelines are offered:

ABBREVIATIONS USED IN RELATION TO DRUG DOSAGES

SI Unit	Symbol	
KILOGRAM	Kg	}
GRAM	g	}
MILLIGRAM	mg	} Units of
MICROGRAM	microgram (mcg and mg unofficial)	} weight
NANOGRAM	nanogram (ng unofficial)	}
LITRE	L	} Units of
MILLILITRE	ml	} volume

CONVERTING FROM ONE UNIT TO ANOTHER

Units of weight

1Kg	=	1000 g
1g	=	1000 mg
1mg	=	1000 microgram
1microgram	=	1000 nanograms

In series they stand as such:

Kg g mg microgram nanogram

To convert to the next smallest unit (eg mg to microgram), multiply by 1000 for each step or move the decimal point three places to the right. To convert to the next largest unit (eg mg to g), divide by 1000 or move the decimal point three places to the left for each step.

Example

Kg	g	mg	microgram	nanogram
0.001Kg	1g	1000mg	1,000,000microgram	
	0.0505g	50.5mg	50,500microgram	
		0.01075mg	10.75microgram	10,750nanograms

Units of volume

The same principles apply:

1 Litre	=	1000ml
0.5L	=	500ml

Approved by: Formulary & Medicines Group.

FIVE STEPS OF DRUG CALCULATION

(1) FORMULA: Dose to be given = $\frac{\text{dose prescribed}}{\text{dose per measure}}$

(2) Decide what the measure is (tablets, spoonful, ml)

(3) Work out the dose per measure

(4) Check that the dose prescribed and the dose per measure are in the same units. If not, convert to the smaller unit to avoid decimals (see section CONVERTING FROM ONE UNIT TO ANOTHER).

(5) Ask "is this reasonable?" If unsure, check.

Example Using Five Step Method

Digoxin elixir has 0.1mg in 2ml. Dose prescribed is 250microgram

Doses to be given = $\frac{\text{dose prescribed}}{\text{dose per measure}}$

The measure is ml

Dose per measure is $\frac{0.1}{2}$ = 0.05mg in each ml

Dose prescribed is 250microgram
Dose per measure (ml) is 0.05mg - convert this dose to microgram, 0.05mg x 1000 = 50microgram
Calculation $\frac{250}{50}$ = 5ml, **Give 5ml Elixir**, Is this reasonable? - YES.

THREE STEPS OF DRUG CALCULATION

(1) FORMULA: Dose to be given = $\frac{\text{dose prescribed}}{\text{stock available}}$ x volume of stock solution

(2) Check that the dose prescribed and the dose per measure are in the same units. If not, convert to the smaller unit to avoid decimals (see section CONVERTING FROM ONE UNIT TO ANOTHER).

(3) Ask "is this reasonable?" If unsure, check.

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Example Using Three Step Method

Digoxin elixir has 0.1mg in 2ml. Dose prescribed is 250micrograms.

Doses to be given = $\frac{\text{dose prescribed}}{\text{stock available}}$ x volume of stock solution

Dose prescribed is 250 microgram
Stock available is 0.1mg - convert this dose to microgram, 0.1mg x 1000 = 100 microgram
Calculation $\frac{250}{100}$ x 2 = 5ml, Give 5ml Elixir, Is this reasonable? - YES

CALCULATION OF INTRAVENOUS INFUSION RATES

per hour = volume to be infused divided by time for the infusion in hours
... per hour = dose per hour divided by dose per ml

N.B. Both doses must be in the same unit (see section CONVERTING FROM ONE UNIT TO ANOTHER).

ml per minute = ml per hour divided by 60 (minutes)
drops per minute = ml per minute x number of drops per ml

Check number of drops per ml on infusion set

Example
ml per hour
prescription says:
Isosorbide dinitrate: infuse at 4mg per hour
Stock solution is isosorbide 10mg in 10ml

dose per ml = $\frac{10\text{mg}}{10\text{ml}}$ = 1mg per ml, dose per hour is 4mg

Volume to be infused per hour is $\frac{4\text{mg per hour}}{1\text{mg per ml}}$ = 4ml per hour

Drops per minute

ml per minute = $\frac{4}{60}$

Number of drops per ml on the infusion set = 20

Drops per minute = $\frac{4}{60} \times 20 = \frac{80}{60}$ = 1.3 drops per minute

Approved by: Formulary & Medicines Group.

CALCULATION OF INFUSION DOSAGE INVOLVING PATIENT'S WEIGHT

Prescription = dose per Kg per unit of time (minute, hour)

Step 1

dose x weight (Kg) = dose per unit of time

Step 2

If the unit of time is minute:

dose per hour = dose per minute x 60

or

If the unit of time is hour:

$$\text{dose per minute} = \frac{\text{dose per hour}}{60}$$

To convert pounds to Kilograms refer to the conversion chart kept on the ward.

Example

prescription says Dobutamine 4microgram per Kg per minute

patient's weight = 65Kg

dose per minute is 4 x 65 = 260microgram

dose per hour = 260microgram x 60 minutes = 15600microgram or 15.6mg

dose per hour = 15.6mg

For calculation of the infusion rate, see section CALCULATION OF INTRAVENOUS INFUSION RATES.

Approved by the Medical Directors of both Trusts and Formulary & Medicines Group March 1998

JOINT TRUST POLICY

PRESCRIPTION WRITING

1.0 PURPOSE

1.1 The primary purpose of this policy is to have an agreed, consistent, safe and professional standard of prescription writing across both Trusts.

1.2 The Policy should also be used for:

a) Teaching or reminding prescribers of the standards expected.
b) Auditing prescriptions and assessing risk management.
c) Resolving prescription writing queries.

2.0 SCOPE

This policy covers all prescriptions written by doctors and nurses, but excludes some specific issues which are handled separately:

b) Pre-printed Prescriptions (individual directorate policies in force).
c) Intravenous Drugs (see Administration of Intravenous Drugs Policy).
d) Self Medication (see separate guidance document in this compendium).

3.0 RESPONSIBILITIES

3.1 It is the responsibility of every member of staff involved in the medication process to acquaint themselves with this policy.

3.2 It is the responsibility of consultants, senior nurse managers and the pharmacy manager to ensure that their staff are aware of the policy.

3.3 SHARED CARE. The legal responsibility for prescribing lies with the doctor who signs the prescription.

4.0 REQUIREMENTS FOR PRESCRIPTION WRITING.

4.1 GENERAL REQUIREMENTS

Prescriptions should be written legibly and in ink and should state the following:

a) Name of the patient

b) Age of the patient.

c) Generic name of the medicine.
This should be written clearly and not abbreviated. The trade name may be used for multi-ingredient products not given a title by the BNF. The trade name must be used for cyclosporin, lithium and theophylline, because the various brands differ in bioavailability.

d) The dose. In particular:

- The unnecessary use of decimal points should be avoided (eg .3mg not 3.0mg).
- Quantities less than 1gram should be written in milligrams (eg 500mg not 0.5g).
- Quantities less than 1 milligram should be written in micrograms (eg 500micrograms not 0.5mg).
- When decimal points are unavoidable a zero should be written in front when there are no other figures (eg 0.5ml not .5ml).
- For liquid oral medicines other than laxatives, the dose should be prescribed by weight (eg milligrams) not volume (ie mL).
- For mixed compound preparations which come as a single dose, the number of tablets should be stated (eg co-proxamol).
- The words: micrograms, nanograms, units must not be abbreviated.

e) Route of Administration.
For inhaled medicines the device should also be stated.

f) Frequency of Administration.
In the case of preparations to be taken 'as required' a minimum dose interval should be specified, and an indication if not obvious. Although directions should preferably be in English without abbreviation the following Latin abbreviations are allowed:

b.d.	=	twice daily
o.d.	=	every day
o.m. or mane	=	in the morning
o.n. or nocte	=	at night
p.r.n.	=	when required
q.d.s.	=	four times daily
stat	=	immediately
t.d.s.	=	three times daily

g) Quantity to be Supplied.
Outpatients - minimum normally 14 days and maximum normally 28 days (or sufficient to complete a course of treatment).
TTOs - 7 days or sufficient to complete a course of treatment.

h) Signature of the Prescriber.

i) Date

Code A

Approved by the Medical Directors of both Trusts and Formulary & Medicines Group March 1998

4.2 INPATIENT PRESCRIPTIONS (Additional Requirements)

a) Ward.

b) Consultant's name.

c) Patient's Identification Number.

d) The Drug Allergies and Sensitivities section should be completed. State "not known" if this is the case.

e) The patient's weight for all children. For adults only where doses are weight related (eg chemotherapy).

f) Times of administration for regular and once only drug therapy.

4.2.1 Changing Drug Doses

When a dose must be changed, the Trusts encourage doctors to completely rewrite the prescription to avoid misinterpretation. However, it is acceptable to make one dose change, provided the new dose is clear, the old one has been clearly deleted, and the prescriber both signs and dates the change.

4.2.2 Stopping a Drug

When a drug is discontinued the prescription should be deleted with a large 'Z', countersigned and dated by the doctor.

4.2.3 Dose Withheld by Doctor

The dose administration box should be filled with an 'X' and countersigned. The reason for the decision should be documented in the medical record.

4.2.4 Dose Missed or Refused

In the Hospitals' Trust, the dose administration box should be filled with the appropriate code number or abbreviation as follows:

1 or "refused"	-	Patient refused dose
2 or "NBM"	-	Nil by mouth
3 or "N/S"	-	No Stock - drug unavailable
4 or "absent"		Patient not on ward
5 or "iv"	-	IV therapy precludes a dose
0	-	Other reason specify in nursing notes.

For Healthcare Trust prescriptions, nurses can either write 'X' in the box and give the reason in the Exceptions to Prescribed Orders Sections, or follow the convention above.

Approved by the Medical Directors of both Trusts and Formulary & Medicines Group March 1998

4.3 MEDICINES ADMINISTERED AT NURSES' DISCRETION

a) Directorates specify the medicines involved in any given clinical area.

b) Prescriptions should be in the "once only" section of the prescription chart.

c) Prescriptions must carry the nurse's signature and status and not "nurse prescribed".

d) The same nurse must sign for administration in the "given by" column.

e) Medicines which require administration on a frequent basis, should be referred to a doctor for prescribing.

4.4 CONTROLLED DRUGS FOR TTOs AND OUTPATIENTS

The following are additional requirements for controlled drug prescriptions.

a) The prescription must be written in the **doctor's own handwriting** including the name and address of the patient. Addressographs are not acceptable.

b) The **form** must be stated (eg, tabs, elixir, Inj etc.), irrespective of whether it is implicit in the proprietary name (eg MST).

c) The **strength** must be stated where appropriate. This is not necessary where only one strength exists (eg Diconal), but is required where the dose is not the same as the strength. (See example A below).

d) The **total quantity of the preparation** (eg number of tablets, millilitres, or number of dose units) should be written in both **words and figures.**

e) The **dose and frequency** must be stated.

Example A	Example B
Morphine Sulphate M/R Tablets 40 mg bd Supply 14 (fourteen) 10mg tabs and 14 (fourteen) 30mg tabs	Morphine Sulphate Elixir 10mg in 5mls 15mls six times per day Supply 250ml (Two hundred and fifty ml)

4.5 VERBAL ORDERS

a) Telephone orders for **single doses** of drugs can be accepted by a registered nurse or midwife if the doctor is unable to attend the ward.
b) The prescription must be timed, dated and signed by the person taking the message, and endorsed "verbal order".
c) The doctor's name should be recorded, and the doctor should sign the prescription within 12 hours.
d) Pharmacists operate under a separate protocol (in this compendium).

Approved by Pharmacy Biochemistry & Formulary and Medicines Group. Updated March 1998.

THERAPEUTIC DRUG MONITORING

- Place blood samples in a standard biochemisty tube (yellow or blue cap).
- The following are guidelines only, covering commonly asked questions.
- Always state sampling times, dosage & time of previous dose on request form.

For further information and dosage individualisation contact Drug Information (bleep 468) or your ward pharmacist.

Biochemistry enquiries: Dr S Medbak ext 6397 or Dr E Coombes ext 6358.
Microbiology enquiries: ext. 3209.

DIGOXIN (See separate guidelines in this Compendium)

BIOCHEMISTRY PERFORMS LEVELS.
TESTS PERFORMED BY LAB: Twice daily, Mondays-Fridays, early pm & late evening.
USUAL THERAPEUTIC RANGE: 0.9-2.6nmol/l. (Aim: 1.3-2 in new patients)
TIME AFTER DOSE CHANGE TO TAKE LEVELS: 7-10 days.
LEVELS IMMEDIATELY AFTER DIGITALISATION: Only if toxicity is suspected.
TIME AFTER DOSE TO TAKE LEVELS: 8-24 hours post oral dose.
INTERACTIONS: Verapamil, Amiodarone, Quinine, Antacids, Dietary Fibre.

PHENYTOIN

BIOCHEMISTRY PERFORMS LEVELS.
TESTS PERFORMED BY LAB: Wednesday evening & Sunday evening.
USUAL THERAPEUTIC RANGE: 10-20mg/l.
Not valid if low serum albumin. Measure and consult pharmacy.
TIME AFTER DOSE CHANGE TO TAKE LEVELS: 7 days.
TIME AFTER DOSE TO TAKE LEVELS: Not critical.
INTERACTIONS: Amiodarone, Calcium Channel Blockers, Other Antiepileptics.

SODIUM VALPROATE

BIOCHEMISTRY PERFORMS LEVELS.
TESTS PERFORMED BY LAB: Wednesday evening & Sunday evening.
USUAL THERAPEUTIC RANGE: 50-100mg/l.
TIME AFTER DOSE CHANGE TO TAKE LEVELS: 48-72 hours.
TIME AFTER DOSE TO TAKE LEVELS: Immediately before morning dose.
INTERACTIONS: Other Antiepileptics.

Approved by Pharmacy Biochemistry & Formulary and Medicines Group. Updated March 1998.

CARBAMAZEPINE (See separate guidelines in this Compendium)

BIOCHEMISTRY PERFORMS LEVELS.
TESTS PERFORMED BY LAB: Wednesday evening & Sunday evening.
USUAL THERAPEUTIC RANGE: 4-12mg/l.
TIME AFTER STARTING THERAPY TO TAKE LEVELS: 2-4 weeks.
AFTER SUBSEQUENT DOSE CHANGE: 4-7 days.
TIME AFTER DOSE TO TAKE LEVELS: Just before oral dose
INTERACTIONS: Other Antiepileptics.

PHENOBARBITONE

BIOCHEMISTRY PERFORMS LEVELS.
TESTS PERFORMED BY LAB: Wednesday evening & Sunday evening.
USUAL THERAPEUTIC RANGE: 15-40mg/l.
TIME AFTER DOSE CHANGE TO TAKE LEVELS: 2-4 weeks.
TIME AFTER DOSE TO TAKE LEVELS: Not critical
INTERACTIONS: Other Antiepileptics.

THEOPHYLLINE / AMINOPHYLLINE

BIOCHEMISTRY PERFORMS LEVELS.
TESTS PERFORMED BY LAB: Wednesday evening & Sunday evening.
USUAL THERAPEUTIC RANGE: 10-20mg/l.
TIME AFTER DOSE CHANGE TO TAKE LEVELS: 48-72 hours.
INTRAVENOUS THERAPY: Every 12-24 hours.
TIME AFTER DOSE TO TAKE LEVELS:
IV: Anytime (After minimum of 15-20 hr after infusion start).
Oral: Trough: Before dose (Only a trough level is usually required).
Oral: Peak: 5-6 hours after dose (If modified release).
INTERACTIONS: Erythromycin, Ciprofloxacin, Cimetidine, Tobacco.

GENTAMICIN ONCE DAILY (See separate guidelines in this Compendium)

MICROBIOLOGY PERFORMS LEVELS.
TESTS PERFORMED BY LAB: Monday to Friday, outside by agreement.
USUAL THERAPEUTIC RANGE - TROUGH: Less than 1mg/l.
TIME AFTER DOSE TO TAKE LEVELS: 14-24 hours after 1st dose, then every 3 days if stable renal function. (Remember to state dose time & interval on request form).
INTERACTIONS: Other nephrotoxic drugs eg. Vancomycin; Other ototoxic drugs eg. Frusemide.

VANCOMYCIN

MICROBIOLOGY PERFORMS LEVELS.
TESTS PERFORMED BY LAB: Monday to Friday, outside by agreement.
USUAL THERAPEUTIC RANGE - Trough: 5-10mg/l.
- Peak: 18-26mg/l.
TIME AFTER DOSE CHANGE TO TAKE LEVELS: 48 Hours.
TIME AFTER DOSE TO TAKE LEVELS - Trough: Just before dose;
- Peak: 2 hours after infusion is complete.
INTERACTIONS: Other nephrotoxic drugs eg. Vancomycin; Other ototoxic drugs eg. Frusemide

Code A

INDEX

6

General Medical Council

Dr. Jane Barton

Exhibit BAT/7

This is the Exhibit marked "BAT/7" referred to in the statement of Beverley Turnbull:-

Statement dated 27 February 2006 (regarding Patient Geoffrey Packman)

Summary of Meeting held at Redclyffe Annexe on 11.7.91

A meeting was arranged for the trained staff at Redclyffe Annexe following concern expressed by some staff at the prescribed treatment for 'Terminal Patients'

Present:- Mrs. Evans
Sister Goldsmith
Sister Hamblin
S/N Giffin
S/N Ryder
S/N Barrett
S/N Williams
S/N Donne
S/N Tubbritt
S/N Barrington
E/N Turnbull

The main area for concern was the use of Diamorphine on patients, all present appeared to accept its use for patients with severe pain, but the majority had some reservations that it was always used appropriately at Redclyffe.

The following concerns were expressed and discussed:-

1. Not all patients given diamorphine have pain.

2. No other forms of analgesia are considered, and the 'sliding scale' for analgesia is never used.

3. The drug regime is used indiscriminately, eachpatients individual needs are not considered, that oral and rectal treatment is never considered.

4. That patients deaths are sometimes hastened unnecessarily.

5. The use of the syringe driver on commencing diamorphine prohibits trained staff from adjusting dose to suit patients needs.

6. That too high a degree of unresponsiveness from the patients was sought at times.

7. That sedative drugs such as Thioridazine would sometimes be more appropriate.

8. That diamorphine was prescribed prior to such procedures such as catheterization - where dizepam would be just as effective.

9. That not all staffs views were considered before a decision was made to start patients on diamorphine - it was suggested that weekly 'case conference' sessions could be held to decide on patients complete care.

10. That other similar units did not use diamorphine as extensively.

Mrs. Evans acknowledged the staffs concern on this very emotive subject. She felt the staff had only the patients best interest at heart, but pointed out it was medical practice they were questioning that was not in her power to control. However, she felt that both Dr. Logan and Dr. Barton would consider staffs views so long as they were based on proven facts rather than unqualified statements. Mrs. Evans also pointed out that she was not an expert in this field and was not therefore qualified to condemn nor condone their statements, she did, however, ask them to consider the following in answer to statements made.

/...

1. That patients suffered distress from other symptons besides pain but also had the right to a peaceful and dignified death. That the majority of patients had complex problems.

2. If 'sliding scale' analgesia was appropriate in these circumstances, particularly when pain was not the primary cause for patient distress. That terminal care should not be confused with care of cancer patients.

3. The appropriateness of oral treatment at this time considering the patients deterioration and possibility of maintaining ability to swallow. The range of drugs available to cover all patients needs in drugs that can be given rectally together with patients ability to retain and absorb product.

4. It was acknowledged that excessive doses or prolonged treatment may be detrimental to patients health but was there any proven evidence to suggest that the small amounts prescribed at Redclyffe over a relatively short period did in fact harm the patients.

5. It could be suggested to Dr. Barton that drugs could be given via a butterfly for the first 24 hrs. to give trained staff the opportunityto regularise dose to suit patient.

6. That treatment sometimes needed regularising as patients condition changed -were staff contributing signs of patients deterioration to effects of drug? Few patients remained aware until the moment of death.

7. What was the evidence to suggest that thioridazine or any other similar drugs would be better.

8. Again, what was the objection to diamorphine being used in this way and how was diazepam better.

9. Mrs. Evans wholly supported any system which allowed all staff to contribute to patients care however, she could not see that weekly meetings were appropriate in this case where immediate action needed to be taken if any action was required at all.

10. What was the evidence to prove that these other units care of the dying was superior to ours,before any change could be taken on this premis it would need to be established that we would be raising our standards to theirs rather than dropping our standards to theirs.

It was evident that no one present had sufficient knowledge to answer these questions with authority, it was therefore decided that before any critisism was made on medical practice we needed to be able to answer the following questions.

- What effect does Diamorphine have on patients.

- Are all the symptons that are being attributed to Diamorphine in fact due to other drugs patients are recieving, or even their medical condition.

- Is it appropriate to give Diamorphine for other distressing symptons other than pain.

- Are there more suitable regimes that we could suggest.

To try and find the answers to these questions Mrs. Evans would invite Code A Code A to talk to staff on drugs and ask Steve King from Charles Ward Q.A. if he would be prepared to contribute to discussion.

This would take time to arrange meanwhile staff were asked to talk to Dr. Barton if they had any reason for concern on treatment prescribed as she was willing to discuss any aspect of patient treatment with staff.

I hope I have included everyones views in this summary, as we will be using it to plan training needs, please let me know if there is any point I have omitted or you feel needs amending.

IE/LP
16.7.91

General Medical Council

Dr. Jane Barton

Exhibit BAT/8

This is the Exhibit marked "BAT/8" referred to in the statement of Beverley Turnbull:-

Report of hospital visit on 31 October 1991 by **Code A**

Confidential

REPORT OF A VISIT TO REDCLIFFE ANNEXE, GOSPORT WAR MEMORIAL HOSPITAL

AT 21.30 HOURS ON THURSDAY 31 OCTOBER 1991

BY

Code A

Purpose of Visit

The visit was in response to a request by Staff Nurse Anita Tubbritt to discuss the issue of anomalies in the administration of drugs.

Present

Staff Nurse Sylvia Giffin
Staff Nurse Anita Tubbritt
Enrolled Nurse Beverly Turnbull
Nursing Auxiliary Code A Code A
2 RGN's and 1 EN wished to but were unable to attend the meeting.

Background Information

The staff present presented the Summary of the Meeting held at Redcliffe Annexe on 11 July 1991 - appendix.

Problems Identified on 31 October 1991

1. Staff Nurse Giffin reported that a female patient who was capable of stating when she had pain was prescribed Diamorphine via syringe driver when she was in no obvious pain and had not complained of pain.

2. Staff Nurse Giffin reported that a male patient admitted from St Mary's General Hospital who was recovering from pneumonia, was eating, drinking and communicating, was prescribed 40 mg Diamorphine via a syringe driver together with Hyoscine, dose unknown, over 24 hours. The patient had no obvious signs of pain but had increased bronchial secretions.

3. Staff Nurse Tubbritt reported that on one occasion a syringe driver "ran out" before the prescribed time of 24 hours albeit that the rate of delivery was set at 50 mm per 24 hours.

4. The staff are concerned that Diamorphine is being prescribed indiscriminately without alternative analgesia, night sedation or tranquillisers being considered or prescribed.

5. Nurse Tubbritt reported that a female patient of 92 years awaiting discharge had i.m. 10 mg Diamorphine at 10.40 hours on 20.9.91. and a further i.m. 10 mg Diamorphine at 13.00 hours on 20.9.91. administered for either a manual evacuation of faeces or an enema.

6. There are a number of other incidents which are causing the staff concern but for the purposes of this report are too many to mention. The staff are willing to discuss these incidents.

7. It was reported by Staff Nurse Tubbritt that:

   a) 42 ampoules of Diamorphine 10 mg were used between 20 April 1991 - 15 October 1991.

   b) 57 ampoules of Diamorphine 30 mg were used between 15 April 1991 - 15 October 1991 (24 of the 57 ampoules of Diamorphine 30 mg were administered to one patient, who had no obvious pain, between 9 September 1991 and the 21 September 1991).

   c) 8 ampoules of Diamorphine 100 mg were used between 15 April 1991 - 21 September 1991 (4 of the 8 ampoules of Diamorphine 100 mg were administered to the patient identified in 7b above, between 19 September 1991 and the 21 September 1991).

      Note - This patient had previously been prescribed Oramorph 10 mg in 5 ml oral solution which was administered regularly commencing on 2 July 1991.

      The staff cannot understand why the patient was prescribed Oramorph and Diamorphine.

      When the staff questioned the prescription with Sister they were informed that the patient had pain. The staff recalled having asked the patient on numerous occasions if he had pain, his normal reply was no.

Conclusion

1. The staff are concerned that Diamorphine is being used indiscriminately even though they reported their concerns to their manager on 11 July 1991 (appendix).

2. The staff are concerned that non opioids, or weak opioids are not being considered prior to the use of Diamorphine.

3. The staff have had some training, arranged by the Hospital Manager, namely:

   - The syringe driver and pain control

   - Pain control

4. Staff Nurse Tubritt wrote to Evans the producers of Diamorphine and received literature and a video - Making Pain Management More Effective.

5. Staff Tubbritt is undertaking a literature on Pain and Pain Control.

Signed: Code A ..... Time: 23.35 hours

Date: 31 October 1991

General Medical Council

Dr. Jane Barton

Exhibit BAT/9

This is the Exhibit marked "BAT/9" referred to in the statement of Beverley Turnbull:-

Letter dated 22 November 1991 from the Royal College of Nursing to Mrs Evans, the Patient Care Manager

WESSEX REGIONAL OFFICE

General Secretary:
Christine Hancock
BSc(Econ) RGN

Patrons:
Her Majesty the Queen
Her Majesty Queen Elizabeth
the Queen Mother
Her Royal Highness
the Princess Margaret
Countess of Snowdon

8 Southgate Street
Winchester SO23 9EF
Telephone 0962 868332
Fax 0962 855819

SB/FFO

(DJHAM 3C7139.

22 November 1991

ROYAL COLLEGE OF NURSING

Mrs I Evans
Patient Care Manager
Gosport War Memorial Hospital
Bury Road
Gosport
Hants
PO12 3PW

Dear Mrs Evans,

I refer to your memorandum to staff at Redclyffe Annexe dated 7th November 1991 and Code A letter to you dated 14th November 1991. I believe it is important that I reinforce the RCN's position as indicated to you in Code A letter.

This office was aware of the concerns that had been expressed by staff earlier this year and other discussions that had taken place with yourself as the Manager. It had been understood that the concerns raised would be addressed and the RCN had anticipated that clear guidance/policy would be promulgated as a result of the very serious professional concerns Nursing Staff were expressing.

It is now a matter of serious concern that these complaints were not acted upon in the way that had been anticipated and that Management are, some months after those discussions now seeking formal allegations. I would reinforce Code A position that this is not acceptable and the RCN is not prepared to be drawn into what could emerge as a vindictive witch hunt that would divide Nursing Staff, Medical Staff and Management. The complaints were adequately reported to Management earlier this year and you have received further evidence by way of Code A report dated 31 October 1991. We now expect a clear policy to be agreed as a matter of urgency.

If it is not possible for Management to achieve this, the RCN will need to seek further instructions from its membership to pursue this matter through the grievance procedure on the basis that Management have failed to manage this situation properly.

Yours sincerely

ANNIVERSARY RCN 1916 75 1916 1991

Code A

C.C: Code A

Headquarters:
20 Cavendish Square
London W1M 0AB
Telephone 071-409 3333
Fax 071-355 1379

WESSEX REGIONAL OFFICE

General Secretary:
Christine Hancock
BSc(Econ) RGN

Patrons:
Her Majesty the Queen
Her Majesty Queen Elizabeth
the Queen Mother
Her Royal Highness
the Princess Margaret
Countess of Snowdon

8 Southgate Street
Winchester SO23 9EF
Telephone 0962 868332
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SB/FFO

GOSHAM 3L7139
(Re Mawdsley)

22 November 1991

ROYAL COLLEGE OF NURSING

Mrs I Evans
Patient Care Manager
Gosport War Memorial Hospital
Bury Road
Gosport
Hants
PO12 3PW

Dear Mrs Evans,

I refer to your memorandum to staff at Redclyffe Annexe dated 7th November 1991 and Code A letter to you dated 14th November 1991. I believe it is important that I reinforce the RCN's position as indicated to you in Code A letter.

This office was aware of the concerns that had been expressed by staff earlier this year and other discussions that had taken place with yourself as the Manager. It had been understood that the concerns raised would be addressed and the RCN had anticipated that clear guidance/policy would be promulgated as a result of the very serious professional concerns Nursing Staff were expressing.

It is now a matter of serious concern that these complaints were not acted upon in the way that had been anticipated and that Management are, some months after those discussions now seeking formal allegations. I would reinforce Code A position that this is not acceptable and the RCN is not prepared to be drawn into what could emerge as a vindictive witch hunt that would divide Nursing Staff, Medical Staff and Management. The complaints were adequately reported to Management earlier this year and you have received further evidence by way of Code A report dated 31 October 1991. We now expect a clear policy to be agreed as a matter of urgency.

If it is not possible for Management to achieve this, the RCN will need to seek further instructions from its membership to pursue this matter through the grievance procedure on the basis that Management have failed to manage this situation properly.

Yours sincerely

Code A

C.C: Code A

75 ANNIVERSARY RCN 1916 1991

Headquarters:
20 Cavendish Square
London W1M 0AB
Telephone 071-409 3333
Fax 071-355 1379

General Medical Council

Dr. Jane Barton

Exhibit BAT/10

This is the Exhibit marked "BAT/10" referred to in the statement of Beverley Turnbull:-

Copy of various correspondence between my colleague and the Royal College of Nursing (letter dated 2 December 1991 from the Royal College of Nursing to Anita Tubbritt, letter dated 2 December 1991 from the Royal College of Nursing to Mr C West, undated letter from Isabel Evans to Staff Nurse Tubbritt, memo dated 7 November 1991 from Mrs Evans to trained members of staff at Redclyffe Annexe, letter dated 10 December 1991 from the Royal College of Nursing to Beverley Turnbull, letter dated 10 December 1991 from the Royal College of Nursing to Mrs I Evans)

General Secretary:
Christine Hancock
BSc(Econ) RGN

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the Queen Mother
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London W1M 0AB
Telephone 071 409 3333
Fax 071 355 1379

2nd December 1991

Anita Tubbritt,

Code A

ROYAL COLLEGE OF NURSING

Dear Anita,

Thank you for giving me the opportunity to speak to you over what I know is a very emotive and difficult subject.

As agreed at our meeting I have written to Chris West, District General Manager and enclosed a personal copy, I will keep you informed of any information as I receive it. I have spoken to Code A and also sent her a copy.

I would like to take the opportunity to reinforce the fact that you have the support of the RCN in this subject and if I can be of any more help please don't hesitate in contacting me.

With best wishes.

Regards,

Code A

Code A

enc.

75 ANNIVERSARY RCN 1916 1991

General Secretary:
Christine Hancock
BSc(Econ) RGN

Patrons:
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the Queen Mother
Her Royal Highness
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London W1M 0AB
Telephone 071 409 3333
Fax 071 355 1379

2nd December 1991

Mr C West,
District General Manager,
District Offices,
St. Mary's Hospital,
Milton,
Portsmouth,
Hants. PO3 6AD

ROYAL COLLEGE OF NURSING

Dear Chris,

I am seeking your advice on how best to resolve a problem which was brought to my attention in April 1991 but apparently has been present for the last 2 years.

I was contacted by a staff nurse who is currently employed on night duty in Redclyffe Annexe, her concern was that patients within Redclyffe were being prescribed Diamorphine who she felt did not always require it, the outcome being that the patient died. The drug was always being administered via 'syringe drivers'. It is fair to say that this member of staff was speaking on behalf of a group of her colleagues.

On my advice the staff nurse wrote to Isobel Evans, Patient Care Manager putting forward her requirements under the UKCC Code of Professional Conduct. Following this I had a meeting with Isobel Evans Patient Care Manager on the 26th April 1991, the outcome of this was that a 'policy' would be produced to specifically address the prescribing and administration of controlled drugs within Redclyffe. In addition a meeting would be held with the staff and Isobel where they could voice their concerns, this meeting took place on the 11th July 1991 and the minutes circulated, as these give a clear outline of the concerns of the staff I have enclosed a copy for your perusal.

Following the aforesaid meeting two study days on 'Pain Control' were arranged, as you will see from the minutes relating to the meeting of the 11th July 1991 some of the concerns voiced by the staff were that diamorphine was being prescribed for patients who were not in pain. These study days did temporarily alleviate the worries of the staff.

Regrettably the concerns of the staff have once again returned, one of the staff nurses who is currently on an ENB course was talking about this subject to Code A Code A Code A visited Redclyffe Code A and subsequently wrote a report. Copies of her report were circulated to Isobel, Code A Code A, as I feel it is pertinent I have obtained Code A permission to enclose a copy.

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After receiving this report Isobel responded by sending a 'memo'(copy enclosed) to the trained staff at Redclyffe. As the 'concerns' had now apparently become "allegations" I wrote to Isobel voicing my concern on this point, also that she had to date not produced the policy to which we had agreed in April 1991. I also informed her that it was my view that unless I heard to the contrary a grievance would have to be lodged. To date Isobel has not responded.

I feel the staff have acted professionally and with remarkable restraint considering that it is fair to say that since highlighting their concerns there has been a certain amount of ostracization. After talking to the staff and thinking it through I now feel that a grievance may not completely resolve this issue. I have been told that it is only a small group of night staff who are 'making waves', this could be true as a majority of the day staff have left over the period of 2 years that this situation has been present, whether this was a reason for their leaving I am unsure.

I have various concerns, for the patients and subsequently their relatives, the staff in that they are working in this environment but also that this could be leaked to the media. While none of the staff or myself have any desire whatsoever to use this means there is serious concern from both myself and the staff that someone could actually leak this and I hope you know my feelings about the media and using it as a means of resolving problems. On this basis alone I hope you agree with me in that we have to address this issue urgently.

As I stated at the beginning I am seeking your advice on what I think you will now feel is a difficult problem. I must stress that none of the staff have shown any malice in what they have said and that their only concern is for the patient.

Your comments/advice would be greatly appreciated.

Yours sincerely,

Code A

PORTSMOUTH AND SOUTH EAST
HAMPSHIRE HEALTH AUTHORITY

COMMUNITY HEALTH SERVICES AND SMALL HOSPITALS UNIT

GOSPORT WAR MEMORIAL HOSPITAL
BURY ROAD,
GOSPORT,
HANTS. PO12 3PW
Gosport 524611 Ext. .....

Our ref: Your ref:

Dear S.N Tubbritt.

Thank you for your letter dated 31.10.91 informing me of the meeting that took place on 31.10.91 with Code A at Redclyffe Annexe re the use of Diamorphine at Redclyffe Annexe.

May I take this opportunity to once more state that I am happy to discuss any areas of concern that staff may have, in fact I would welcome open discussion. [redacted] as I feel the only alternative is disruptive criticism which achieves nothing positive and leaves staff feeling frustrated

Yours Sincerely.

Code A

PORTSMOUTH AND SOUTH EAST HAMPSHIRE HEALTH AUTHORITY

MEMORANDUM

FROM: Mrs. I. Evans
Patient Care Manager
Gosport War Memorial Hospital

TO: See Distribution

Your Ref.

My Ref. IE/LP

7th November 1991

It has been brought to my attention that some members of the staff still have concerns over the appropriatness of the prescribing of Diamorphine to certain patients at Redclyffe Annexe.

I have discussed this matter with Dr. Logan and Dr. Barton who like myself are concerned about these allegations. To establish if there is any justification to review practice we have agreed to look at all individual cases staff have or have had any concerns over and then meet with all staff to discuss findings.

I am therefore writing to all the trained staff asking for the names of any patients that they feel Diamorphine (or any other drug) has been prescribed inappropriately.

To ensure everyones views are considered I would appreciate a reply from every member of staff even if it is purely to state they have no concerns, by 21st November.

I am relying on your full co-operation and hope on this occasion everyone will be open and honest over this issue so we are able to address everyones concerns and hopefully resolve this issue in a constructive and professional manner.

Code A

I. Evans

Distribution

Every trained member of Staff at Redclyffe Annexe

copy to: Night Sister
Dr. Logan
Dr. Barton

Code A

visited Mrs Evans 9.30 am

General Secretary:
Christine Hancock
BSc(Econ) RGN

Patrons:
Her Majesty the Queen
Her Majesty Queen Elizabeth
the Queen Mother
Her Royal Highness
the Princess Margaret
Countess of Snowdon

20 Cavendish Square
London W1M 0AB
Telephone 071 409 3333
Fax 071 355 1379

10th December 1991

Beverley Turnbull,

Code A

ROYAL COLLEGE OF NURSING

Dear Beverley,

I enclose a copy of the letter I have sent Mrs Evans.

I think I have made it quite clear that unless you receive confirmation at your meeting that a policy will be drawn up which addresses all the concerns that you first brought to Mrs Evans attention back in July then a grievance will be lodged. If I hear from Chris West in the meantime I will naturally let you know immediately.

I hope my letter brings a positive response, the important thing at your meeting to remember is that you are the ones acting professionally and correctly, try to be assertive and don't be fobbed off. I will be thinking of you.

With best wishes.

Yours sincerely,

Code A

75 ANNIVERSARY RCN 1916 1991

General Secretary:
Christine Hancock
BSc(Econ) RGN

Patrons:
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Her Majesty Queen Elizabeth
the Queen Mother
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the Princess Margaret
Countess of Snowdon

20 Cavendish Square
London W1M 0AB
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10th December 1991

ROYAL COLLEGE OF NURSING

Mrs I Evans,
Patient Care Manager,
Gosport War Memorial Hospital,
Bury Road,
Gosport,
Hants.,
PO12 3PW

Dear Mrs Evans,

I am receipt of a copy of the letter dated 5th December 1991 you have sent to Code A

As far as I am aware it is not the use of syringe drivers that is the cause of concern and I refer you to the minutes of the meeting that you produced after your meeting of the 11th July 1991 with the staff.

I further note that you are holding a further meeting with the staff "to once again re-address this problem". As you are fully aware of the issues which are causing the concerns from the staff the purpose of this meeting has to be doubtful. I refer you to the agreement following our meeting on the 26th April 1991 which was that a policy would be drawn up to address the issue of the concerns voiced by the staff. This has failed to materialise.

I would reaffirm the position as stated in my letter 14th November 1991 and reiterated by Code A in his letter dated 22nd November 1991 the serious concern in the lack of a positive response to what is considered a perfectly reasonable request from staff who have acted both professionally and with remarkable restraint. Furthermore that some seven months have passed since this issue was first drawn to your attention. Unless I receive a response in that a policy will be drawn up which clearly addresses all the concerns is received from the staff following your meeting I will be raising a grievance on behalf of the staff.

Yours sincerely,

Code A

cc Code A

75 ANNIVERSARY RCN 1916 1991

General Medical Council

Dr. Jane Barton

Exhibit BAT/11

This is the Exhibit marked "BAT/11" referred to in the statement of Beverley Turnbull:-

Copy of Isobel Evans' memo of 5 December 1991

PORTSMOUTH AND SOUTH EAST HAMPSHIRE HEALTH AUTHORITY

MEMORANDUM

FROM: Mrs. I. Evans
Patient Care Manager
Gosport War Memorial Hospital

TO: All trained Staff at Redclyffe

copy to: Night Sisters
Code A
Dr. Logan
Dr. Barton

Your Ref.

My Ref. IE/LP

5th December 1991

Due to the lack of response to my memo of the 7th November Dr. Logan will be unable to comment on specific cases, however, we have arranged a meeting for all members of staff at Redclyffe who have concerns on the prescribing of Diamorphine on Tuesday 17th December at 2 p.m. to discuss the subject in general terms.

It is not our intention to make this meeting in any way threatening to staff, our aim is purely to allay any concerns staff may have so I hope everyone will take the opportunity to attend and help resolve this issue.

Code A

I. Evans

General Medical Council

Dr. Jane Barton

Exhibit BAT/12

This is the Exhibit marked "BAT/12" referred to in the statement of Beverley Turnbull:-

Copy of the minutes of the meeting held on Tuesday 17 December 1991

Notes of a Meeting held on Tuesday 17th December 1991 at Redclyffe Annexe for staff who had concerns related to the use of Diamorphine within the unit.

PRESENT

Mrs. Evans, Patient Care Manager
Dr. Logan, Consultant, Geriatrician
Dr. Barton, Clinical Assistant
Sister Hamblin
S.N. Donne
S.N. Barrett
S.N. Giffin
S.N. Tubbritt
E.N. Wigfall
E.N. Turnbull

All trained staff were invited to the meeting if they were concerned with this issue, no apologies were received.

Mrs. Evans opened the meeting by thanking everyone for coming and highlighting the following:-

1. A staff meeting was held on 11th July 1991 to establish all staff's concerns re: the use of Diamorphine for terminal patients at Redclyffe Annexe.

2. A second meeting was held on 20th August where Steve King, Nurse Manager, Elderly Services Q.A.H. and Dr. Logan spoke to the staff on drug control of symptoms. The aim of this meeting was to allay staff's fears by explaining the reasons for prescribing. As no one challenged any statements at this meeting or raised any queries, it was assumed the problem had been resolved and no further action was planned.

   A recent report from a meeting held with Code A indicated some staff still had concerns, so a further meeting was planned for 17th December 1991.

3. Staff were invited to give details of cases they had been concerned over but no information was received; it was therefore decided to talk to staff on the general issue of symptom control and all trained staff would be invited to attend.

4. This issue had put a great deal of stress on everyone particularly the medical staff, it has the potential of being detrimental to patient care and relative's peace of mind and could undermine the good work being done in the unit if allowed to get out of hand. Everyone was therefore urged to take part in discussions and help reach an agreement on how to proceed in future.

5. Staff were asked to bear in mind that the subject was both sensitive and emotive and to make their comments as objective as possible.

/...

As Mrs. Evans had presented staff's concerns she stated the problem as she saw it and invited staff to comment if they did not agree with her interpretation:-

1. We have an increasing number of patients requiring terminal care.

2. Everyone agrees that our main aim with these patients is to relieve their symptoms and allow them a peaceful and dignified death.

3. The prescribing of Diamorphine to patients with easily recognised severe pain has not been questioned.

4. What is questioned is the appropriateness of prescribing diamorphine for other symptoms or less obvious pain.

5. No one was questioning the amounts of Diamorphine or suggesting that doses were inappropriate.

All present agreed with these statements, no other comments were asked to be considered.

Mrs. Evans then reminded staff that at the July meeting it had been agreed that she neither had the authority or knowledge to write a policy on the prescribing of drugs, but she would be happy to talk to staff at the end of the meeting if any member of staff had concerns relating to the administration of drugs which was not amply covered by the District Drug Manual or U.K.C.C. Administration of Medicines. Dr. Logan then spoke to the staff at length on symptom control covering the following points:-

a. First priority was to establish cause of symptom and remove cause if possible.

b. Where appropriate the 'sliding scale' of analgesics should be used.

c. Oral medication should be used were possible and when effective (this raised the issue of the availability of Hyoscine as an oral preparation).

d. The aim of opiate usage was to produce comfort and tranquility at the smallest necessary dose - an unreceptive patient is not the prime objective.

e. The limited range of suitable drugs available if normal range of analgesics not effective.

f. That Diamorphine had added benefits of producing a feeling of well being in the patient.

g. The difficulty of accurately assessing levels of discomfort with patients who were not able to express themselves fully or who had multiple medical problems. The decision to prescribe for these patients had therefore to be made on professional judgement based on knowledge of patients condition, to enable patient to be nursed comfortably.

h. It was not acceptable for patients who are deteriorating terminally, and require 2 hrly turning, to have pain or distress during this process. They require analgesia even if they are content between these times.

/...

Following general discussion and answering of staff questions Dr. Logan stated he would be willing to speak to any member of staff who still had concerns over prescribed treatment, after speaking to Dr. Barton or Sister Hamblin. Comments raised during discussion were:-

(a) All staff had a great respect for Dr. Barton and did not question her professional judgement.

(b) The night staff present did not feel that their opinions of patients condition were considered before prescribing of Diamorphine.

(c) That patients were not always comfortable during the day even if they had slept during the night.

(d) There appeared to be a lack of communication causing some of the problem.

(e) Some staff feared that it was becoming routine to prescribe diamorphine to patients that were dying regardless of their symptoms.

All staff agreed that if they had concerns in future related to the prescribing of drugs they would approach Dr. Barton or Sister Hamblin in the first instance for explanation, following which if they were still concerned they could speak to Dr. Logan.

Mrs. Evans stated she would also be happy for staff to talk to her if they had any problems they wanted advice on.

With no further points raised, Dr. Barton, Dr. Logan, Sister Hamblin and S.N. Barrett left the meeting to commence Ward rounds.

Mrs. Evans spoke to the remaining nursing staff.

Staff were asked if they felt there was any need for a policy relating to nursing practice on this issue. No one present felt this was appropriate. Mrs. Evans stated she was concerned over the manner in which these concerns had been raised as it had made people feel very threatened and defensive and stressed the need to present concerns in the agreed manner in future. She agreed with staff that there did seem to be a communication problem within the unit, particularly between day and night staff which had possibly been made worse by recent events. Mrs. Evans had already met with both the Day and Night Sisters in an attempt to identify problem and she advised staff to go ahead with planned staff meetings and offered to present staff's views from both Day and Night staff if they felt this would be useful.
Mrs. Evans spoke to Sister Hamblin and S.N. Barrett the following morning to ask them to organise day staffs views and ask them to make every effort to ensure patients assessments were both objective and clearly recorded in nursing records.

Mrs. Evans would arrange a further meeting with both Night Sisters and Sister Hamblin following the staff meeting to ensure problems have been resolved with information handover from Day to Night Staff and vice versa.

IE/LP 31.12.91

HAMPSHIRE CONSTABULARY

C.51 1/99

Identification Ref. No. RFL/2G/2.

Court Exhibit No.

R - v -

Description Meeting at Redcliffe Annexe, 17/12/01 (Typed minutes)

Time/Date Seized/Produced 19/10/05

Where Seized/Produced TREVOR HOWELL DAY HOSPITAL

Seized/Produced by ROBERT FREDERICK LOGAN

Signed

Code A

Incident/Crime No.

Major Incident Item No. X 674

Laboratory Ref:

Meeting at Redclyffe Annexe, 17.12.91.

Isabel Evans started by saying how pleased she was that we were at last talking face to face since she was concerned that developments were having an adverse effect on patient care, putting undue strain on Jane in particular, and also leading to rumours some of which were rather distorted being spread outside the unit.

She then invited me to talk in general terms about the use of opiates in the long stay wards. I expressed the view that it was often very difficult to know what was best for very frail elderly patients who couldn't clearly express their symptoms, and that one could only do one's best in interpretting them. I felt when there was any question that the patients had pain then they should be given the benefit of analgesia. Unfortunately there were no really very useful middle range drugs between Codeine and Dihydro-codeine and Diamorphine. I also explained that, besides their pain relieving properties Diamorphine and Morphine had very useful psychological effects producing some psychological detachment and euphoria which can do much for a patient's tranquility. I said that it was, however, vital for us to make sure that there were not more simple reasons for the patient's pain or distress, such as a full bladder or faecal impaction that could be quite simply dealt with. Having established that and being content that the patient was distressed and probably in pain, then one should not hesitate to use opiate analgesia if necessary. Obviously the oral route is the best if the patient can manage it, but if not, as is often the case, then injections or sub-cutaneous infusion were perfectly acceptable. I said I felt it was vital that a team effort should be maintained, and that this would obviously require good communication of one's observations and views to other members of the team rather than involving third parties.

Staff Nurse Giffin then said that it seemed to be routine now for patients to receive opiates before they died and she questioned whether this was necessary. I said that I agreed entirely, it was not necessary for the patient who was tranquil and apparently assymptomatic. On occasions a patient would only become distressed when disturbed, for example when two-hourly turning was necessary. I explained that I felt in these circumstances the patient should have this pain dealt with, even if it was only transient and intermittent. I am not sure if she accepted this view or not. I think we were all agreed that when opiates were given there was no need for the patient to be rendered totally unconscious. Far from it, the aim was to keep the patient comfortable, but as awake as possible. She expressed a wish that, in the future should she have any misgivings, she should be able to discuss these with me. I said I was fully in agreement with this, but that I should not become her first contact. It was vital that she discussed any problems with Dr. Barton or Sister Hamlin first. I said it was a bad idea that they should be short circuited. I tried to get across the idea that although the night staff perceptions of how much discomfort the patient was experiencing may be different to the day staff's, they should accept the observations of their colleagues. The general concept that improved communications between day and night staff and between night staff and medical staff might help in the future was met with little apparent enthusiasm from Staff Nurse Giffin.

HAMPSHIRE CONSTABULARY

C.51 1/99

RFL/EG/1.

Identification Ref. No. RFL

Court Exhibit No.

R - v -

Description

Letter to S. King
Dated 18/7/01

Time/Date Seized/Produced
19/6/05

Where Seized/Produced
Trevor Howell Day Hospital

Seized/Produced by
ROBERT FREDERICK LOGAN.

Signed

Code A

Incident/Crime No.

Major Incident Item No. X 673

Laboratory Ref:

Copy

PORTSMOUTH & SOUTH EAST HAMPSHIRE HEALTH AUTHORITY

Saint Mary's Hospital,
Milton Road,
Portsmouth PO3 6AD
Tel: Portsmouth (0705) 822331

Our ref. Your ref. Please ask for.....

19/7/91

Dear Steve

Thankyou for agreeing to help regarding the use of opiates in poor prognosis lung/ca patient. Enclosed are the issues which we shall list. It seems to centre around the feeling that it is wrong to start with s/c diamorphine by pump for any patient who

1. Has not tried "lesser" analgesia first
2. Could take oral (or rectal) diamorphine
3. Does not have patient-voiced pain (even though they may be obviously restless and distressed).
4. Has not been discussed at a pain Staff conference.

To me, the important points to make in answer to these questions would be

1. Patients with distressing pain need adequate analgesia first – once pain is controlled reductions or changes in dosage can be made
2. The sc route is more convenient for many patients and overcomes problems of vomiting but analgesics, variable absorption. The continuous infusion may allow lower total dose to be used
3. Opiates are analgesic but also euphoriant, and thus psychologically beneficial for many patients. Many distressed, uncomfortable frail elderly are unable to ignore their discomfort
4. Prompt treatment is the best.

If you don't agree on any of this please give me a buzz. Otherwise I think a 15-20 minute chat from you regarding the relief of symptoms – and when opiates come in –

PORTSMOUTH & SOUTH EAST HAMPSHIRE HEALTH AUTHORITY

Saint Mary's Hospital,
Milton Road,
Portsmouth PO3 6AD
Tel: Portsmouth (0705) 822331

Our ref. Your ref. Please ask for.....

would be given the ticket. I will fly and tee up Phil for 2.00 p.m on 20/3/91 — maps, grid references etc provided.

Regards

Tom

Code A

7

PORTSMOUTH HealthCare NHS TRUST

Patient Name ..... Ruby LAKE .....

The Barthel ADL Index

	Date: 15.08.96								
Bowels 0 = Incontinent 1 = Occasional accident 2 = Continent	1								
Bladder 0 = Incontinent or catheterised & unable to manage 1 = Occasional accident (max 1 per 24 hours) 2 = Continent (for over 7 days)	0								
Grooming 0 = Needs help 1 = Independent face / hair / teeth / shaving	1								
Toilet 0 = Dependent 1 = Needs some help but can do something 2 = Independent	1								
Feeding 0 = Unable 1 = Needs help cutting, spreading butter etc. 2 = Independent	2								
Transfer 0 = Unable 1 = Major help (1-2 people physical 2 = Minor help (verbal or physical) 3 = Independent	1								
Mobility 0 = Unable 1 = Wheelchair independent including corners etc. 2 = Walks with help of one person (verbal or physical) 3 = Independent, (but may use any aid, e.g. stick)	2								
Dressing 0 = Dependent 1 = Needs help, but can do half unaided 2 = Independent	1								
Stairs 0 = Unable 1 = Needs help (verbal, physical carrying aid) 2 = Independent up and down	0								
Bathing 0 = Dependent 1 = Independent	0								
Total	9								

NR4

8

CHAPTER 22

Pain Relief

P. Crome

Introduction

Persistent or recurrent pain is probably the commonest health problem faced by older people. Pain varies in location, nature, frequency and severity and there are numerous underlying causes. Clearly, the prognosis varies too, related to the aetiology. Inadequately treated acute pain, for example after surgery, results in increased morbidity through immobility leading to deep venous thrombosis, chest infections and delayed return of normal bowel function. Additionally, chronic and recurrent pain is important because it is associated with mental and sleep disturbances, decreased functioning and mobility and increased risk of hospitalisation. There are a large number of analgesic drugs available for physicians to prescribe and treatment strategies have been developed for conditions such as arthritis and the pain of cancer. However, it is the general experience that effective management with complete remission of symptoms and without drug side-effects often proves elusive. It is certainly the view of patients that pain is poorly managed.[1] This chapter summarises present knowledge about pain and its treatment in older people.

Epidemiology

A recent community study provides important information on the prevalence, location, temporal pattern and severity of pain.

Table 22.1. Percentage prevalence of pain and persistent pain* in 741 community dwelling subjects over 65

Location	Pain	Persistent pain
Head	5.1	1.5
Face	0.4	0
Neck	11.6	4.7
Back	29.6	12
Limb joints	44.5	19.4
Chest	2.4	0.7
Abdomen	5.1	1.9
Limb except joints	17.3	10.4

*Defined as pain daily for six months or more.

Adapted from Brochet *et al.*[2]

In a French study of community-living older people aged over 65, over 70% of the 741 subjects surveyed complained of pain, most commonly in the limb joints and back (see Table 22.1).[2] Almost a third of the sample complained of pain each day for more than six months. The prevalence of persistent pain was higher in the older cohorts. Thus, 49% of women and 35% of men over 84 complained of persistent pain compared to 33% and 20% of women and men aged 68–74. This high prevalence of arthritis has been confirmed in the U.K. One study reported that arthritis affected 40% and 54% of men and women respectively aged 65–74 years with slightly higher rates of 44% and 66% for men and women aged 75 or more.[3] The effect of this increased prevalence of pain on self-perceived health status may be less marked. In the Tipping the Balance Study, the SF-36 domain bodily pain score was only slightly lower (more pain) in the

80–89 year old group compared to the 70–79 age group[4] indicating that the impact of pain continues to increase into extreme old age.

Types of Pain

Pain may be defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage".[5] Patients use a wide range of adjectives to describe pain. These include sharp, burning, throbbing, aching and crushing. The meanings patients ascribe to these terms varies and other communication difficulties such as dysphasia or cognitive impairment may make it difficult for the physician to fully appreciate the sufferers' experiences. The use of visual aids to aid assessment of severity is used in a growing number of centres. Examples of such aids include visual analogue scales on which severity of pain is graded from "no pain" to "worse possible pain" or showing patients a series of faces ranging from a happy smiling face to one contorted with pain and asking the patient to point to the one that best shows how they feel.

Pains may be grouped into four main classes (nocioceptive, neuropathic, undetermined and psychological) which are usually managed in different ways (Table 22.2).

Pain and Old Age

The traditional view has been that older people are more stoical about pain and complain less. Studies of experimental pain produced by such stimuli as thermal radiant heat, electric shock or pressure on the Achilles Tendon have produced contradictory results; some suggest that older persons tolerance is higher whilst others show no age effect.[7–8] These studies have focussed largely and not surprisingly on superficial pain. Further criticisms

Table 22.2. Classification of pain by pathophysiological process and principal treatment modality

Type of pain	Causes	Principal treatments
Nocioceptive	Arthritis, visceral pain, ulceration, limb ischaemia	Analgesics
Neuropathic	Trigeminal neuralgia, postherpetic neuralgia, painful neuropathies, phantom limb	Antidepressants/anti-convulsants
Undetermined	Headaches, migraine	Various
Psychological	Somatisation disorder Hysterical reaction	Psychological approaches

Adapted from AGS[6]

of this area include the absence of longitudinal studies, the large number of methods used to study pain and variability of end-points that were employed. Harkins' overall conclusion was that superficial pain is not altered in old age however deep pain appears to be less frequent and less intense in a number of acute conditions.[8] The evidence for the latter is based on the phenomenon of silent myocardial infarction[9] or silent perforated peptic ulcer[10] in which the older patient presents with atypical features such as fatigue and immobility rather than with pain. However, patient selection for these studies may have affected the results and whilst clinicians should always be aware of atypical presentation, classical presentation is still more common. Denial of pain may have other causes. Interestingly, Barsky *et al.* in their review of this subject do not present any evidence of age being a factor.[11] However it is doubtful whether these differences have any influence on treatment strategies which depend on the titration of analgesic dose and dosing interval against clinical symptoms.

Pain in Nursing Home and Cognitively Impaired Patients

The assessment and treatment of pain in patients in nursing homes deserves special consideration. This group of older people has the highest prevalence of pain (several studies reporting rates over 50%), the highest rates of co-morbidity, the highest levels of dependency and the highest rates of cognitive impairment due to dementia or sequelae of stroke. Assessment and management therefore pose particular problems. However, they do also have the potential advantage that they are observed 24 hours a day by nursing staff. Their general frailty may make investigation of underlying causes difficult. Important points in management include treating all co-morbid conditions as optimally as possible. For example, pain from an enlarged liver will respond to treatment for the heart failure producing hepatomegaly. Depression should be treated and patients should be encouraged to be as independent as possible. Exercise programmes should become standard.[12,13] This subject has been reviewed elsewhere by Ferrell[14] and Pamelee.[15–16] The latter author makes the point that there is good evidence that the expression of pain by cognitively impaired individuals should be regarded as valid and should not be dismissed.[15] Whenever possible clues should be sought from observations of staff and relatives, for example, groaning on moving. Within the limits imposed by the patient's condition and co-operation relevant investigations should be undertaken (simple X-rays, ultrasound). In addition to the obvious discomfort caused to the sufferer, families and friends may also be extremely distressed by the observation of such behaviour. Patients with dementia may enter a terminal phase. Such patients should be managed along the general lines established for palliative care in cancer.

The Treatment of Pain

Acute Pain

The basic principals are relatively simple. Treat the underlying cause, (e.g., antibiotics for infection, fixation for fracture) and give adequate pain relief. The nature of the painful condition, the response of the patient and the presence of co-morbidity will dictate whether to start with a mild analgesic or to go immediately to a more potent drug. In view of the uncertainty of response and the fact that drug toxicity may occur unpredictably might suggest that the general rule "start low, go slow" should remain. In order to avoid the situation that patients remain in pain, "starting low" must be followed by regular re-evaluation with, if necessary, frequent increases in drug dose.

Chronic Pain

The management of chronic pain differs from that of acute pain in that a range of additional issues may emerge and always need to be considered. The basic principle is, however, similar — accurate diagnosis and adequate analgesic drugs. However, in all cases of chronic pain, particularly those in which the cause is not adequately diagnosed or when the severity of pain and disability seems greater than the underlying disease process would suggest, the following points should always be considered:

- disease modification (e.g., second-line drugs for arthritis),
- concerns about long-term as opposed to acute side-effects of drugs,
- risk of addiction,
- life-style coping strategies (e.g., behavioural-cognitive therapy),
- psychiatry co-morbidity (e.g., depression),
- interventional treatments (e.g., nerve blocks etc.).

The issues relating to drugs are discussed below but detailed discussion of non-pharmacological issues is outside the scope of this chapter. Many patients will benefit from multi-disciplinary assessment in pain clinics.[17]

Pharmacological Approaches

The basic principles of drug therapy are to keep drug regimens simple, to prevent side-effects, to reassess frequently, to recognise that dosage needs to be individualised and that large doses may be required. Although there is wisdom in the standard aphorism "start low and go slow" it should not be so low and so slow that the patient gets no pain relief. This is important because of the evidence that the elderly are denied analgesics when younger patients are given them.[18]

The Analgesic Ladder

There are a large number of analgesic drugs. They can be grouped into three main classes according to the severity of pain for which they are suitable to be prescribed. In practice, one can suffice with a relatively small formulary of drugs. Table 22.3 lists those drugs which are available in our hospital grouped by type of pain for which they might be used. The drugs for mild pain (aspirin, ibuprofen and paracetamol) are generally regarded as being equipotent and, in the U.K. are available for over the counter sale without prescription. Morphine is generally regarded as the drug of choice for severe pain. The use of drugs between these two poles of efficacy is more problematic in that their potential usefulness is often hampered by unacceptable side-effects.

Paracetamol (acetaminophem)

This is the safest analgesic drug being virtually devoid of side-effects at standard therapeutic doses. There is some evidence that

Table 22.3. Analgesic drugs available in North Staffordshire Hospital

For mild pain	Aspirin Paracetamol Ibuprofen
For moderate pain	Combination analgesics: Co-codamol 8/500 (codeine 8 mg, paracetamol 500 mg) Co-proxamol 32.5/325 (dextropropoxypehene 32.5 mg, paracetamol 325 mg) Non-steroidal anti-inflammatory drugs Diclofenac, indomethacin, naproxen
Opioid	Codeine Diamorphine Dihydrocodeine Morphine Pethidine
Adjuvant therapy	Amitriptyline Carbamazepine Valproate

prolonged therapeutic dosage might increase renal impairment but this is not proven. The only significant toxicity is hepatic and renal failure following acute overdosage. A number of studies have shown no clinically relevant difference in pharmacokinetics between young and elderly subjects.[19–22] Wynne *et al.* investigated the drug's pharmacokinetics in both healthy and frail older subjects.[23] Half-life was not prolonged in the fit elderly group but was in the frail group when compared to healthy young subjects (mean values 123, 144 and 226 minutes respectively). Clearance was reduced by approximately 50% in the frail older group compared to the young healthy subjects. Clearance for the fit elderly fell mid-way between these two groups. Thus although the pharmacokinetics of paracetamol do show some significant alterations in old age they are probably of insufficient size to warrant routine dosage reduction, except possibly in frail older

subjects. Hepatotoxicity in this group with usual dosing has not been reported.

Aspirin

Acetyl-salicylic acid or aspirin as it is usually referred to in the U.K. has anti-inflammatory and antipyretic actions as well as being a widely used analgesic. Its major role now is as an anti-platelet drug in the secondary prevention of cardio-vascular and cerebro-vascular disease (see Chapters 11 and 15). Its principal disadvantage is that it causes gastric erosions and may precipitate haemorrhage and perforation. Aspirin is rapidly absorbed undergoing hydrolysis both in the gut wall and liver. Further hydrolysis occurs in the blood by red cell esterase. Its metabolite, salicylic acid undergoes conjugation and oxidation before excretion. There have been several studies examining the influence of age on the drug's pharmacokinetics. Although statistically significant changes in some pharmacokinetic measurements have been shown after oral administration of aspirin, these are regarded as being not of sufficient magnitude to justify dosage alteration.[24–25] It is not clearly stated in the above two papers whether the elderly subjects were fit or frail. The influence of frailty on pharmacokinetics is potentially important (see Chapter 4). The influence of frailty of aspirin esterase has subsequently been investigated. Williams *et al.* found that plasma esterase activity was reduced in frail elderly subjects compared healthy elderly subjects.[26] This was investigated further by Summerbell *et al.* who concluded that the impaired aspirin metabolism in frail elderly people was the consequence of a reduction in quantity of the esterase.[27]

Enteric-coated aspirin may reduce side-effects but with in at least one brand, clear absorption profiles were not observed.[28] In practice no dosage reduction is necessary in older people. It is suitable as an alternative to paracetamol in those already taking

the drug as prophylaxis for vascular disease and in those small number of patients who can not tolerate paracetamol. It should be avoided in those with upper gastro-intestinal pathology because of the increased risk of bleeding[29] and in those who have shown other sensitivities to the drug (e.g., asthma).

The prostaglandin analogue misoprostol, histamine$_2$-receptor antagonists and proton-pump antagonists have been shown to reduce gastro-intestinal toxicity from aspirin and other non-steroidal anti-inflammatory drugs in a variety of clinical and experimental situations. However, it is yet clear whether one or other of these classes of drugs should be co-prescribed routinely to elderly patients when they are receiving long-term analgesic treatment with aspirin. This is the subject of a Cochrane Collaboration review.[30]

Ibuprofen and the Non-steroidal Anti-inflammatory Drugs

Ibuprofen is a non-steroidal inflammatory drug that is believed to act by inhibiting the enzyme cyclo-oxygenase and reducing the production of prostaglandins. The principal side-effect is upper gastro-intestinal erosion leading to haemorrhage and perforation. There is good evidence that ibuprofen is the least damaging in this respect and it may be the most effective of the simple analgesics for acute pain.[31] There are a wide range of other often over-looked side-effects including salt and water retention, hypertension and renal failure. The other drugs of this class are more potent, but also produce more side-effects. They have their major role in the treatment of arthritis and discussed in more detail in Chapter 21.

Combination Analgesics

The use of analgesic combinations containing two drugs acting through different pharmacological mechanisms offers theoretical

advantages of greater pain relief without the disadvantage of side-effects. A large number of combinations of simple analgesics such as aspirin and paracetamol with low dose or low potency narcotic drugs are available both as over the counter and prescription only medication. de Craen *et al.* concluded in their systematic review of codeine-paracetamol combinations, used principally in the post-operative situation, that the analgesic advantage of the combination over paracetamol alone was small.[32] Side-effects were higher with the combination following multiple dosing (pooled rate ratio 2.5, 95% CI 1.5–4.2) but not statistically significant after single doses. There is no information about the effect of age on this interaction. Codeine combinations can lead to constipation whilst those containing dextropropoxyphene are a commonly involved in deliberate self-harm. Overdoses of co-proxamol (paracetamol and dextropropoxyphene) are particularly difficult to manage. Not only is there the problem of early toxicity from the opioid component but also a delayed risk of paracetamol hepatoxicity. This combination is extremely popular and well tolerated as an analgesic despite there being a lack of good evidence of superior efficacy compared to paracetamol alone. There is little information about the use of the drug in older patients but its elimination half-life is significantly prolonged in older people. The half-life of its major metabolite nor-dextropropoxyphene is prolonged even more and in many patients had not reached steady-state plasma concentrations even after several days treatment.[33]

Opioid or Narcotic Analgesics[34]

These exert their analgesic effects through central nervous system opioid receptors. Most of the commonly used drugs (morphine, codeine, dextropropoxyphene) are agonists exerting their principal therapeutic action through the μ_1 opioid receptor. Other generally less potent opioids have partial agonist or agonist-antagonist

Table 22.4. Adverse effects of opioid drugs

Respiratory system	Respiratory depression (reduced respiratory rate, tidal volume) Hypoxia and hypercapnoea Cough suppression
Cardiovascular system	Hypotension Bradycardia (vagal effect)
Gastro-intestinal system	Reduced oesophageal pressure — incresed reflux Delayed gastric emptying and gastro-intestinal motility *Constipation Abdominal pain
Central nervous system	Tolerance *Drowsiness Coma Seizures Movement disorders *Nausea and vomiting Pupillary constriction *Confusion Hallucinations
Urinary system	Retention of urine

*Common

activity (e.g., buprenorphine, pentazocine). These latter drugs tend not to be so useful in older people because of their dysphoric side-effects. The range of recognised side-effects of opioids is quite considerable and these are listed in Table 22.4.

Since narcotic analgesics are one of the principal drugs of addiction, there is obvious concern that by giving these drugs to patients they will become dependent. However there is little evidence that therapeutic administration of narcotic drugs produces addiction. For example, Porter and Jick[35] reported that only four of 11,882 patients who were prescribed a narcotic

analgesics during their hospital stay developed evidence of addiction. However, dependency is a real, albeit uncommon occurrence and it is wise to exercise some precautions in prescribing. Special care needs to be taken over decision to prescribe opioids to patients with pre-existing psychiatric disease, alcoholism or those with a personality disorders.

Morphine

Morphine is by far the most commonly used opioid and may be prescribed both orally and parenterally. It is metabolised in the liver to glucuronides, morphine-6-glucuronide, being the major active metabolite. The excretion of this metabolite is dependent on renal function which is relatively reduced in older people. Baillie *et al.* reported that morphine clearance was reduced by a third following intravenous administration. The areas under the plasma concentration time curve were greater following both morphine slow-release and elixir preparations.[36] Sear *et al.* found that the area under the plasma concentration time curve for morphine-6-glucuronide was similar in elderly and middle aged patients undergoing surgery although the clearance of the parent compound was reduced.[37] If clearance was reduced one might expect less of the glucuronide to be formed. The observation that the area under the plasma concentration time curve was not in fact reduced suggests that clearance of the metabolite is also reduced. The greater pharmacodynamic effect reported below may therefore be due to relative accumulation of morphine-6-glucuronide.

The evidence suggests that older people require a smaller initial dose of the drug but subsequent doses should be guided by response. Bellville *et al.* reviewed 712 patients who received either morphine or pentazocine commented that age had an effect independent of operation site, height and weight and hospital.[38] In another study, Kaiko found that for a given dose

of morphine both the duration of pain relief and the quantity of pain relief were approximately 50% more in patients aged 70–89 than those aged 18–29.[39] Studies on the pharmacokinetics of the drug mentioned above are compatible with these observations.

Morphine has the advantage of being available in a number of formulations including oral solutions and various sustained release preparations. The conversion dose for oral to parenteral morphine is three to one. It may also be used in more sophisticated ways for example by patient controlled infusion. Thus Egbert *et al.* reported a clinical trial of patient controlled intravenous morphine compared to standard intra-muscular morphine in a group of frail elderly surgical patients.[40] They found that, not only was pain better controlled when given by the self-administered route, but that post-operative confusion and pulmonary complications were reduced. Morphine is also commonly given by sub-cutaneous infusion via a syringe driver to patients who cannot swallow and who are terminally ill.

Pethidine

Pethidine (meperidine in U.S.A.) is converted to an active metabolite nor-pethidine which acts predominately on the μ-receptors. Accumulation can occur with dysphoric neuropsychiatric symptoms and seizures. It has a short duration of action that makes it unsuitable as an analgesic for anything other than pain of brief duration. It is therefore now used to a much lesser degree in the management of chronic pain and should be avoided in older people.

Prescribing Guidelines

The usual method of prescribing morphine for chronic pain is to start with standard oral morphine (tablet or liquid) in a dose of 5–10 mg every four hours. This dose should be halved in frail

older people. In addition further doses should be given if breakthrough pain occurs. Patients should then be switched to a twice daily sustained-release preparation (e.g., MST) with additional doses of 1/6 the total daily dose for breakthrough pain. At the same time laxatives (e.g., senna and lactulose or codanthramer) should be started to avoid constipation. Nausea and vomiting should be treated with regular metoclopramide or haloperidol.

Atypical Pain

A number of pharmacological agents have been used in the treatment of atypical and neuropathic pains. Many of these diseases have their peak frequencies in later life but there is a paucity of information about the influence of age as an independent factor in determining treatment choice and response.

Antidepressants

Patients with chronic pain may become depressed and it is often difficult to disentangle somatic complaints may be part of depressive symptomatology. Differentiation of cause and effect may be difficult. Antidepressants such as amitriptyline may be useful in chronic pain even when there is little evidence of depression. Support for this view comes from an open study of different treatment approaches to post-herpetic neuralgia. The antidepressants amitriptyline and nortriptyline were reported as useful in 60% of these patients who as a group were not depressed as judged by the Beck Depressive Inventory.[41] On the other hand carbamazepine and other anti-convulsants were not helpful. Antidepressants have been shown to be more effective than carbamazepine in central post-stroke pain.[42] This beneficial effect can be achieved at doses lower than would be given for the treatment of depression.

A meta-analysis of 39 placebo-controlled studies confirmed the efficacy of antidepressants. They calculated that the average chronic pain patient had less pain than three quarters of the patients who had been treated with placebo.[43] The benefits of antidepressants in neuropathic pain have also been demonstrated in a systematic review.[44] Some of these drugs (principally the tricyclic antidepressants) are dangerous in overdose and the risk of suicide must always be assessed before they are prescribed.

Carbamazepine

This has a long-standing role in the treatment of trigeminal neuralgia but is now being used in other neuropathic condition.[45] Carbamazepine response may fluctuate but this is not related with plasma drug concentrations.[46] The relationship between the underlying cause of this condition which may be due to vascular compression[47] and the modes of action of drugs which ameliorate it are not clear. Phenytoin and baclofen may be effective if carbamazpine fails. The mode of action of carbamazepine in trigeminal neuralgia is not certain. Meta-analysis of the effects of carbamazepine and other anticonvulsants has found benefit from these drugs in a number of painful conditions.[48]

Pain Clinics

The management of chronic persistent pain is probably best undertaken by a multi-disciplinary pain clinic employing a variety of non-pharmacological approaches. The effectiveness of such an approach in older people has been reported by Helme *et al.*[17] They found that of their cohort 72% had less pain, 53% reported being more active and in 65% mood was improved. Only 4% reported no improvement at all. These clinics use many other techniques. Behavioural-cognitive therapy is based on a detailed understanding of the psycho-social context in which the

individual's pain is experienced. Then a range of specific strategies are devised, for example, stressor situations can be managed by, for example, avoidance, thus controlling pain and improving quality of life.[49] Physical treatments include heat, cold, massage, aromatherapy and TENS. Again there is a paucity of randomised controlled data about the efficacy of these modes of therapy in old people.

Conclusions

Pain, both acute and chronic is a common problem in older people. As in so many field of geriatric medicine there is paucity of information about the differences in approach that are required to produce optimal benefit. Indeed in one recent review of treating acute pain in hospital, the only comment made about older people related to co-existing illnesses and differences in drug handling.[31] The key practice points are to ask about pain specifically for most patients have more pain then they report, to give adequate doses of effective drugs at regular intervals. Frail older people should be started on reduced doses of opioids but otherwise healthy older people should receive standard doses.

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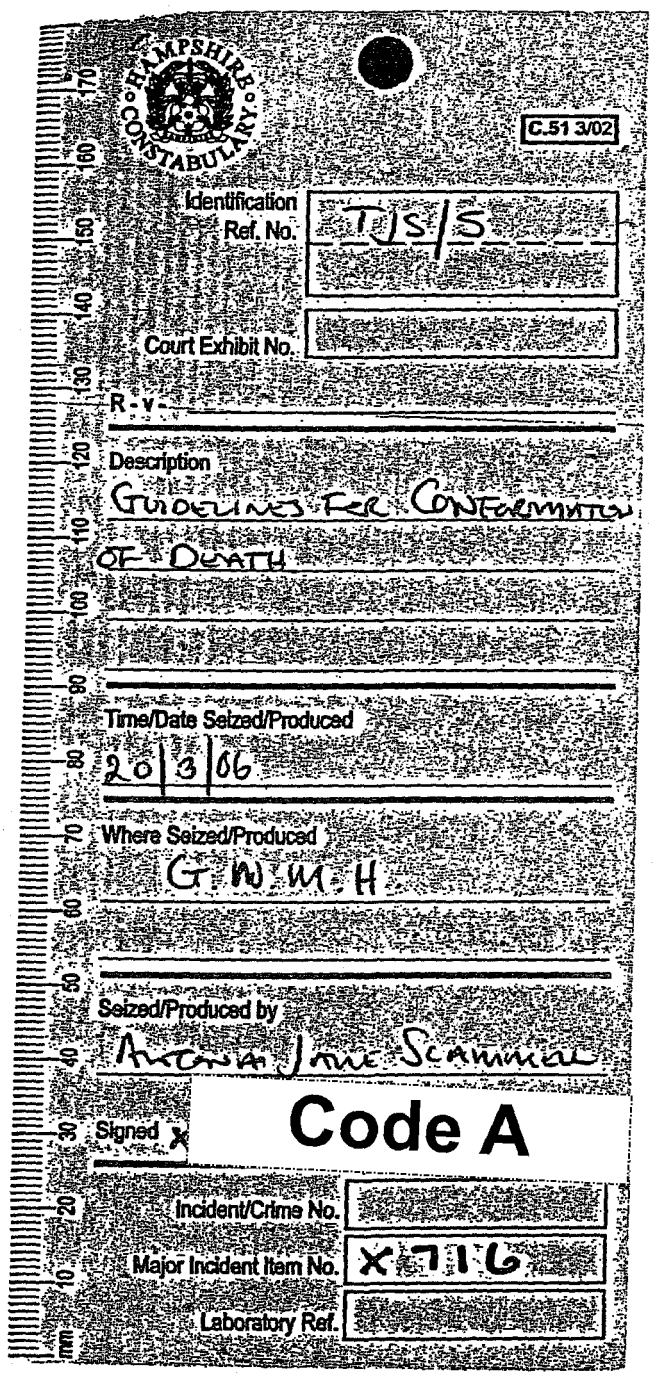
HAMPSHIRE CONSTABULARY
C.51 3/02
Identification Ref. No.
TJS/5
Court Exhibit No.
R - v -
Description
GUIDELINES FOR CONFIRMATION OF DEATH
Time/Date Seized/Produced
20/3/06
Where Seized/Produced
G.W.M.H
Seized/Produced by
Signed
Code A
Incident/Crime No.
Major Incident Item No.
X716
Laboratory Ref.

PORTSMOUTH
HealthCare
TRUST

Community Hospitals

Guidelines for confirmation of Death

It is not the duty or responsibility of the Nurse to confirm a death when a Doctor can reasonably attend to do so, during daytime hours the patients Doctor should be contacted and asked to certify the death immediately. However in Small Hospitals without resident Doctors, where medical staff are on call for emergencies, during the night or at times when Doctors are unable to attend any qualified Nurse who is competent to do so, may verify death.

Specific exclusions - **ALL SUDDEN UNEXPECTED DEATHS**
E.G. - DEATH FOLLOWING RECENT SURGERY
- PATIENT ADMITTED WITH ACUTE MEDICAL CONDITION
- ANY INPATIENT WHO HAS NOT BEEN SEEN BY THE GP SINCE ADMISSION
- PATIENT WHO HAS HAD ACCIDENT IN LAST 24 HOURS
- WHERE A DRUGS ERROR HAS OCCURED

Criteria of Death

The process of dying can be prolonged and careful observation is essential (e.g. in heart block or where a patient has Cheyne Stokes respirations). Ideally two trained Nurses should be present to ensure:-

No carotid artery pulse
No radial pulse
No heartbeat, when listening with stethoscope
No visible respiration
No inspiratory sounds of breathing when using stethoscope
No pupil reaction to light

The Nurse verifying the death should record this fact within the Case Notes as well as in the Nursing Records, stating time and date of death. Her/his normal signature should be used with name in block capitals underneath.

All qualified Nurses will be offered training on induction if they do not feel competent to verify death.

Policy Date May 1998 Review Date May 1999

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HAMPSHIRE CONSTABULARY

C.51 1/99

Identification Ref. No. OLH/DW/1

Court Exhibit No.

R - v -

Description COPY OF NOTES OF HOSPITAL MAJOR PATIENT ADMINISTRATIVE INFORMATION NOTICE

Time/Date Seized/Produced 25/1/06

Where Seized/Produced QUEEN ELIZABETH HOSPITAL EDGBASTON BIRMINGHAM

Seized/Produced by DAVID LESLIE HAYLE

Signed

Code A

Incident/Crime No.

Major Incident Item No. X 686

Laboratory Ref:

ROYAL HOSPITAL HASLAR
PATIENT ADMINISTRATIVE INFORMATION NOTICE

PAIN: 1/97 **11 MAR 97**

Sponsor: **Code A**

TRANSFER OF CIVILIAN PATIENTS TO LOCAL COMMUNITY HOSPITALS

1. With immediate effect all civilian patients transferred to Elderly Medical bed placements in Gosport Community Hospitals must take their hospital notes (F Med 9 and enclosures) with them. Failure to do so will result in the transfer being refused and patient will have to remain in Royal Hospital HASLAR, thereby blocking a bed.

2. In the case of discharge/referral to the Dolphin Day Hospital the hospital notes must be sent to Central Medical Records, for attention of the CMR Manager, immediately on the patient's discharge for onward transmission.

3. To facilitate this requirement a LOCAL COMMUNITY TRANSFER FORM (NH 72) has been produced and is at the Enclosure. These forms are to be accurately and correctly completed and securely attached to the front of the F Med 9 in all cases. The are to be locally produced in the short term until available from stores.

4. All notes sent with patients will be returned for summary to the CMR, RH HASLAR within three weeks, for onward transmission to the consultant named on the NH 72.

Code A

D HOYLE
Sqn Ldr
PSO

Enclosure:

1. NH 72 - LOCAL COMMUNITY TRANSFER FORM

Dist: Full (175)
Gosport War Memorial Hospital for Logistics Manager, Services Manager
Community Hospital and Medical Records Manager

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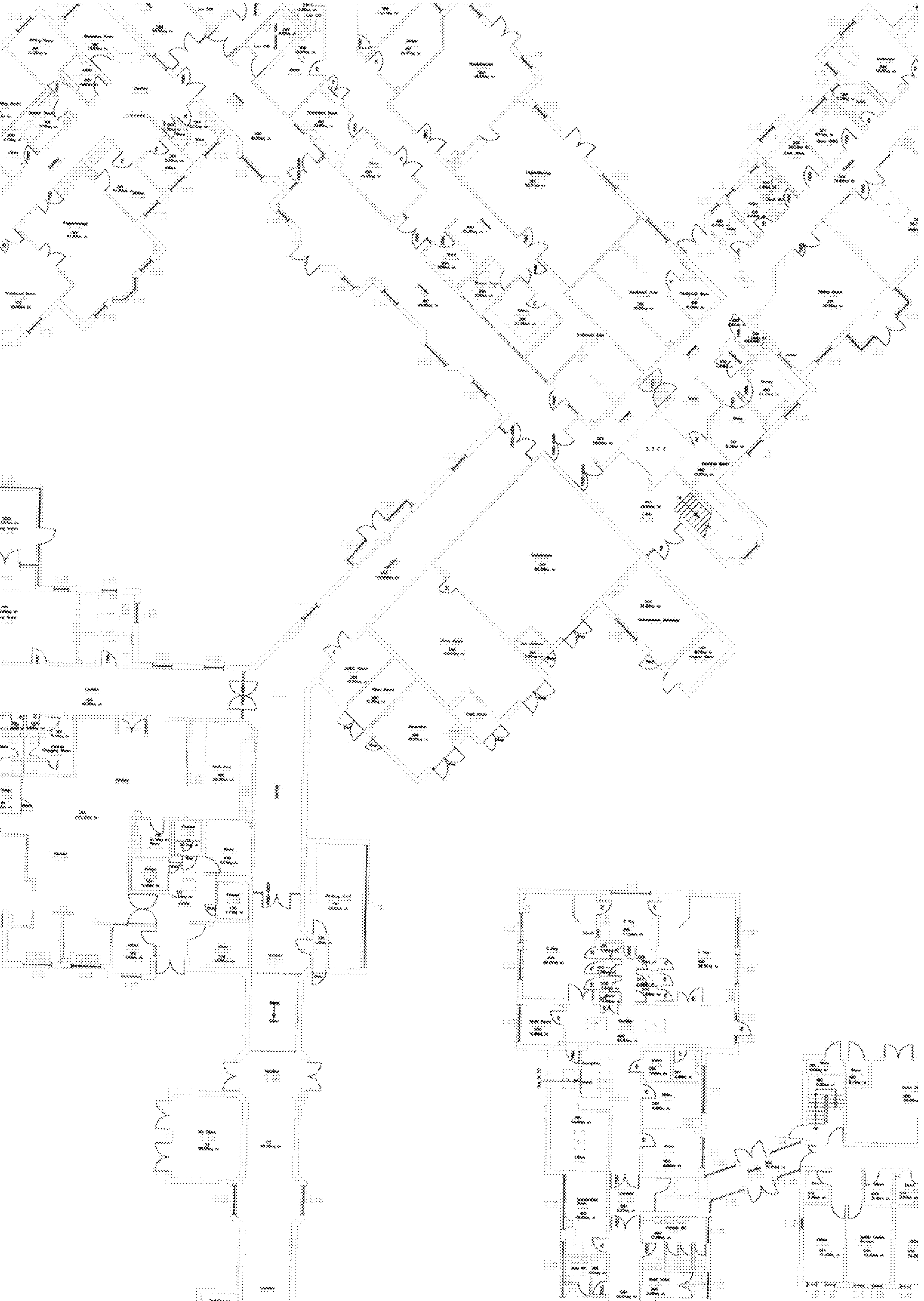

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