A Review of Deaths of Patients

at

Gosport War Memorial Hospital

Final version : October 2003

Contents

Acknowledgements

The staff of the records department of Gosport War Memorial Hospital have provided considerable assistance in identifying and obtaining documents for the review, and I am grateful to them for their assistance. I also thank Peter Goldblatt of National Statistics and Stephen Price of Hospital Episode Statistics, and Professor David Jones of the Department of Epidemiology and Public Health, University of Leicester, for advice and for undertaking the analysis of the relationship between numbers of deaths and periods of leave. I also acknowledge the assistance of Paul Sinfield, research associate, in management of the databases required for the review, and Ms Vicki Cluley for assistance in preparation of the manuscript.

Richard Baker

Clinical Governance Research and Development Unit

Department of Health Sciences

University of Leicester

Summary

This report presents the findings of an audit of care at Gosport War Memorial Hospital that was commissioned by the Chief Medical Officer. Concerns about the care of patients in Gosport hospital were first raised in 1998, and a police investigation is continuing.

The audit has drawn on documentary evidence that has included:

1. A random sample of 81 clinical records of patients who died in Gosport hospital between 1988 and 2000
2. The counterfoils of medical certificates of the cause of death (MCCDs) retained at Gosport hospital relating to deaths in the hospital 1987-2001
3. The admissions books of Dryad ward at Gosport, 1993-2001
4. Surviving controlled drugs registers at Gosport hospital
5. MCCDs completed by a sample of general practitioners in Gosport.

On the basis of these sources of evidence, I have concluded that a practice of almost routine use of opiates before death had been followed in the care of patients of the Department of Medicine for Elderly People at Gosport hospital, and the attitude underlying this approach may be described in the words found in many clinical records – 'please make comfortable'. It has not been possible to identify the origin of this practice, since evidence of it is found from as early as 1988. The practice almost certainly had shortened the lives of some patients, and it cannot be ruled out that a small number of these would otherwise have been eventually discharged from hospital alive.

The practice was disclosed in several key findings.

- Opiates had been administered to virtually all patients who died under the care of the Department of Medicine for Elderly People at Gosport, and most had received diamorphine by syringe driver.
- Opiates were administered to patients with all types of conditions, including cancer, bronchopneumonia, dementia, and strokes.
- Opiates were often prescribed before they were needed – in many cases on the day of admission, although they were not administered until several days or weeks later.
- In many records, evidence of a careful assessment before use of opiates was absent, and the stepped approach to management of pain in palliative care had not been followed.

In addition to these findings, two other matters also gave rise to concern. The amount of information recorded in the clinical notes was often poor, and recent fractures that had contributed to deaths, most commonly fractured hips, had not been reported on MCCDs.

Most patients admitted to Gosport under the care of the Department of Medicine for Elderly People had severe clinical problems, and many had been transferred from acute hospitals after prolonged in-patient stays. Some had been admitted for rehabilitation, but many were believed to be unlikely to improve sufficiently for discharge to a nursing home. Consequently, a relatively high number of deaths among those admitted would have been expected. The types of patients (case mix) admitted to Gosport varied during the period of interest (1988-2000), and it was not possible to identify an adequate source of data about numbers of deaths in similar hospitals that admitted similar types of patients in the same time periods to enable a reliable estimate of excess deaths to be calculated. Nevertheless, the findings tend

to indicate that the finding of a statistical excess of deaths among patients admitted to Gosport would be unlikely.

In undertaking the audit, I have drawn on documentary evidence only. There has been no opportunity for relatives or staff involved in the care of patients in Gosport to give information or comment on the findings. Dr Barton in particular has not been invited to give a first hand account of care at Gosport or comment on the findings of the review. It is possible, therefore, that my conclusions would be altered in the light of information from Dr Barton or other individuals. However, such information would be more appropriately considered in a different type of inquiry, for example that being undertaken by the police, rather than in the context of an audit.

Recommendations

In view of the findings of the audit, I submit the following recommendations:

1. Investigations should continue into the deaths of individual patients. The findings of this review reinforce concerns about what may have occurred in these cases.
2. In the continuing investigation into deaths in Gosport hospital, information about the rota followed by Dr Barton and her partners should be obtained and used to explore patterns of deaths.
3. Hospital teams who care for patients at the end of life should have explicit policies on the use of opiate medication. These policies should include guidance on the assessment of patients who deteriorate, and the indications for commencing opiates. The development of national guidelines would assist the development of local policies.
4. The findings reported in this review should not be used to restrict the use of opiate medication to those patients who need it. Indeed, there are reasons to

suspect that some patients at the end of life do not receive adequate analgesia.

5. In this review, evidence has been retrospectively pieced together from a variety of sources. Continued monitoring of outcomes at a local level might have prompted questions about care at Gosport hospital before they were raised by relatives, but continued monitoring is difficult with current data systems. Hospital episode statistics are an important resource, but continued prospective monitoring of the outcomes achieved by clinical teams requires a more detailed set of codes.

Chapter One: Introduction

This report describes a review of the deaths of older patients at Gosport War Memorial Hospital. The review was commissioned by the Chief Medical Officer because concerns had been raised about the care of some elderly patients who had died in the hospital, and is particularly concerned with the deaths of elderly patients under the care of the Department of Medicine for Elderly People.

Gosport War Memorial Hospital is a 113-bed local hospital situated on the Gosport peninsula. It was part of Portsmouth Health Care NHS Trust from April 1994 until April 2002, when the services at the hospital were transferred to the local primary care trusts (Fareham and Gosport PCT, and East Hampshire PCT). Gosport itself is a relatively isolated community at the end of a peninsula with some areas of high deprivation. It is reported to be under-provided with nursing homes

Concerns about deaths at the hospital were raised in September 1998, when police commenced investigations into an allegation that a patient had been unlawfully killed on Daedalus ward. In March 1999, the Crown Prosecution Service (CPS) decided that there was insufficient evidence to prosecute. In 2001, a further police investigation took place, and again the CPS decided that there was insufficient evidence to proceed. In January 2000 an NHS Independent Review Panel found that whilst drug doses were high, they were appropriate in the circumstances.

A complaint was made to the Health Service Commissioner against Portsmouth Healthcare NHS Trust about the death of a patient who had undergone an operation on a broken hip at another hospital and had been transferred in October 1998 to Gosport War Memorial Hospital 1998. The patient had died of bronchopneumonia in

December 1998, and the complaint was that the patient had received excessive doses of morphine, had not received reasonable medical and nursing care, and had been allowed to become dehydrated. The Commissioner undertook an investigation, at the conclusion of which he accepted professional advice that medical management had been appropriate and that the patient's nursing needs had been systematically assessed and met. The pain relief was judged to have been appropriate and necessary for the patient's comfort and the commissioner did not uphold the complaint.

In March 2001, 11 families raised further concerns with the police about the care and deaths of relatives in 1998, and four of these deaths were referred for an expert opinion. In August 2001, the police shared their concerns with the Commission for Health Improvement (CHI), and CHI then began an investigation.

The CHI Review (2001-2002)

The terms of reference of the review are shown in Box 1.1., and indicate that the aim of the review was to investigate care since 1998 rather than to undertake an investigation into care at the hospital leading up to the complaint first raised in 1998. During the review, CHI studied documents held by the trust, received views from samples of patients, relatives and friends, conducted a five-day site visit during which 59 staff from all groups involved in the care of elderly patients were interviewed, undertook an independent review of the notes of a sample of patients who had died on three wards (Daedalus, Dryad and Sultan) between August 2001 and January 2002, and interviewed relevant agencies, including those representing patients and relatives. On concluding its review, CHI did commend some features of services at Gosport, including leadership in Portsmouth Healthcare NHS Trust, the standard of

nursing care on Daedalus, Dryad and Sultan wards, and the trust's clinical governance framework. However, CHI also reported several concerns (Box 1.2.).

Box 1.1. Terms of reference of the CHI review (CHI, 2002).

The investigation will look at whether, since 1998, there has been a failure of trust systems to ensure good quality patient care. The investigation will focus on the following elements within services for older people (inpatient, continuing and rehabilitative care) at Gosport War Memorial Hospital.

i) staffing and accountability arrangements, including out of hours

ii) the guidelines and practices in place at the trust to ensure good quality care and effective performance management

iii) arrangements for the prescription, administration, review and recording of drugs

iv) communication and collaboration between the trust and patients, their relatives and carers and with partner organisations

v) arrangements to support patients and their relatives and carers towards the end of the patient's life

vi) supervision and training arrangements in place to enable staff to provide effective care.

In addition, CHI will examine how lessons to improve patient care have been learnt across the trust from patient complaints.

The investigation will also look at the adequacy of the trust's clinical governance arrangements to support inpatient continuing and rehabilitation care for older people.

Box 1.2. CHI's key concerns

- There was lack of clarity amongst all groups of staff and stakeholders about the focus of care for older people and therefore the aim of the care provided. This confusion had been communicated to patients and relatives, which had led to expectations of rehabilitation which had not been fulfilled.
- CHI has serious concerns regarding the quantity, combination, lack of review and anticipatory prescribing of medicines prescribed to older people on Dryad and Daedalus wards in 1998. A protocol existed in 1998 for palliative care prescribing referred to as the 'Wessex guidelines', this was inappropriately applied to patients admitted for rehabilitation.
- Though CHI is unable to determine whether these levels of prescribing contributed to the deaths of any patients, it is clear that had adequate checking mechanisms existed in the trust, this level of prescribing would have been questioned.
- CHI welcomes the introduction and adherence to policies regarding the prescription, administration, review and recording of medicines. Although the palliative care Wessex guidelines refer to non-physical symptoms of pain, the trust's policies do not include methods of non-verbal pain assessment and rely on the patient articulating when they are in pain.
- Relatives speaking to CHI had some serious concerns about the care their relatives received on Daedalus and Dryad wards between 1998 and 2001. The instances of concern expressed to CHI were at their highest in 1998. Fewer concerns were expressed regarding the quality of care received on Sultan ward.

- Portsmouth Healthcare NHS Trust did not have any systems in place to monitor and appraise the performance of clinical assistants. There were no arrangements in place for the adequate supervision of the clinical assistant working on Daedalus and Dryad wards.
- The police investigation, the review of the Health Care Service Commissioner, the independent review panel and the trust's own pharmacy data did not provide the trigger for the trust to undertake a review of prescribing practices. The trust should have responded earlier to concerns expressed around levels of sedation, which it was aware of in late 1998.
- Portsmouth Healthcare NHS Trust did effect changes in patient care over time as a result of patient complaints, including increased medical staffing levels and improved processes for communication with relatives, though this learning was not consolidated until 2001. CHI saw no evidence to suggest that the impact of these changes had been robustly monitored and reviewed.

CHI did undertake an independent review of anonymised medical and nursing notes of a random sample of patients who had died on Daedalus, Dryad and Sultan wards between August 2001 and January 2002. It should be noted that this was a period in which the clinical assistant no longer worked at the hospital, and in particular excludes deaths during the period 1998-1999, when concerns first arose. The case note review confirmed that the admission criteria for Dryad and Daedalus wards were being adhered to. CHI also investigated the amount of diamorphine, haloperidol and midazolam used on Daedalus and Dryad wards between 1997/1998 and 2000/01. These data indicated a decline in use of diamorphine and haloperidol on both wards after 1998/1999, with a relatively less marked decline in the use of midazolam in the later years.

Staff concerns about the use of diamorphine, 1991-2

Staffs concern about the use of diamorphine was brought to the attention of the branch convenor of the Royal College of Nursing (RCN) in April 1991, the convenor being told that the problem had been present for the past two years. At a specially convened meeting in July 1991, nursing staff of Redclyffe Annexe raised their concerns about the use of diamorphine with the patient care manager of Gosport Hospital. Among the points made at that meeting were that not all patients who had been given diamorphine had pain, no other forms of analgesia had been considered, the drug regime was not always tailored to each patient's individual needs, and that deaths were sometimes hastened unnecessarily. Discussions took place between nursing and medical staff, the patient care manager and the RCN convenor over the ensuring months, with the result that a plan for the use of diamorphine appears to have been agreed.

The role of the clinical assistant, Dr Barton

The concerns, police investigations and GMC referral have focussed on the role of the clinical assistant involved, Dr Jane Barton. Dr Barton is a general practitioner based in a practice in Gosport. She was employed for five sessions a week as a clinical assistant in the Department of Medicine for Elderly People from 1st May 1988 until her resignation on 5th July 2000. In this post, Dr Barton was accountable to the consultant physician in geriatric medicine, and responsible for arranging cover for annual leave and sickness absence with her practice partners. The post was subject to the terms and conditions of hospital, medical and dental staff.

When Dr Barton began work at the hospital, she had responsibility for patients in Redclyffe Annexe. This unit is isolated from the main parts of the hospital, and had

approximately 20 beds classified as continuing care. Until 1993/4, there were also two wards (referred to as the male and female wards) at the main hospital site, having a total of approximately 37 beds (Box 1.3.). Nineteen of these were designated for use by patients under the care of their GP, and seven designated as GP day surgery beds. Dr Barton was responsible for the care of patients in the remaining 11 beds. (The precise number of beds on the female ward is uncertain since the information is based on the memories of staff. It is believed to have been 20 or 21.) The total number of beds under the supervision of Dr Barton was therefore 31 until 1993/4.

From 1993/4, Dr Barton appears to have ceased responsibility for Radclyffe Annexe, and taken on responsibility for Dryad and Daedalus wards in the new hospital building, the male and female wards being closed. This gives a total of 44 beds under Dr Barton's care, with a mix of continuing care and rehabilitation. CHI was critical of arrangements for supervising the practice of the clinical assistant, and found no evidence of any formal lines of communication regarding policy development, guidelines and workload. Some of the staff interviewed had indicated that the clinical assistant worked in excess of the five contracted sessions. The CHI review notes that in 1998, there was a fortnightly consultant ward round on Daedalus ward. Ward rounds were also scheduled fortnightly on Dryad ward, although they occurred less frequently.

Box 1.3 Reported bed use at the hospital

1980-1993:

Northcott house, 11-12 continuing care beds

Redclyffe Annexe 20 continuing care beds

Male ward - 17 beds (9 continuing care, 8 GP beds)

Female ward – 20 beds (2 continuing care, 7 GP day surgery, 11 GP beds)

Total beds 1980-1993=69

From 1994:

Redclyffe Annexe was still used;

Sultan ward – 24 GP beds

Dryad ward – 20 continuing care beds

Daedalus – 24 beds in total (8 slow stream stroke from April 1994. 16 continuing care [24 prior to April 1994]); from 2000, the Daedalus beds were used for intermediate care, comprising 8 fast stream stroke, 8 slow stream stroke, 8 general rehabilitation.

Other investigations

Several other investigations have been, or are being, undertaken into the events at Gosport War Memorial Hospital. Hampshire Constabulary are continuing an intensive investigation, and I am grateful to them for their agreement that the review requested by the Chief Medical Officer should be completed. A referral to the General Medical Council (GMC) has also been made. However, the review described

in this report is an independent clinical review or audit. I have sought to come to an independent view based on an analysis of clinical information from surviving documentary evidence (for example, clinical records, drug registers, medical certificates of the cause of death, and ward registers). The review does not consider statements from witnesses, and does not involve a detailed forensic inquiry into particular deaths, since these aspects are the proper responsibility of the police and other agencies.

Aims of the review

The aims of the review were:

1) To identify any excess mortality or clusters of deaths among patients who were on Daedalus and Dryad wards 1988-2000 and to identify initial evidence to explain any excess or clusters.

2) To determine whether the numbers of deaths among Dr Barton's general practice patients was higher than would have been expected.

Palliative and terminal care

Some understanding of current practice and policies on the care of dying patients is required in order to enable judgements to be made about the appropriateness of care given to patients who died in Gosport War Memorial Hospital. This section outlines relevant features of this aspect of care.

The World Health Organisation (WHO) defines palliative care as '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. The goal of palliative care is achievement of the best quality of life for patients and their families' (O'Neill and Fallon, 1997). Palliative care for people with advanced

cancer is now widely available. However, people with other chronic progressive conditions may also need palliative care when other treatment ceases to be of benefit. Such conditions include advanced respiratory, cardiac or neurological disease (O'Brien et al, 1998). Some of the patients who died on Daedalus and Dryad wards had dementia, and in recent years, it has been increasingly recognised that palliative care also has a role to play in advanced (or 'end stage') dementia. Since a basic awareness of the care of the people with advanced dementia is required in order to interpret the findings of this review, an outline of selected key issues follow.

In advanced dementia, death occurs as a consequence of the many secondary impairments that arise, including progressive immobility, reduced ability for self-care, poor nutrition and reduced intake of fluids, infections related to immobility, skin breakdown, and general debilitation (Shuster, 2000). Although patients dying from dementia have symptoms and health care needs comparable with cancer (McCarthy et al, 1997), patients on long-stay wards who are dying at the end stage of dementia do not always received appropriate palliative care.

In a study undertaken in a long-stay psychogeriatric unit in England, patients with end stage dementia were found to have many symptoms, including pain, dyspnoea and pyrexia for which no palliative treatment was given. Instead, there was widespread use of parenteral antibiotics and infrequent use of analgesia in the last few days of life (Lloyd-Williams 1996). In a follow-up to this study, guidelines on palliative care in end stage dementia were developed, and an increase in the use of analgesics including opiates occurred (Lloyd-Williams and Payne, 2002). The data collected after the implementation of the guidelines related to the deaths of 27 patients, of whom 13 (48%) were prescribed 4-hourly morphine for the palliation of

pain or shortness of breath (caused by pneumonia). Two patients who were unable to take oral medication were commenced on diamorphine administered by syringe drivers. It should be noted that pneumonia can cause significant symptoms in people with dementia, including shortness of breath and discomfort (Steen et al, 2002). Deficiencies in palliative care of elderly patients with or without dementia are also found in other countries (Fox et al, 1999; Evers et al, 2002; Morrison and Siu, 2000).

Information about a palliative care service for elderly people in the same district as Gosport is pertinent to the review. In 1989, a 12-bedded palliative care ward was opened within the Geriatric Department at Queen Alexandra Hospital, Portsmouth (Severs and Wilkins, 1991). The aim was to improve the care of elderly people at the end of life. In the first year, 128 patients were admitted to the ward, of whom 101 (78.9%) had cancer, 17 had strokes and two had dementia. The service was therefore primarily caring for elderly people with terminal cancer.

Guidelines

Communication between professionals (nurses and doctors), and between professionals and relatives or dying elderly patients is sometimes poor (Costello, 2001), and decisions on whether resuscitation would be appropriate ('do not resuscitate' or DNR orders) may not be fully discussed (Costello, 2002). Wider use of clinical guidelines might assist health professionals overcome these problems and provide palliative care to more of those patients who need it. A growing number of publications offer guidance about palliative care for patients with cancer, but the two clinical guidelines discussed here illustrate current professional opinion about the care of people in the terminal phase of dementia. The first guideline was developed in a long-stay hospital in England (Lloyd-Williams and Payne, 2002), and was

concerned with the palliative care of patients with end stage dementia. It is summarised in Box 1.4.

Box 1.4. Guidelines for the management of patients with end stage dementia (from: Lloyd-Williams and Payne, 2002)

Consider treatable causes of pain (e.g. pressure sores, full bladder); use oral medication when possible, and administer on a regular basis; use co-proxamol initially; if still in pain, consider a non-steroidal anti-inflammatory drug.

When opiates are used, start with a low dose and increase as needed to control pain; always prescribe diamorphine 2.5-10mg for injection on an as required basis so that analgesia can still be given if the oral route is not available.

When converting from oral subcutaneous opiates, remember to divide the total oral dose by three e.g. 60mg oral morphine in 24 hours = 20mg diamorphine in syringe driver.

In the event of agitation, think of full bladder; midazolam 2.5mg-10mg subcutaneously or oral haloperidol or thioridazine may be used.

The most common cause of dyspnoea is bronchopneumonia. There is no evidence that using antibiotics in end stage dementia is helpful or improves patients' comfort or prolongs the quality of life. Oral morphine 5mg 4-hourly can reduce the sensation of breathlessness and improve patient's comfort.

The second guideline mentioned here was developed to help physicians decide whether to forgo curative treatment of pneumonia in patients with dementia resident

in nursing homes, and has been developed by a research group in the Netherlands (Steen et al, 2000). The guidelines were based on a literature review, discussion papers prepared by Dutch medical associations, and consensus procedures with experienced nursing-home physicians and international experts in the fields of nursing-home medicine, ethics and law. The guidelines were subsequently authorized by the Dutch professional organisation of nursing home physicians. The guidelines were presented in the form of a checklist for use by physicians in nursing homes (see Box 1.5.).

Box 1.5. Checklist on decision for starting or not starting a curative treatment of pneumonia in a patient with dementia (Steen et al, 2000).

The key factors to consider are:

1. the expected effect of a curative treatment from the medical perspective

2. the patient's wish: a living will, or the reconstruction of the wish

3. the patient's best interest when the wish of the patient is not clear, or remains unknown.

The checklist considerations:

1. Is an intentionally curative treatment indicated for this patient?

2. How physically and/or psychiatrically burdensome would the total curative treatment – antibiotics and (re)hydration – be for the patient?

3. Is the patient sufficiently mentally competent to indicate their wish, and if so, what treatment does the patient want?

4. What is the purport of the written will?

5. What is the purport of the reconstruction of the patient's will according to the representative(s)?

6. What is the purport of the reconstructed patient's wishes according to the other involved professional carers?

7. Which treatment seems to be in the patient's best interests (not certain, intentionally curative treatment, or palliative treatment)?

An important step in palliative care is the point at which terminal care begins. The factors that lead to the decision to begin terminal care will depend on the stage of the patient's disease. An example of criteria that may be used for initiating terminal care is shown in Box 1.6 (Edmonds and Rogers, 2003).

Box 1.6. Criteria for starting an integrated care pathway for patients dying in hospital (from Edmonds and Rogers, 2003)

Patients who have a known diagnosis and have deteriorated despite appropriate medical intervention. The multiprofessional team have agreed the patient is dying and at least two of the following apply:

The patient:

1. is bedbound
2. is only able to take sips of fluids
3. has impaired concentration
4. is semi-comatose
5. is no longer able to take tablets

General Medical Council Guidance

In 2002, the general Medical Council (GMC) (GMC, 2002) issued guidance on withholding life-prolonging treatment. Much of this guidance is not directly relevant to an assessment of the care of patients at Gosport, but the guidance does state guiding principles dealing with respect for human life and patients' best interests. These make clear what is expected of doctors in the UK, and are relevant to judgements that may be made about the care of people under the care of the Department of Medicine for Elderly People at Gosport Hospital. The relevant section of the guidance is quoted in full in Box 1.7.

Box 1.7 Respect for Human Life and Best Interests (GMC, 2002)

Doctors have an ethical obligation to show respect for human life; protect the health of their patients; and to make their patients' best interests their first concern. This means offering those treatments where the possible benefits outweigh any burdens or risks associated with the treatment, and avoiding those treatments where there is no benefit to the patient.

Benefits and burdens for the patient are not always limited to purely medical consideration, and doctors should be careful, particularly when dealing with patients who cannot make decisions for themselves, to take account of all the other factors relevant to the circumstances of the particular patient. It may be very difficult to arrive at a view about the preferences of patients, who cannot decide for themselves, and doctors must not simply substitute their own values or those of the people consulted.

Prolonging life will usually be in the best interests of a patient, provided that the treatment is not considered to be excessively burdensome or disproportionate in relation to the expected benefits. Not continuing or not starting a potentially life-prolonging treatment is in the best interests of a patient when it would provide no net benefit to the patient. In cases of acute critical illness where the outcome of treatment is unclear, as for some patients who require intensive care, survival from the acute crisis would be regarded as being in the patient's best interests.

End of natural life

Life has a natural end, and doctors and others caring for a patient need to recognise that the point may come in the progression of a patient's condition where death is drawing near. In these circumstances doctors should not strive to prolong the dying

process with no regard to the patient's wishes, where known, or an up to date assessment of the benefits and burdens of treatment or non-treatment.

Notes on selected drugs

1. *Morphine and diamorphine*

Important sections of the review are concerned with the use of selected drugs towards the end of life. Brief notes about relevant drugs are included here for those who may not be familiar with them. The transition from the weaker to the stronger analgesics is usually described in terms of a three step ladder (Twycross et al, 1998), beginning with non-opioid analgesics such as paracetamol (step one), followed by the addition of a weak opioid such as codeine or dextromoramide (step two), the final step being the addition of a strong opioid.

Morphine and diamorphine are both strong opiate analgesics. Although there is a risk of dependence if the drugs are administered repeatedly, the British National Formulary (2001) makes clear that this should not be taken as a reason for not using regular opiates in terminal care. Morphine is the treatment of choice for oral treatment of severe pain in palliative care, and a dose of 5-10mg given every 4 hours is enough to replace a non-opioid analgesic such as paracetamol or a non-opioid and weak opioid used in combination (for example, paracetamol with dihydrocodeine). However, the dose should be increased stepwise according to response. Oramorph is a pharmaceutical company's name for a particular preparation of oral morphine. Modified release preparations suitable for twice daily administration are available as tablets (for example MST Continus), capsules or in suspension.

If the patient becomes unable to swallow, intramuscular morphine may be given, the equivalent dose being half the dose of the oral solution. However, diamorphine is preferred for injection because it is more soluable and can therefore be given in smaller volumes. The equivalent intramuscular or subcutaneous dose of diamorphine is one third the oral dose of morphine (Twycross et al, 1998). Thus, if a patient has been receiving 10mg of morphine oral solution every 4 hours (a total of 50 mg in each 24 hours), the equivalent dose of diamorphine administered subcutaneously by syringe driver would be approximately 17 mg in 24 hours.

Agitation, confusion and myoclonic jerks occur as a consequence of opiate toxicity. These features may be interpreted as un-controlled pain, leading to the administration of more opiate medication. The consequences are increased sedation, dehydration and further toxicity (O'Neill and Fallon, 1997).

2. *Fentanyl*

Fentanyl (Durogesic) is a strong opioid analgesic that can be absorbed through the skin, and is therefore administered by self-adhesive patches applied to the skin. The patch releases a defined dose per hour over a period of 72 hours, after which the patch should be replaced.

3. *Haloperidol*

Haloperidol is given in syringe drivers to control nausea and vomiting, in doses of 2.5 to 10mg in 24 hours. It is an antipsychotic, but has little sedative effect.

4. *Hyoscine hydrobromide*

Hyoscine hydrobromide is used to control respiratory secretions and is given by syringe driver in doses of 0.6 to 2.4 mg per 24 hours. Drowsiness is a side-effect

5. *Midazolam*

Midazolam (Hypnovel) is a benzodiazepine sedative and is suitable for the very restless patient, in doses of 20 to 100 mg in 24 hours. Drowsiness is a side-effect, and haloperidol is an alternative if symptoms are not controlled by doses of 30mg or less per 24 hours (Twycross et al, 1998)

The Wessex Guidelines

Local guidelines on palliative care were available to health professionals in Gosport. They were published by the Wessex Specialist Palliative Care Unit, and were referred to as the "Wessex Guidelines". The edition of the guidelines current in 1998 recommended assessment of pain, including the site, severity, duration, timing, and aggravating and relieving factors. The use of a body diagram and the patient's own words were recommended as part of the assessment. Depending on the findings of the assessment, analgesics if appropriate were advised, in accordance with the three steps in the WHO analgesic ladder (step one non-opioids, step 2 weak opioids, step 3 strong opioids). The guidelines included advice about the choice of opiate analgesics, and selection of dose, the recommendations being in accordance with the notes and drugs discussed above. The guidelines noted that the use of nebulised opioids was not supports by scientific evidence and might induce bronchospasm. The guidelines address all aspects of clinical management in palliative care, in addition to use of medication.

An Overview of The Report

The review is presented in the following six Chapters. Chapter Two reports an investigation of a random sample of clinical records of patients who died between 1988 and 2000. The review of records was undertaken following review of five records of patients whose deaths were being investigated by the police, and sought to describe clinical practice in the Department of Medicine for Elderly People at Gosport hospital.

In Chapter Three, an analysis of the numbers of deaths in Gosport hospital 1988-2000 is presented, the data being based on counterfoils of medical certificates of the cause of death completed by doctors at the hospital. The data are used to describe the certified causes of death, to identify clusters of deaths, and the features of patients whose deaths had been certified by Dr Barton. The Chapter also outlines the difficulties encountered in use of Hospital Episode Statistics to explore patterns of deaths in Gosport hospital.

Chapter Four presents the findings of a review of information obtained from admissions books from Dryad ward. The admissions books contain information about the duration of admission, whether patients had died or were discharged from the ward, the place patients were admitted from, and some indication of the reason for admission.

An investigation of information contained in retained controlled drugs registers is reported in Chapter Five. Data in the registers indicate which patients received opiate medication, how much medication they received, and the wards on which patients were staying. The information was related to information from the

counterfoils of medical certificates of the cause of death to investigate the proportions of people who died who had received an opiate.

Chapter Six presents information obtained from medical certificates of the cause of death completed by Dr Barton and a comparison sample of general practitioners. This analysis was undertaken to determine whether the numbers of deaths among patients in general practice was as expected. Finally, Chapter Seven presents the conclusions and a small number of recommendations.

Ethics approval

Approval for access to data from Hospital Episodes Statistics and National Statistics was obtained from the ethics committees of these organisations. The methods of the audit were discussed with the Chair of the Isle of Wight, Portsmouth and SE Hants Local Research Ethics Committee, and it was confirmed that it was not a research study that required approval. The audit has been undertaken in accordance with the guidance of the GMC on confidentiality. In the Chapters that follow, care has been taken to exclude any material that might lead to the identification of individual patients.

Much of this review is focused on the work of Dr Barton. This should not be taken as meaning that Dr Barton was the origin of approach followed at Gosport hospital, or that her clinical practice was the key problem that has given rise to the concerns expressed by relatives. Since Dr Barton issued most of the medical certificates of cause of death for patients of the Department of Medicine for Elderly People, made most of the entries in the clinical records, and was responsible for most of the prescribing, she has served as a means of identifying patients and care that should be included in the review. However, it should be recalled that she was a member of a

clinical team, and the review has not investigated the process of decision making in the clinical team. The audit relied on documentary evidence about care of patients at Gosport, and did not involve consideration of statements from individuals. Therefore, conclusions about the actions of individuals should not be reached since they have not had the opportunity of presenting their own side of the story.

References

British National Formulary (2001). Edition 41. London: British Medical Association, Royal Pharmaceutical Society of Great Britain.

CHI (2002). Portsmouth Healthcare NHS Trust at Gosport War Memorial Hospital. Commission for Health Improvement. The Stationery Office

Costello J (2001). Nursing older dying patients: findings from an ethnographic study of death and dying in elderly care wards. J Advanced Nursing 35:59-68.

Costello J (2002). Do not resuscitate orders and older patients: findings from an ethnographic study of hospital wards for older people. J Advanced Nursing 39:491-9.

Edmonds P, Rogers A (2003). 'If only someone had told me ....' A review of the care of patients dying in hospital. Clinical Medicine 3:149-52.

Evers MM, Purohit D, Perl D, Khan K, Marin DB (2002). Palliative and aggressive end-of-life care for patients with dementia. Psychiatric Services 53:609-13.

Fox PL, Raina P, Jadad AR (1999). Prevalence and treatment of pain in older adults in nursing homes and other long-term care institutions: a systematic review. Canadian Med Ass J 160:329-33.

GMC (2002). Withholding and Withdrawing Life-Prolonging Treatment: Good Practice in Decision-Making. London: General Medical Council.

Lloyd-Williams M (1996). An audit of palliative care in dementia. Eur J Cancer Care 5:53-5

Lloyd-Willliams M, Payne S (2002). Can multidisciplinary guidelines improve palliation of symptoms in the terminal phase of dementia? Int J Palliative Nursing 8:370-5.

McCarthy M, Addington-Hall J, Altmann D (1997). The experience of dying with dementia: a retrospective study. Int J Geriatr Psychiatr 12:404-9.

Morrison RS, Siu AL (2000). Survival in end-stage dementia following acute illness. JAMA 284:47-52.

O'Brien T, Welsh J, Dunn FG (1998). Non-malignant conditions. ABC of palliative care. BMJ 316:286-9.

O'Neill B, Fallon M (1997). Principles of palliative care and pain control. ABC of palliative care. BMJ 315:801-4.

Severs MP, Wilkins PSW (1991). A hospital palliative care ward for elderly people. Age and Ageing 20:361-4.

Shuster JL (2000). Palliative care for advanced dementia. Clinics in Geriatric Medicine 16:373-86.

Steen JT van der, Graas T de, Ooms ME, (2000). When should physicians forgo curative treatment of pneumonia in patients with dementia? West J Med 173:274-7.

Steen T van der, Ooms ME, Wal G van der, Ribbe MW (2002). Pneumonia: the demented patient's best friend? Discomfort after starting of withholding antibiotic treatment. J Am Geriatr Soc 50:1681-8.

Twycross R, Wilcock A, Thorp S (1998). Palliative Care Formulary. Abingdon: Radcliffe Medical Press.

Chapter Two. Review of records

A review of records of cases reported to Hampshire Constabulary

In 1998, the initial police investigation into care of patients at Gosport War Memorial Hospital was prompted by the death of one patient that was reported to the police by the family of the deceased as a potential case of unlawful killing. In the months that followed, other families who had become aware of concerns about care at the hospital also contacted the police. From the cases notified to them, the police had, by December 2002, identified five cases that shared certain features that indicated the need for detailed investigation. The police permitted me to review the clinical records of these cases.

The aim of the review of these records was to identify those features recorded in the records that might give rise to concern about the care patients had received and the cause of death. The police had invited a small number of clinical experts to review the records, but I did not consult the reports of these experts in order to ensure that an independent opinion was reached. The records available included all those made by medical and nursing staff at Gosport War Memorial Hospital, drug charts, X rays and investigation reports, records made by staff in acute hospitals in the case of those patients who had been transferred to Gosport from another hospital, and correspondence from patients' general practitioners. The features identified from the five sets of records were:

1. *All were frail, with major clinical problems.* All five had been admitted to Gosport War Memorial Hospital from other services, for example from acute hospital following surgery for a fractured hip, or from a day hospital. All were

dependent on nursing care and had more than one health condition, including for example Alzheimer's disease, Parkinson's disease, or cancer. Their continuing problems included pressure sores, mobility, confusion and incontinence.

2. *In some cases, active treatment had been planned.* Some, although not all of the five patients had been admitted to Gosport to enable active treatment to be arranged, for example rehabilitation after a fractured hip, or aggressive treatment to heal a sacral ulcer. It should be noted, however, that in one case admission was for palliative care, and in another the prognosis had been noted as poor prior to transfer from an acute hospital.
3. *Oramorph was written on the drug chart on admission.* In four of the five cases, Oramorph was prescribed although not necessarily administered on the day of admission.
4. *Diamorphine was administered by syringe driver in all cases.* Diamorphine was commenced when a patient had pain not otherwise controlled, was noted to be agitated, or had deteriorated in some way. Diamorphine was usually administered with hyoscine and midazolam.
5. *Doses of opiates were unexceptional.* Patients were not given extremely high doses of diamorphine or Oramorph, although it should be noted that they were all frail and elderly, and diamorphine was administered along with midazolam.
6. *The records did not contain full explanations for the treatment decisions.* The medical records were generally rather brief, although the amount of detail varied between doctors. Consultants tended to make more detailed notes. The reason for selecting morphine rather than a non-opiate analgesic was not recorded, even though in some cases other analgesics had not been used. Likewise, the decision to initiate subcutaneous diamorphine by syringe

driver or the reasons for not investigating the potential causes of new symptoms such as pain or agitation were often not fully described.

7. *Remarks in the records suggested a conservative rather than active attitude towards clinical management.* Two of the five records included the instruction by a doctor to nursing staff: 'Please make comfortable'; three records included: 'I am happy for nursing staff to confirm death', written by Dr Barton in all cases on the day of admission.

Review of a random sample of records

Having identified features of cases that the police had been investigating, a review of a random sample of records of patients who had died in Gosport War Memorial Hospital was undertaken. The aims of the review were to (a) determine whether other cases shared these features, and (b) describe the pattern of care of patients who died in the hospital. The review concentrated on patients who had been under the care of Dr Barton, since the medical certificates of cause of death (MCCD) of most patients who had died on Daedalus and Dryad wards had been issued by Dr Barton. Most MCCDs issued by Dr Barton would have been for patients who have been under the care of the Department of Medicine for Elderly People.

Method

Patients whose deaths had been certified by Dr Barton between 1987 and 2002 were identified by National Statistics. From 1993 onwards, information about deaths has been stored on a computer system by National Statistics, and those certified by Dr Barton were readily identified. However, prior to 1993 information was stored on paper only, and a hand search of files containing information about deaths notified in districts local to Gosport was required. The information held on computer or paper

systems consists of details recorded by the certifying doctor on the MCCD, and associated information provided to the registrar of births, marriages and deaths by the informant, who is usually a relative of the deceased. In this report, the summaries of the information from these two sources combined are referred to as death notifications. In addition to the name of the deceased, date of death, and certified cause of death, the information available includes the name of the doctor who issued the MCCD, and the place of death.

The sample of records selected for review was taken from the notifications provided by National Statistics. The review sampled cases from 1988 until 2000, from the beginning of Dr Barton's work at the hospital until she left her post of clinical assistant. A 10% sample of the 833 deaths certified by Dr Barton during this period was selected using the random sampling procedure in the Statistical Package for the Social Sciences (SPSS), the principal statistics software employed in this review.

The hospital records of all deceased patients had been retained by Portsmouth Healthcare NHS Trust for all years during which Dr Barton worked at Gosport, although records of patients who died in 1995 or before had been stored on microfiche. The record department of Gosport War Memorial Hospital was asked to provide all the sampled records, and once these had been retrieved, the review was undertaken. The information extracted from each record is shown in Table 2.1. The notes recorded by both doctors and nurses were reviewed, and drug charts were also inspected. In addition, in each case my own observations on the patient's care were recorded, and the cause of death as certified by Dr Barton was noted. Causes of death were grouped into six categories, according to the first cause of death noted on the MCCD. Thus, the category 'cancer' included all deaths in which a type of cancer was given as the first cause of death. Heart conditions included myocardial

infarction, heart failure, ischaemic heart disease, and other heart disorders. Stroke included both cerebral thrombosis and cerebral haemorrhage. Some certificates gave bronchopneumonia as the sole cause of death, and these were placed in a category distinct from deaths certified as due to bronchopneumonia associated with other conditions that included cancer, dementia, or other disorders. The 'other' category included dementia, old age, renal disease, progressive neurological conditions and other medical conditions not included in the five other categories.

Table 2.1. Information extracted from the clinical records

	Information collected from records
1	Age and gender
2	Date of admission
3	Past medical history
4	History of the final illness
5	Administration of opiate medication

Results

The sample consisted of 85 patients. The records of four were held by the police and therefore were excluded from this review. All the remaining 81 records were reviewed. The numbers of records in each year are shown in Table 2.2. The mean age of patients in the sample was 84.5 years (95% confidence interval 82.8-86.1), and in the group not sampled 82.7 years (95% confidence interval 82.2-83.3). The proportion of females was slightly higher in the sample than in the group not in the sample (Table 2.3), although this did not reach statistical significance (Chi Sq 3.26, df 1, p 0.07). There was no difference between the groups of patients included in and excluded from the sample with respect to the numbers of patients certified as dying from different categories of illness (Chi Sq 3.02, df 5, p 0.70) (Table 2.4).

Table 2.2. Numbers of deaths in Gosport War Memorial Hospital certified by Dr Barton in total, and numbers in sample, 1988-2000.

Year	Number of patients in sample	Number of deaths certified by Dr Barton
1988	2	19
1989	4	30
1990	3	38
1991	6	31
1992	2	32
1993	10	94
1994	8	104
1995	7	80
1996	8	84
1997	11	86
1998	7	107
1999	12	92
2000	1	34
Total	81	833

Table 2.3. Numbers (%) of males and females in the sample compared to those not in the sample the (the Table does not include the four cases excluded from the sample).

Gender	Not in sample	In sample	Total
male	337 (45.1)	28 (34.6)	365 (44.0)
female	411 (54.9)	53 (65.4)	464 (56.0)
total	748	81	829

Table 2.4. Numbers (%) of deaths due to different categories of disease, in those patients included in and excluded from the sample.

Category of disease	Not in sample	In sample	Total
Cancer	44 (5.9)	5 (6.2)	49 (5.9)
Heart	85 (11.4)	7 (8.6)	92 (11.1)
Stroke	122 (16.3)	13 (16.0)	135 (16.3)
bronchopneumonia + other conditions	331 (44.3)	33 (40.7)	364 (43.9)
bronchopneumonia only	139 (18.6)	21 (25.9)	160 (19.3)
Other	27 (3.6)	2 (2.5)	29 (3.5)
total	748	81	829

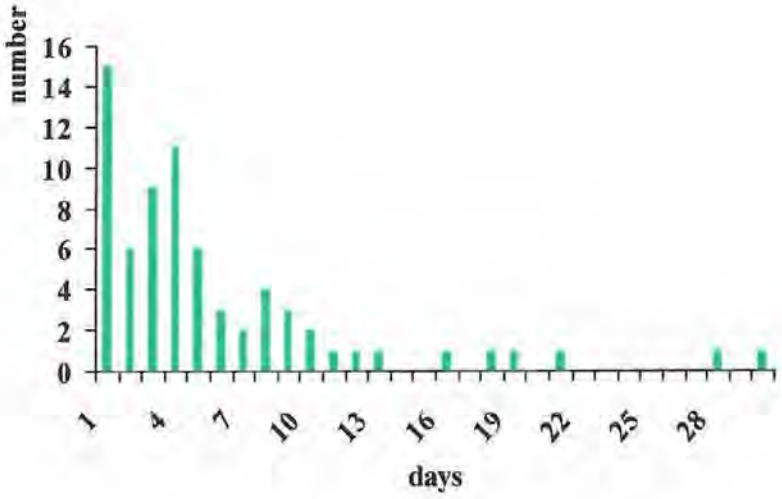
The patients in the sample were almost all elderly; all except two were aged 70 or over (one was aged 69 and one 60). Twenty-one (25.9%) were aged 90 or above (one was aged 100). Typically, patients had been transferred to Gosport following admission to an acute hospital for a major illness, the transfer to Gosport being arranged because the patient would have required more support than could have been provided in a nursing home. In some cases, the aim of transfer to Gosport was rehabilitation, for example, following a stroke or fractured hip. In others, the aim was long term care, as in patients with lasting disabilities following major strokes, or with terminal cancer. Many patients also had other comorbid conditions contributing to the development of dependence on nursing care, including advanced dementia and cardiovascular disease.

Table 2.5. Numbers (%) of patients who received opiate medication before death

	N	%
None	5	6.2
Diamorphine only	21	25.9
Oramorph and diamorphine	38	46.9
Other oral opiates and diamorphine	13	16.0
Other opiates, no diamorphine	4	4.9
Total	81	100.0

Most patients had received an opiate before death (Table 2.5). The most common pattern was initial use of Oramorph, followed by diamorphine subcutaneously. When used in a syringe driver in this way, diamorphine was invariably accompanied by other drugs. In 1988, diamorphine was used in combination with atropine, but in subsequent years it was combined with hyoscine and midazolam. In one case, the duration of opiate medication could not be determined from the records. The other 76 who received opiates were administered the drugs for a median of four days (range 1 – 120 days, inter-quartile range 7 days) (see Figure 2.1).

Figure 2.1. Duration of administration of opiate medication (chart excludes 2 patients at 42 days, 3 at 90 days and 1 at 120 days).



The pattern of use of opiates in these patients generally involved the administration of an oral opiate for pain or distress from whatever cause, followed by the use of subcutaneous diamorphine when the patient became unable to swallow oral medication. This process was usually triggered by a deterioration in health. An example taken from the medical records is as follows:
'further deterioration. Uncomfortable coughing, to have a tiny dose of oramorph regularly JAB' (JAB are Dr Barton's initials) (Case 1210).

Oramorph would also be commenced by other doctors, for example:
Oedema worse, relative feels patient has had enough. Oramorph started. (Signature not clear) (Case 1209).

If the patient deteriorated further, subcutaneous diamorphine would be used, for example:
'Further deterioration in general condition. In pain, confused and frightened. sc analgesia commenced. JAB' (Case 1139).
or:
'patient has deteriorated over weekend, pain relief is a problem. I suggest starts sc analgesia and please make comfortable. I am happy for nursing staff to confirm death. JAB' (Case 708).

The initial dose of diamorphine varied from 5 mg to 80 mg in 24 hours, doses below 20 mg being administered intramuscularly, and doses of 20 mg or more being administered subcutaneously by syringe driver. Of the 60 patients in whom the starting dose of diamorphine could be established, the most common dose was 40mg (50.8%), followed by 20 mg (31.7%) (Table 2.6). Of the 19 who received 20 mg diamorphine in 24 hrs, the dose of oral morphine being administered before

diamorphine was commenced could be identified in seven. The mean total daily dose of oral morphine in these cases was 27.1 mg. Of the 31 who received a starting dose of diamorphine of 40 mg in 24 hours, the daily dose of oral morphine before changing to subcutaneous diamorphine could also be established in seven cases, and the mean morphine dose in these was 44.3 mg. It is generally recommended that to obtain an equivalent level of pain relief, the dose of diamorphine on transfer from oral morphine should be one third of the total daily oral dose (see Chapter One). If this guidance is followed, a starting dose of subcutaneous diamorphine of 20 mg would equate to a daily dose of oral morphine of 60 mg, and a 40 mg dose of diamorphine would equate to a 120 mg dose of oral morphine in 24 hours.

Table 2. 6. Numbers (%) of patients receiving different starting doses of diamorphine

Diamorphine (mg)	N	%
5	1	1.7
10	2	3.3
15	1	1.7
20	19	31.7
30	2	3.3
40	31	50.8
60	1	1.7
80	3	5.0
Total	60	

The use of opiates was not confined to patients with cancer. Only two (15.4%) patients who were certified as having died from strokes did not receive an opiate, and only three (9.1%) of those who were certified as dying from bronchopneumonia associated with other conditions did not receive an opiate (Table 2.7).

Table 2.7. The certified causes of deaths of patients and the numbers (%) who received an opiate.

	Opiates					Total
	none	*diamorphine only*	*oramorph then diamorphine*	*other opiates then diamorphine*	*other opiates*	
cancer	0	1 (20.0)	3 (60.0)	0	1 (20.0)	5
heart	0	2 (28.6)	2 (28.6)	2 (28.6)	1 14.3)	7
stroke	2 (15.4)	3 (23.1)	8 (61.5)	0	0	13
bronchopneumonia with other conditions	3 (9.1)	10 (30.3)	15 (45.5)	5 (15.2)	0	33
bronchopneumonia alone	0	5 (23.8)	9 (42.9)	5 (23.8)	2 (9.5)	21
other conditions	0	0	1 (50.0)	1 (50.0)		2
Total	5 (6.2)	21 (25.9)	38 (46.9)	13 (16.0)	4 (4.9)	81

Typically, a deterioration in a patient's condition would not be investigated in depth. In many cases this would have been appropriate, since the advanced state of illness and impossibility of further curative or rehabilitative treatment had been well established. However, in some cases, the resort to opiate medication might have been, but was not, preceded by some investigation, or trial of analgesics other than opiates. The degree of assessment of pain recommended in the 'Wessex guidelines' was not usually evident in the records, and body maps to highlight areas of pain were not used. For example:

– *'frightened agitated appears in pain suggest transdermal analgesia despite no obvious clinical justification!! Dr Lord to countersign. I am happy for nursing staff to confirm death. JAB'* (Case 785).

In 18 (22.2%) cases the drug chart could not be reviewed because a copy had not been stored on microfiche. Nonetheless, in these cases it was possible to describe the use of opiate medication from entries in the medical and nursing records. Drug charts were almost always completed by Dr Barton. It was notable that in many cases, prescriptions for opiate medication had been entered by Dr Barton on drug charts on the day of the patient's admission, although the medication was not administered until some days or even weeks later. For example, in the case of a patient who had abdominal obstruction and had been admitted to Gosport from an acute hospital, diamorphine was entered onto the drug chart on the day of admission, but not administered until 16 days later (Case 597). Prescriptions for diamorphine typically indicated a range of dose, to enable adjustment without a new prescription being written. In the example just mentioned, the indicated dose was 20-80 milligrams subcutaneously in 24 hours, to be administered with hyoscine and midazolam. It was not unusual for entries in the records by Dr Barton on the day of admission to include the statement '*I am happy for nursing staff to confirm death JAB*' (e.g. Case 530).

The proportion of patients who received an opiate before death did not vary significantly from year to year (Table 2.8). Of the nine deaths that occurred between 1988 and 1990, seven had received an opiate, and it therefore appears that the almost routine use of opiates before death had been established at Gosport hospital long before the initial complaint in 1998.

Table 2.8. Numbers (%) of patients who received an opiate before death, 1988-2000 (Chi Sq 50.0, p not significant).

year	Opiates					Total
	none	*diamorphine*	*oramorph plus diamorphine*	*other plus diamorphine*	*other only*	
1988	1 (50.0)			1 (50.0)		2
1989	1 (25.0)	3 (75.0)				4
1990		2 (66.7)		1 (33.3)		3
1991	1 (20.0)	1 (20.0)	1 (20.0)	2 (40.0)		5
1992			1 (50.0)	1 (50.0)		2
1993		4 (36.4)	3 (27.3)	3 (27.3)	1 (9.1)	11
1994	1 (12.5)	3 (37.5)	4 (50.0)			8
1995		2 (28.6)	5 (71.4)			7
1996		1 (12.5)	6 (75.0)		1 (12.5)	8
1997	1 (9.1)	2 (18.2)	6 (54.5)	2 (18.2)		11
1998		1 (14.3)	3 (42.9)	2 (28.6)	1 (14.3)	7
1999		2 (16.7)	8 (66.7)	1 (8.3)	1 (8.3)	12
2000			1 (100.0)			1
	5 (6.2)	21 (25.9)	38 (46.9)	13 (16.0)	4 (4.9)	81

The medical records were often limited. In 32 (39.5%) of the cases reviewed, the records were judged to be too brief to enable an adequate assessment of care to be made. In particular, they did not always contain information about the decision to initiate opiate medication.

In the review, it was possible to relate information contained in the records to the information reported on death certificates. In 42 (51.9%) cases, the information on certificates was judged to be an incomplete statement of factors contributing to

death. In 16 of these, a recent fracture that had contributed to the patient's condition had not been reported on the death certificate. These included patients who had suffered a fractured hip and undergone operative fixation or partial hip replacement in an acute hospital prior to transfer to Gosport. Indeed, a fracture had not been mentioned on any of the death certificates in the sample. Typically, death in these cases was reported as being caused by bronchopneumonia.

Forty-eight records contained sufficient details to enable a judgement to be made about the appropriateness of care. In 32 (66.7%) of these, care was judged to have been appropriate. There were some concerns about the decision to start opiate medication in the remaining 16 (33.3%). The indications for starting the drugs were either not clearly stated, or if pain was mentioned it had not been investigated, and neither remedial treatment or alternative analgesia had been attempted. For example, the following was written in one set of records in Dr Barton's handwriting: *'marked deterioration over last 24 hrs. Persistent cough relieved by nebulised diamorphine in N/saline. .... Sc analgesia is now appropriate + neb if required'* (Case 587). No investigation of the cough was described nor treatment other than nebulised diamorphine.

Discussion

A number of qualifications about the review of records should be acknowledged. The information was obtained from the records only, and because of the pressure of routine care in a hospital ward, clinicians may often fail to record extensive details about patient care. In some cases, the drug charts that recorded prescribing and administration of opiate medication were not available because they had not been copied onto microfiche. More complete records, or information obtained through interviews of clinical staff or relatives, might have explained some of the findings

that, on the evidence of the records alone, gave rise to some concern. The sample included only patients whose deaths had been certified by Dr Barton. However, the records contained entries from other doctors, and demonstrated that they had made some treatment decisions.

The record review was undertaken to identify broad patterns of care, and therefore included a relatively large number of cases, albeit a sample from over 800 cases. An intensive, prolonged and in depth review of a small number of cases might have reached, in those cases, different conclusions. Nevertheless, despite these reservations, the review does raise questions about the care provided to patients at Gosport War Memorial Hospital.

Features of care

The first aim of the review was to determine whether features associated with the care of patients whose deaths were being investigated by the police could also be found in the sample.

1. All patients were severely ill, having major disabling, or progressive conditions, or illnesses that were unlikely to substantially improve. They were heavily dependent on nursing care, and many had been intensively investigated and treated in acute hospitals before transfer to Gosport.
2. The precise reasons for admission were not always clear from the records, but some patients had certainly been admitted for rehabilitation. The majority of patients, however, had major clinical problems.
3. 93.8% of patients received an opiate, and almost half received Oramorph (Table 2.5). Opiate medication was frequently prescribed on the day of admission, although there was no immediate indication for their use, and they

were sometimes not administered until after several days or weeks. There was little evidence of use of weak or moderate analgesics before resort to oral morphine, opiate medication being used when patients suffered a deterioration in their condition. Further investigation or active treatment were often not undertaken, and alternative analgesics were generally not used first. If pain was a feature of a patient's deterioration, a detailed assessment of the reasons for pain was not usually recorded.

4. Diamorphine was administered to 72 (88.9%) patients, almost always by syringe driver and accompanied with other drugs with sedative properties, most commonly midazolam and hyoscine. Diamorphine was used in all categories of condition (Table 2.7). In those patients in whom the dose of oral morphine could be established, the starting dose of diamorphine tended to be higher than would have been expected. The two potential explanations are that oral opiates were not being administered at sufficient doses to control pain, or that the doses of diamorphine were greater than required.
5. In most cases, opiates were not used for prolonged periods, 47 (61.8%) patients dying within five days of starting treatment.
6. The records were generally brief. On occasions, details were either not recorded, or no entries were made when the patient had been assessed by a doctor, although the consultation was mentioned in the nursing records. The reasons for starting opiate medication were often not adequately recorded, and in 39.5% of cases it was not possible to assess the appropriateness of care.
7. The conservative attitude to treatment identified in the records of the cases being investigated by the police was also evident in the records of the sample. The quotations included above serve to illustrate this finding. The

initial medical assessment of a patient on admission was often concluded with the phrase 'Please make comfortable'.

8. In the case of patients whose deaths had been preceded by a bone fracture (most commonly the hip), Dr Barton did not note the fracture on the medical certificate of cause of death. The Office of National Statistics (ONS) encourages the practice of voluntary referral to the coroner by the certifying doctor of deaths due to accidents (whenever the accident occurred) (Devis and Rooney, 1999). It is conceivable that the local coroner would have undertaken at least some investigation into a number of the deaths that had followed fractures.

The pattern of care

The review included records of patients who died from 1988 to 2000. The findings reveal a distinct pattern dating from 1988. Indeed, the almost routine use of opiates before death appears to date from at least as early 1988, but it is conceivable that this practice was in use before this, and before Dr Barton was appointed as clinical assistant.

The patients admitted to Gosport War Memorial Hospital under the care of the Department of Medicine for Elderly People were old and frail. They had major illnesses and were heavily dependent on nursing care. In managing these patients, the culture at Gosport throughout the period appeared, from the records, to have been conservative with regard to treatment and modest with regard to expectations of improving patient health. It may be summed up in Dr Barton's own words, frequently written in the records: 'Please make comfortable'. This approach may have been entirely correct for many of the severely ill and dependent patients

admitted to Gosport. However, it is possible that in some patients, a more active clinical approach would have extended life.

Opiates were used extensively, and often without recourse to other analgesics, detailed assessment of the cause of pain, agitation or deterioration, or active treatment. The doses of diamorphine appear to have been higher than prior doses of oral morphine would have suggested were required, and most patients died within a few days of starting opiates. These observations might be interpreted as indicating that management of patients with terminal illnesses, in placing so much emphasis on the comfort of the patient, were in advance of those followed elsewhere in the health service. However, they might also be interpreted as indicative of a conservative approach to treatment, and even a premature resort to opiates that in some cases may have shortened life.

The lack of detail recorded in the notes about medical decisions, and contrast between the detailed notes written by the consultants and the short entries of other doctors – sometimes written within a few hours of each other – suggests that the level of supervision and teamwork was poor. The failure of the records to provide a coherent description of a patient's illness and care, the often disjointed nature of entries by different doctors, and the lack of detail about some decisions may have been a consequence of inadequate discussion between members of the clinical team on patient management.

The completion of medical certificates of cause of death was inadequate. In particular, the pattern of not reporting recent fractures was not appropriate.

References

Devis T, Rooney C (1999). Death certification and the epidemiologist. *Health Statistics Quarterly*, Spring, 21-33.

Chapter Three: Deaths at Gosport War Memorial Hospital, 1987-2000: A review of Medical Certificates of Cause of Death (MCCDs) counterfoils

Introduction

Medical certificates of cause of death are supplied in books, each book containing 50 certificates. Each certificate is attached to a counterfoil from which it is detached when it is issued. At Gosport, only one book of MCCDs was in use at any one time, the book being held in an office close to the mortuary. It was hospital policy that MCCDs should be issued from the centrally held book, and the books of counterfoils have been retained for a number of years. Consequently, the counterfoils are likely to represent a reasonably complete record of deaths for which an MCCD was issued, although deaths that were referred to the coroner would have been excluded. This chapter describes the findings from review of these counterfoils.

The counterfoils record selected information that is also entered on the MCCD itself, including the deceased's name, date of death, the place of death, and the cause of death. From early 1988, the counterfoils of the books of certificates in use at Gosport also required the certifying doctor to state the deceased's age.

Method

Information from all the available counterfoils was entered into a database. The specific data items are shown in Table 3.1.

Table 3.1. Information obtained from the MCCD counterfoils.

1	Name
2	Gender
3	Age
4	Date of death
5	Certified cause(s) of death
6	Doctor completing the certificate
7	Place of death

The counterfoils were completed in the certifying doctors handwriting. Dr Barton had a distinctive signature almost invariably written with black ink. Consequently, deaths she had certified could be readily and confidently identified. However, the signatures of the other doctors were generally less distinctive, and consequently it was not possible to reliably identify other doctors. The other doctors would have included general practitioners who had cared for patients admitted to general practitioner beds, and doctors attending patients of the Department of Medicine for Elderly People when Dr Barton was not on duty.

Results

1. Numbers of deaths

The numbers of certificates issued each year by Doctor Barton and other doctors are shown in Table 3.2.

Table 3.2. Numbers (%) of MCCD counterfoils each year, 1987-2000, completed by Dr Barton or other doctors at Gosport.

Year	Other docs	Dr Barton	Total
1987	105 (98.1)	2 (1.9)	107
1988	85 (74.6)	29 (25.4)	114
1989	71 (69.6)	31 (30.4)	102
1990	72 (65.5)	38 (34.5)	110
1991	59 (65.6)	31 (34.4)	90
1992	68 (68.0)	32 (32.0)	100
1993	57 (36.5)	99 (63.5)	156
1994	56 (34.6)	106 (65.4)	162
1995	74 (47.7)	81 (52.3)	155
1996	100 (54.3)	84 (45.7)	184
1997	106 (55.2)	86 (44.8)	192
1998	107 (50.0)	107 (50.0)	214
1999	71 (43.6)	92 (56.4)	163
2000	81 (70.4)	34 (29.6)	115
2001	103 (98.1)	2 (1.9)	105
Total	1214 (58.7)	854 (41.3)	2069

Between 1987 and 2001, Dr Barton completed 854 MCCDs, 41.3% of all those issued at the hospital. The numbers issued by Dr Barton rose from 1988, when she issued 25% of all those issued in the year, to 1994 when she issued 64% of the total. There was a rise in the total numbers coincident with the rise in proportion issued by Dr Barton, and it was not until 2000 when the total number returned to the levels typical of the years 1987-1992. Dr Barton issued two MCCDs in 2001 for patients

who had died in general practitioner beds, the year after the termination of her clinical assistant post.

2. Age and gender of deceased patients

The mean age of Dr Barton's deceased patients was 82.8 years, but for the other doctors the mean was 78.8 (t 9.31, df 1807, p<0.001). The difference in age is probably explained by the admission criteria for the different hospital wards. The gender of the deceased could be identified in 2033 (98.3%) of the 2069 cases, and among Dr Barton's patients 478 (56.8%) were female, in comparison with 623 (52.3%) among the other doctors (Chi Square 3.95, df 1, p 0.047).

3. Certified cause of death

The cause of death, grouped into the six categories as defined in Chapter Two, given by Dr Barton and other doctors are shown in Table 3.3.

Table 3.3: Numbers (%) of deaths certified as due to groups of conditions by Dr Barton and the other doctors (Chi Sq 507.9, df 5, p <0.001).

	Other docs	Dr Barton	
cancer	424 (38.6)	49 (5.8)	473
heart conditions	165 (15.0)	100 (11.8)	265
stroke	106 (9.7)	139 (16.4)	245
bronchopneumonia + other conditions	235 (21.4)	367 (43.3)	602
bronchopneumonia alone	21 (1.9)	162 (19.1)	183
other condition	147 (13.4)	31 (3.7)	178
total	1098	848	1946

Dr Barton's patients were less likely to have been certified as dying primarily because of cancer or heart conditions, but more likely to have died from bronchopneumonia with or without other conditions, or from strokes. Case mix will explain at least some of these differences. Thus, local general practitioners appear to have admitted patients with cancer to Gosport Hospital for terminal care, but Dr Barton was responsible for the care of other groups, including people with Alzheimer's disease or other forms of dementia, and those recovering from strokes or in need of rehabilitation for other reasons.

4. Deceased seen after death, and post-mortems

Dr Barton was more likely to have reported personally seeing the deceased after death (98.6% vs 86.9%, Chi Sq 89.3, df 2, $p<0.001$). Dr Barton reported that in 99.4% of deaths, no post mortem or referral to the coroner occurred; the proportion for the other doctors was 98.4%. These cases will not have included all cases reported to the coroner, since no MCCD would have been issued by the doctor in those cases that the coroner chose to investigate. In such cases, a certificate would be issued by the coroner at the conclusion of the coronial investigation. Therefore, the deaths indicated as referred to the coroner on the counterfoils are likely to include only those in which a discussion took place with the coroner or coroner's officer, and that concluded that an MCCD should be issued by the doctor.

5. Day, calendar quarter and week of death

The date of death was used to identify the day of week of death. In the case of both Dr Barton's patients and the patients whose deaths were certified by other doctors, the pattern was as expected, with approximately equal proportions of deaths occurring on each day of the week (Table 3. 4). A marginally greater proportion of Dr Barton's patients died during the winter (October to March), a factor that might be explained by seasonal factors influencing the types of conditions with which patients

were admitted, or because Dr Barton was more likely to take vacations between April and September (Table 3.5). Table 3.6 shows the distribution of deaths during the year when the certified cause of death was given as bronchopneumonia only. Dr Barton issued a greater number of certificates giving this cause of death, although the temporal distribution was no different to that of the other doctors.

Table 3.4. Numbers (%) of patients certified as dying on each day of the week (Chi Sq 5.1, df 6, not significant).

	doctor		total
	other doctors	Dr Barton	
1	174 (15.7)	113 (13.3)	287
2	147 (13.2)	111 (13.0)	258
3	154 (13.9)	122 (14.3)	276
4	151 (13.6)	137 (16.1)	288
5	139 (12.5)	117 (13.7)	256
6	176 (15.9)	132 (15.5)	308
7	169 (15.2)	119 (14.0)	288
	1110	851	1961

Table 3.5. Numbers (%) of patients certified as dying in each calendar quarter (Chi Sq 11.2, df 3, p < 0.01)

quarter	doctor		total
	Other doctors	Dr Barton	
Jan-Mar	269 (24.1)	235 (27.6)	504
Apr-Jun	288 (25.8)	199 (23.4)	487
Jul-Sep	294 (26.3)	182 (21.4)	476
Oct-Dec	266 (23.8)	236 (27.7)	502
	1117	852	1969

Table 3.6. Numbers (%) of deaths in different quarters certified as due to bronchopneumonia alone (Chi Sq 0.67, df 3, not significant).

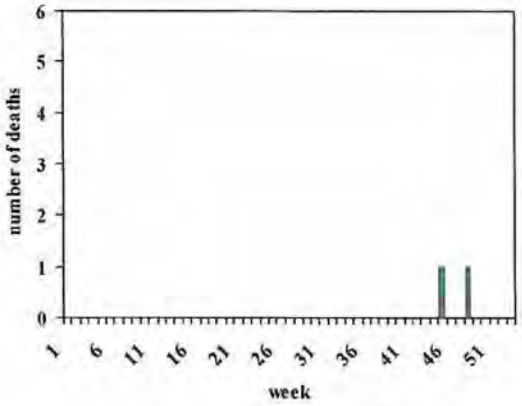
quarter	Doctor		total
	other doctors	Dr Barton	
Jan-Mar	7 (31.8)	51 (31.5)	58
Apr-Jun	6 (27.3)	33 (20.4)	39
Jul-Sep	3 (13.6)	28 (17.3)	31
Oct-Dec	6 (27.3)	50 (30.9)	56
	22	162	184

The distribution of deaths according to week of the year may also be used to identify clusters of deaths, and variations in the numbers of deaths at different times. Table 3.7 shows the mean number of deaths per week certified by Dr Barton from 1988 until July 2000, when she ceased employment at Gosport hospital. The findings demonstrate the increase in the numbers of deaths from 1993, the year in which Dryad and Daedalus wards were opened.

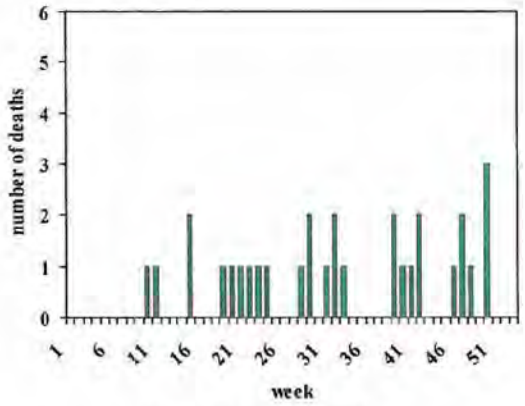
Table 3.7. Mean and standard deviation (SD) of numbers of deaths certified by Dr Barton per week, 1988- 2000.

year	minimum	maximum	number	mean	SD
1988	0	3	29	.53	.77
1989	0	2	31	.58	.69
1990	0	5	38	.72	.97
1991	0	3	31	.58	.89
1992	0	2	32	.60	.77
1993	0	5	99	1.87	1.43
1994	0	6	105	1.98	1.63
1995	0	6	81	1.53	1.31
1996	0	5	84	1.58	1.18
1997	0	6	86	1.62	1.40
1998	0	6	107	2.02	1.57
1999	0	6	92	1.74	1.32
2000	0	4	34	1.31	1.19

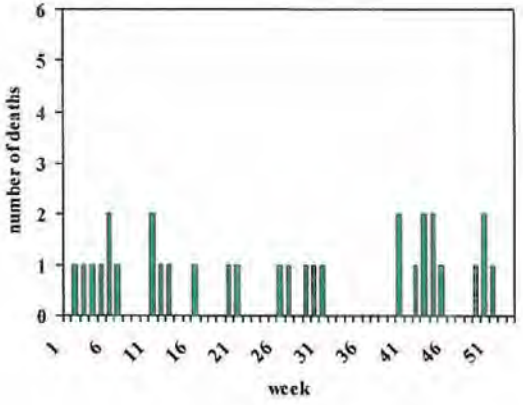
The Figures 3.1 to 3.15 in the following pages show the numbers of deaths certified each week from 1987 to 2001. They demonstrate the rise in the numbers of deaths from 1993 onwards, and suggest a decline in numbers may have occurred during 2000, although Dr Barton worked only until July in that year. The two deaths in 1987 would presumably have been for patients in general practitioner beds under the care of Dr Barton or one of her partners in her general practice. Other than the rise in numbers of deaths from 1993, the Figures do not indicate any clear clusters of deaths or patterns of concern.



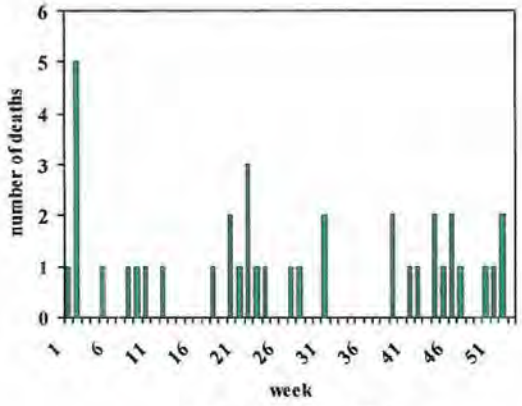
3.1. Deaths in 1987



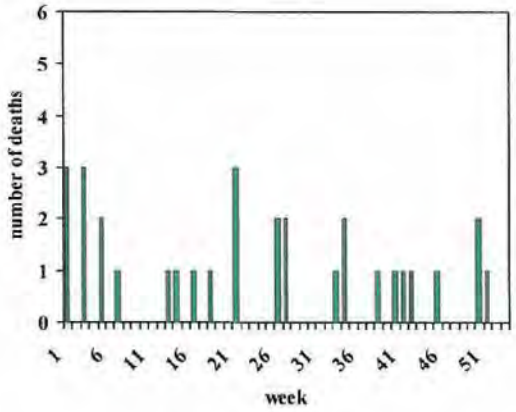
3.2. Deaths in 1988



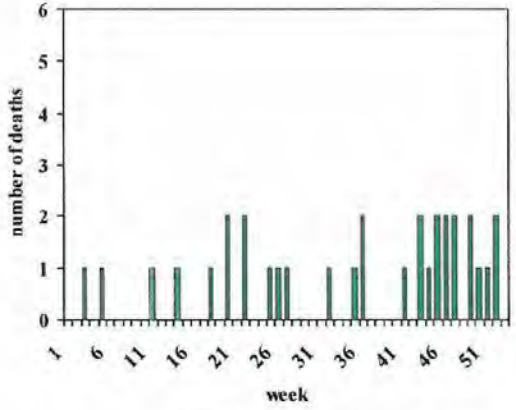
3.3. Deaths in 1989



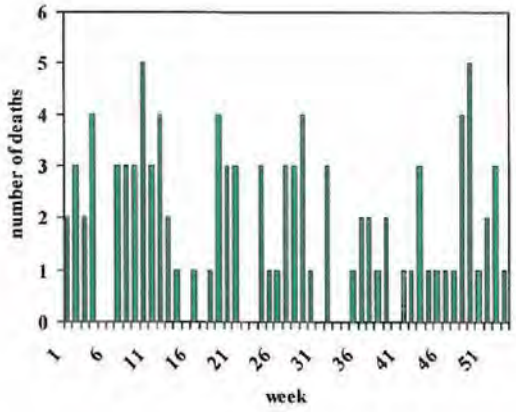
3.4. Deaths in 1990



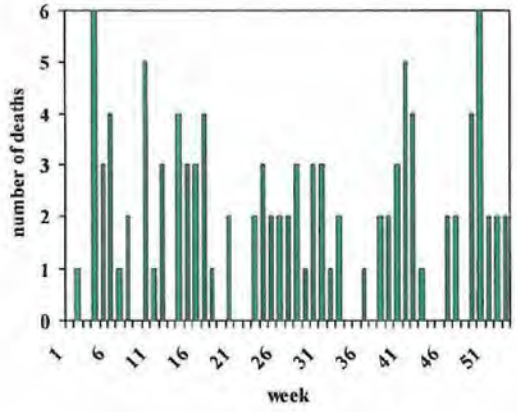
3.5. Deaths in 1991



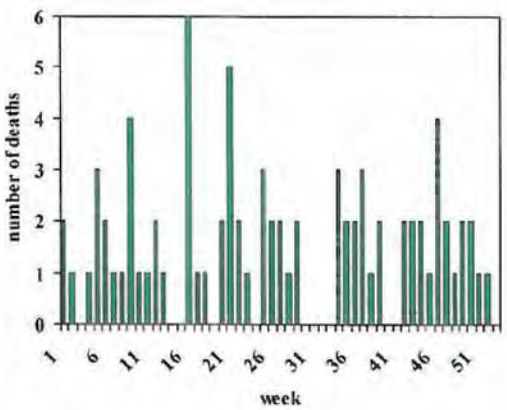
3.6. Deaths in 1992



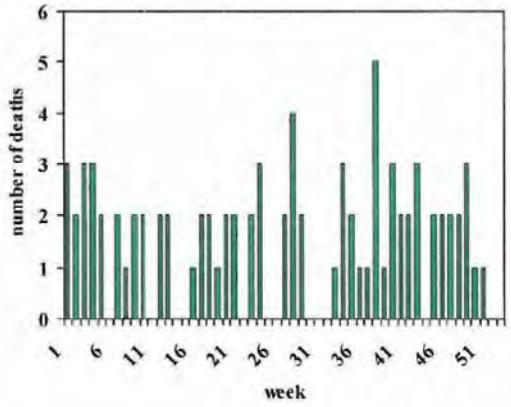
3.7. Deaths in 1993



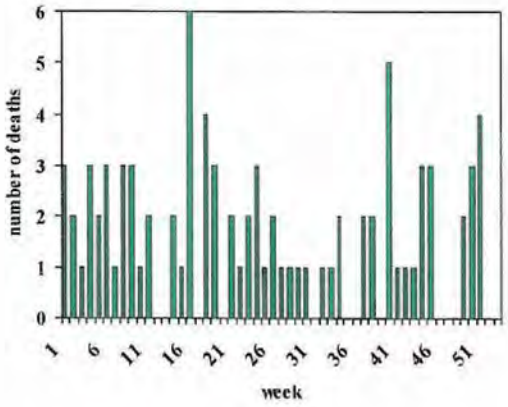
3.8. Deaths in 1994



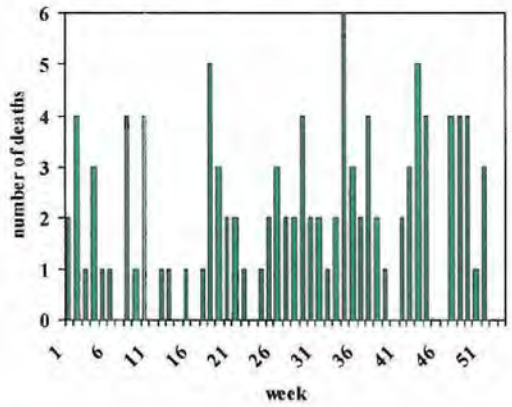
3.9. Deaths in 1995



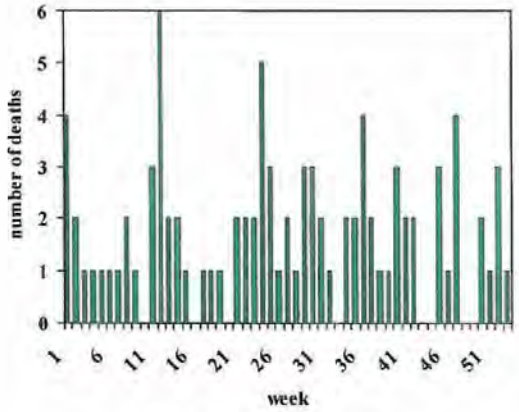
3.10. Deaths in 1996



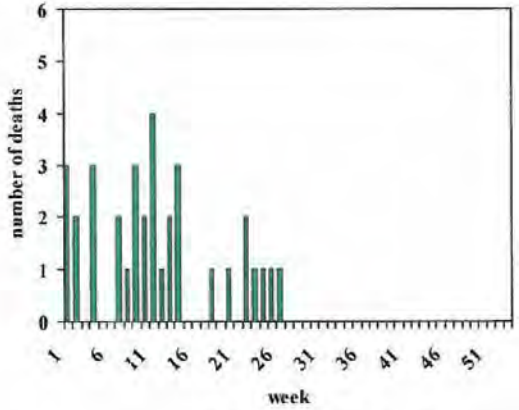
3.11. Deaths in 1997



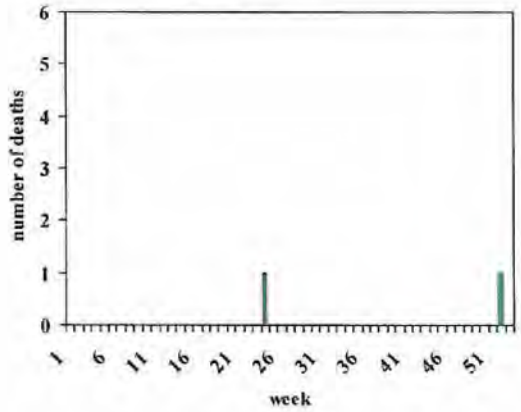
3.12. Deaths in 1998



3.13. Deaths in 1999



3.14. Deaths in 2000



3.15. Deaths in 2001

6. Patients on Dr Barton's wards

In some cases, doctors other than Dr Barton issued MCCDs for patients who died on wards specifically served by Dr Barton in her role as clinical assistant in the Department of Medicine for Elderly People. These wards were Redclyffe Annexe, and Dryad and Daedalus wards. Dr Barton also cared for some patients in the male and female wards, but these wards were not exclusive to patients of the Department. The completion of MCCDs by other doctors for patients in Redclyffe Annexe, or Dryad and Daedalus wards, could occur principally when Dr Barton was on leave or not on duty. Therefore, the case mix of these patients would tend to be similar to those whose deaths were certified by Dr Barton.

Tables 3.8 and 3.9 show respectively the certificates issued by the other doctors at the hospital and Dr Barton for deaths on different wards. These data reflect the fact that Dr Barton ceased responsibility for patients in Redclyffe Annexe and took on the new Dryad and Daedalus wards 1993/4.

Table 3.8. Deaths certified by doctors other than Dr Barton on wards at Gosport (Mulberry is a 40 bed assessment unit).

year	place of death								
	Gosport (ward not stated)	*Redclyffe*	*male ward*	*female ward*	*Daedalus ward*	*Dryad ward*	*Sultan ward*	*Mulberry*	*tota*
1987	66	9	9	11					95
1988	61	3	13	5					82
1989	52	3	3	10					68
1990	52	2	9	9					72
1991	37	1	10	11					59
1992	35	1	16	15					67
1993	34	2	3	6	3		8		56
1994	15	5			2		33		55
1995	12				12	5	35	10	74
1996	28	7			10	6	37	11	99
1997	10	3			8	7	45	33	100
1998	23	5			12	11	35	18	93
1999	12	7			6	9	27	10	71
2000	20	5			13	12	22	9	81
2001	59	8			1	4	25	6	103
	523	61	63	67	67	54	267	97	1175

Table 3.9. Deaths certified by Dr Barton on different wards at Gosport.

year	place of death							Total
	Gosport (ward not stated)	*Redclyffe*	*male ward*	*female ward*	*Daedalus ward*	*Dryad ward*	*Sultan ward*	
1987	1	1						2
1988	2	6	11	1				20
1989	1	19	8	1				29
1990		23	13	2				38
1991		18	11	2				31
1992		23	8	1				32
1993		51	7	6	35			99
1994		58	1		42		4	105
1995	1	4			42	33	1	81
1996					48	32	3	83
1997					39	47		86
1998					51	51	5	107
1999					42	49	1	92
2000					15	17	2	34
2001						1	1	2
	5	203	59	13	314	230	17	841

The mean age of patients who died on each ward was different (Table 3.10). Patients in Redclyffe, Daedalus and Dryad wards tended to be older than those in the other wards. Greater proportions of patients who died in Redclyffe, Daedalus and Dryad wards were female than those who died in Sultan ward (Table 3.11).

Table 3.10. Mean age (years) of patients who died in different wards. (N=1799, p <0.005)

Ward	number	mean age	95 % confidence intervals
Gosport hospital, ward not specified	427	78.4	77.4 – 79.4
Redclyffe	250	82.8	81.8 – 83.7
Male ward	109	78.1	76.4 – 79.9
Female ward	68	80.3	77.7 – 82.8
Daedalus	381	82.5	81.8 – 83.2
Dryad	284	83.7	82.9 – 84.5
Sultan	280	77.0	75.6 – 78.4

Table 3.11. Numbers (%) of males and females who died in wards in Gosport hospital.

ward	gender		total
	male	*female*	
Gosport, ward not stated	244 (47.8)	266 (52.2)	510
Redclyffe	68 (26.2)	192 (73.8)	260
male ward	115 (96.6)	4 (3.4)	119
female ward		78 (100.0)	78
Daedalus ward	173 (46.1)	202 (53.9)	375
Dryad Ward	135 (47.7)	148 (52.3)	283
Sultan Ward	142 (51.1)	136 (48.9)	278
total	877 (46.1)	1026 (53.9)	1903

7. Certified cause of death

The certified cause of death could be determined from 2052 (99.2%) of the 2069 counterfoils available. Table 3.12 shows, for all deaths regardless of place of death in Gosport Hospital, the numbers of deaths certified as primarily due to one of six groups of conditions. Dr Barton was more likely to give bronchopneumonia or stroke as the cause of death (Chi sq 529.6, df 5, $P< 0.001$). A potential explanation is case mix – patients with dementia or stroke would have been admitted to Redclyffe, Dryad and Daedalus wards. Another possibility is excess use of sedative medication, leading to development of bronchopneumonia.

Table 3.12. Cause of death in groups, according to whether Dr Barton or other doctors signed the certificate.

Cause of death	Other doctors	Barton	total
cancer	460 (38.3)	50 (5.9)	510
heart	172 (14.3)	100 (11.8)	272
stroke	112 (9.3)	139 (16.4)	251
bronchopneumonia plus another	263 (21.9)	368 (43.3)	631
bronchopneumonia only	22 (1.8)	162 (19.1)	184
other	173 (14.4)	31 (3.6)	204
	1202	850	2052

It was possible to identify from the counterfoils 946 patients who had died in Daedalus, Dryad and Sultan wards. The admission criteria for these wards were different, and this is reflected in the differences in the certified causes of death among patients who died in these wards (Table 3.13). Since Dr Barton was responsible for patients in Daedalus and Dryad wards, and general practitioners were responsible for patients in Sultan ward, it is possible that the differences observed in the certified causes of deaths between these doctors would be at least partly explained by the different characteristics of the patients they cared for.

Table 3.13. Numbers (%) of deaths certified as due to different causes on Daedalus, Dryad and Sultan wards (Chi Sq 344.8, df 10, p<0.005).

	ward			total
	Daedalus ward	*Dryad ward*	*Sultan ward*	
cancer	21 (5.5)	24 (8.5)	158 (56.0)	203
heart	51 (13.4)	37 (13.0)	36 (12.8)	124
stroke	95 (25.0)	29 (10.2)	10 (3.5)	134
bronchopneumonia plus another	135 (35.5)	103 (36.3)	44 (15.6)	282
bronchopneumonia only	56 (14.7)	65 (22.9)	13 (4.6)	134
other	22 (5.8)	26 (9.2)	21 (7.4)	68
	380	284	282	946

There were also variations in the certified causes of death according to the gender of patients, cancer being less frequently given as the cause of death among males, and bronchopneumonia alone more frequently among females (Table 3.14). However, this difference was not apparent when the analysis was confined to patients whose deaths had been certified by doctors other than Dr Barton (Table 3.15).

Table 3.14. Numbers (%) of male and female patients certified as dying due to certain causes (Chi Sq 19.8, df 5, p<0.001)

cause of death	gender		total
	male	*female*	
cancer	244 (28.0)	241 (23.6)	485
heart	114 (13.1)	137 (13.4)	251
stroke	104 (12.0)	129 (12.6)	233
bronchopneumonia plus another	278 (32.0)	305 (29.9)	583
bronchopneumonia only	57 (6.6)	124 (12.1)	181
other	73 (8.4)	85 (8.3)	158
	870 (100.0)	1021 (54.0)	1891

Table 3.15. Numbers (%) of male and female patients certified by doctors other than Dr Barton as dying due to certain causes (Chi 3.9, df 5, not significant).

cause of death	gender		total
	male	*female*	
cancer	218 (42.7)	219 (39.5)	437
heart	66 (12.9)	91 (16.4)	157
stroke	44 (8.6)	53 (9.5)	97
bronchopneumonia plus another	113 (22.2)	112 (20.2)	225
bronchopneumonia only	9 (1.8)	12 (2.2)	21
other	60 (11.8)	68 (12.3)	128
	510 (100.0)	555 (100.0)	1065

A comparison between certificates issued by Dr Barton and the other doctors restricted to selected wards would reduce the likelihood that case mix would explain

any observed differences. From 1987, 745 MCCDs were issued by Dr Barton and 166 by other doctors for patients in Redclyffe Annexe and Daedalus and Dryad wards. The mean age of the patients was similar (Dr Barton 83.0, the other doctors 82.5, not significantly different), as would be expected if the case mix had been the same. Among Dr Barton's patients, 439 (59.5%) were females, and among the patients of the other doctors 103 (57.2%) were females (difference not statistically significant). However, the other doctors gave bronchopneumonia alone as the cause of death in only 3% of cases, but among Dr Barton's patients the proportion was 20% (Chi Square 88.3, df 5, p 0.000) (Table 3.16).

Table 3.16. Causes of death among patients of Redclyffe Annexe, Daedalus and Dryad Wards, 1987-2001, comparing those certified by Dr Barton and other doctors.

cause of death	ward					
	Redclyffe		Daedalus ward		Dryad ward	
	other	*Dr Barton*	*other*	*Dr Barton*	*other*	*Dr Barton*
cancer	3 (5.9)	2 (1.0)	6 (9.2)	14 (4.5)	5 (10.0)	18 (7.9)
heart	7 (13.7)	12 (5.9)	11 (16.9)	40 (12.7)	6 (12.0)	31 (13.5)
stroke	8 (15.7)	23 (11.4)	18 (27.7)	77 (24.5)	4 (8.0)	25 (10.9)
bronchopneumonia plus another	23 (45.1)	125 (61.9)	17 (26.2)	118 (37.6)	19 (38.0)	84 (36.7)
bronchopneumonia only		36 (17.8)	1 (1.5)	55 (17.5)	4 (8.00)	58 (25.3)
other	10 (19.6)	4 (2.0)	12 (18.5)	10 (3.2)	12 (24.0)	13 (5.7)
	51	202	65	314	50	229

8. Hospital Episode Statistics

To determine whether there were a greater number of deaths than would have been expected among patients admitted to Gosport under the care of the Department of Medicine for Elderly People, a method is required for estimating the numbers of deaths that would have been expected. Since Gosport hospital is a community hospital, a comparison with other community hospitals would be a logical approach.

Information on admitted patient care delivered by NHS hospitals from 1989 is provided by Hospital Episode Statistics (HES), and HES were requested to provide information for this review. HES employs a coding system, each patient episode being assigned a series of codes that indicate the hospital in which care was provided, the type of speciality concerned, and the diagnosis. The codes are entered into a database in each NHS hospital, and the information is then collated at a national level by the Department of Health.

In order to identify those patients who were cared for in the Department of Medicine for Elderly People in Daedalus and Dryad wards at Gosport, specific codes indicating the speciality, hospital and ward would have been desirable. However, HES at a national level records information by hospital trust, but not necessarily by local hospital or specific ward. Thus, the national data do not allow the ready identification of patients who were cared for in the two wards at Gosport that are the focus of this review. Episode statistics that identified the ward were, however, available at Gosport hospital, but only relating to the years 1998 onwards. Consequently, data about most of the years of interest were not available.

Even if complete data for all the years of interest had been available, the difficulties would not have been resolved. The reason for employing HES data is to enable

comparisons between the mortality rates in Gosport hospital with those of similar community hospitals elsewhere who were caring for similar groups of patients over the same period. The level of detail in the central HES data does not, however, permit the identification of a satisfactory group of comparable community hospitals and similar group of patients. For example, even when HES codes are selected that identify patients who have been transferred between hospitals following initial admission because of a stroke, the mortality rate (approximately 30%) is substantially lower than that in Gosport (see Table 4.3). An uncritical acceptance of this finding would lead to the conclusion that patients admitted to Gosport were more likely to die than if they had been admitted elsewhere, whereas in fact the patients who were admitted to Gosport were more severely ill than those in the best comparison group yet identified from the central HES data. The collection of episode statistics directly from a sample of community hospitals would ensure that more detailed information would be obtained. However, since a comparison would only be possible from 1998, and it would be impossible to eliminate the effects of case-mix among patients admitted to different hospitals, it would be impossible to place much confidence on the findings of such a comparison. Consequently, an analysis using HES data has not been undertaken in this review.

Discussion

Two points about the use of counterfoils as a source of data should be discussed first.

1) identification of all deaths

In this analysis of deaths identified from the counterfoils of MCCDs stored at Gosport hospital, some deaths may not be included, for example deaths referred to the coroner; in a few cases the doctor may not have issued the certificate from the

Gosport hospital certificate book. However, a comparison with the numbers of certificates for deaths at the hospital completed by Dr Barton and certificates identified by National Statistics shows the number to be virtually identical (Tables 3.1 and 6.1), and therefore the data from counterfoils are likely to be sufficiently complete to permit conclusions to be drawn.

2) completion of counterfoils

The writing of some doctors was difficult to read, and the signatures of many could not be interpreted. However, the counterfoils completed by Dr Barton were easily identified. She had bold and confident handwriting, and used distinctive black ink. Also, occasional counterfoils were not fully completed, although this problem was uncommon and will not have influenced the findings of the analysis. Although Dr Barton usually specified the ward in which patients had died, other doctors often gave less detail and usually only indicated Gosport hospital as the place of death. However, this lack of detail is unlikely to have been systematic, and therefore it is possible to be reasonably confident in the findings of the comparison between deaths in different wards.

Findings

The analysis has identified the following concerns:

1. In her role as clinical assistant in the Department of Medicine for Elderly People, Dr Barton issued a large number of MCCDs between 1987 and 2000. Between 1988 and 1992, the numbers were between 29 and 38 per year, but from 1993 the numbers increased to between 81 and 107 per year, falling to 34 in 2000, the year in which Dr Barton left the hospital in July. Dryad and Daedalus wards opened in 1993-4, a factor that is likely to explain the increase in numbers of deaths in these years owing to differences in the types of patients admitted to these wards. Patients in Redclyffe Annexe commonly suffered from dementia,

but those admitted to Dryad and Daedalus had a wider range of severe clinical problems.

2. The proportion of deaths certified by either Dr Barton or other doctors occurring on each day of the week was more or less the same. In comparison with other doctors, Dr Barton issued a lower proportion of MCCDs during the summer months, but this finding is likely to be explained by annual leave being taken during the summer months.
3. The case mix of patients is likely to explain most of the observed differences between MCCDs issued by Dr Barton and those issued by other doctors. For example, patients under her care tended to be older than patients whose deaths were certified by other doctors.
4. It is notable that the patients admitted to Sultan ward, under the care of their general practitioners, were more likely to have been certified as dying due to cancer. They were also younger than patients who had died in Daedalus and Dryad wards.
5. The effect of case mix is probably reduced in an analysis that compared deaths in Redclyffe Annexe, Daedalus and Dryad wards that had been certified by Dr Barton or by other doctors. In this analysis, the mean age and proportion who were female was similar. However, Dr Barton gave bronchopneumonia alone as the cause of death significantly more frequently than the other doctors. The review of records (Chapter Two) highlighted that patients who had been certified as having died of bronchopneumonia had had other significant conditions, including recent fractures of the hip. Furthermore, a high proportion of these patients had received opiates before death. Consequently, although case mix almost certainly explains much of the difference between patients in the Department of Medicine for Elderly People managed by Dr Barton and those under the care of other general practitioners, concerns about the use of opiates

and the possible contribution they may have made to the deaths of some patients cannot be ruled out.

Chapter Four: Admissions to Dryad Ward

Introduction

The admissions book for Dryad ward has been retained by the hospital, and contained information about all admissions from 1993, the year of first opening of the ward. The information recorded in the book included dates of admission and discharge (or death), the time of day of deaths, some indication of the reasons for admission, and the place the patient had been admitted from. This information was studied in order to identify the characteristics of patients admitted to Dryad ward, and aspects of the care they had received.

It should be noted that Daedalus ward did not have a similar book, although a day-book appears to have been employed. This did not contain information helpful to this review.

Methods

There had been a total of 715 admissions from the opening of the ward in 1993 until the end of 2001. The admissions book recorded the date of admission and the date of discharge or death, and it was therefore possible to calculate the length of admission. Table 4.1 shows the mean length of admissions by year of admission, for the 676 (94.5%) admissions in which the admission and discharge date could be identified. There was some variation between years, with admissions during 1998 having the shortest mean length.

Table 4.1. Mean length (days) of stay on Dryad ward, days, 1993-2001.

year	number of admissions	mean (days)	95% CI for mean		minimum	maximum
			Lower	Upper		
1993	37	148.6	87.6	209.5	4	652
1994	68	41.7	24.7	58.7	1	326
1995	52	88.8	41.9	135.6	1	856
1996	43	56.0	33.6	78.3	1	345
1997	67	33.9	19.3	48.6	1	365
1998	103	36.0	28.1	43.9	0	195
1999	131	42.5	32.4	52.6	0	406
2000	90	65.8	47.4	84.2	1	487
2001	85	67.5	48.5	86.6	4	409
Total	676	57.1	50.0	64.1	0	856

The mean age of patients on admission to Dryad ward is shown in Table 4.2, according to year of admission, for the 708 (99.0%) cases in which the patient's age could be identified. There was no significant difference between years. The admissions book did not record the gender of patients, but gender could be inferred from the names of 712 (99.5%) of the 715 cases. Of these 414 (58.1%) were female.

Table 4.2. Mean age (yrs) at admission to Dryad ward, 1993-2001.

year	number of admissions	mean (yrs)	95% CI for mean		minimum	maximum
			Lower	Upper		
1993	38	82.1	79.7	84.4	66.0	97.0
1994	75	83.7	82.0	85.3	64.4	100.0
1995	56	82.6	80.6	84.5	66.9	99.0
1996	45	83.0	81.0	84.9	69.8	95.2
1997	71	81.8	79.9	83.8	66.3	98.0
1998	105	83.2	81.7	84.6	67.1	100.0
1999	133	83.6	82.3	84.8	65.0	98.2
2000	89	82.7	81.2	84.2	67.0	100.0
2001	96	80.9	79.2	82.6	61.0	100.0
Total	708	82.7	82.1	83.21	61.0	100.0

The Dryad ward admissions book recorded whether the patient died or was discharged. Table 4.4 indicates that the proportion of patients who were discharged

alive was less than 50% until 1999. Between 1993-5, 80% of admitted patients died on the ward.

Table 4.3. Numbers (%) of admissions followed by death or discharge, Dryad ward, 1993-2001.

year	Outcome		Total
	died	discharged	
1993	29 (80.6)	7 (19.4)	36
1994	59 (84.3)	11 (15.7)	70
1995	42 (80.8)	10 (19.2)	52
1996	31 (70.5)	13 (29.5)	44
1997	48 (69.6)	21 (30.4)	69
1998	64 (61.5)	40 (38.5)	104
1999	58 (43.9)	74 (56.1)	132
2000	35 (38.5)	56 (61.5)	91
2001	39 (45.3)	47 (54.7)	86
	405	279	684

The causes of death of patients of Dryad certified by Dr Barton are shown in Table 4.4. These data were taken from the MCCD counterfoils (see Chapter Three).

Table 4.4. Deaths on Dryad ward certified by Dr Barton

Cause of death							Total
	cancer	*heart*	*stroke*	*bronchopneumonia plus another*	*bronchopneumonia only*	*other*	
1995	2	4	2	15	8	1	32
1996	1	3	5	17	5	1	32
1997	2	11	4	23	6	1	47
1998	3	4	6	15	18	5	51
1999	7	6	5	12	15	4	49
2000	3	2	3	2	6	1	17
2001					1		1
	18	30	25	84	59	13	229

The admissions book recorded brief information about the patient's illnesses at the time of admission. On a few occasions, this information included an indication of the reason for admission, for example respite care. Table 4.5 summarizes the findings. Medical/mental problems refer in the Table to either dementia or a mix of medical conditions with the additional problem of confusion or dementia; "post-op" indicates people who have had a recent operation, most commonly surgery following a fractured hip.

Table 4.5. Numbers (%) cases admitted to Dryad ward with different primary problems, 1993-2001.

Year	Diagnostic group							Total
	stroke	*general medical problems*	*medical/ mental problems*	*heart problems*	*Cancer*	*post op*	*respite care/social admission*	
1993	9 (23.7)	19 (50.0)	6 (15.8)	2 (5.3)	2 (5.3)			38
1994	10 (13.5)	31 (41.9)	14 (18.9)	2 (2.7)	3 (4.1)	14 (18.9)		74
1995	7 (12.5)	23 (41.1)	13 (23.2)		7 (12.5)	5 (8.9)	1 (1.8)	56
1996	1 (2.5)	20 (50.0)	10 (25.0)		7 (17.5)	2 (5.0)		40
1997	4 (5.7)	29 (41.4)	16 (22.9)	5 (7.1)	8 (11.4)	8 (11.4)		70
1998	6 (5.8)	42 (40.4)	11 (10.6)	3 (2.9)	9 (8.7)	23 (22.1)	10 (9.6)	104
1999	10 (7.6)	47 (35.9)	10 (7.6)	6 (4.6)	11 (8.4)	38 (29.0)	9 (6.9)	131
2000	8 (9.0)	38 (42.7)	8 (9.0)	2 (2.2)	10 (11.2)	20 (22.5)	3 (3.4)	89
2001	11 (12.4)	30 (33.7)	16 (18.0)	1 (1.1)	8 (9.0)	9 (10.1)	14 (15.7)	89
Total	66	279	104	21	65	119	37	691

General medical problems were the commonest reason for admission in all years, but the proportion of admissions for other problems varied. Stroke was a relatively common reason for admission in 1993, and dementia with or without other medical problems was also relatively common until 1998. The proportion of patients who had been admitted following surgery increased from 1998, as did admissions for respite care.

The admissions book also recorded information about the source of admission. This information is summarised in Table 4.6. Dolphin Day Hospital is the day hospital based in Gosport War Memorial Hospital.

Table 4.6. Sources of admission to Dryad ward, 1993-2001.

year	home	rest/nursing home	acute hospital	Sultan ward	another ward at Gosport	Dolphin day hospital	
1993	4 (10.5)	2 (5.3)	23 (60.5)	8 (21.1)	1 (2.6)		38
1994	8 (10.7)	2 (2.7)	56 (74.7)	8 (10.7)	1 (1.3)		75
1995	6 (10.9)	2 (3.6)	42 (76.4)	3 (5.5)	1 (1.8)	1 (1.8)	55
1996	2 (4.4)	4 (8.9)	36 (80.0)	2 (4.4)	1 (2.2)		45
1997	3 (4.2)		56 (78.9)	7 (9.9)	3 (4.2)	2 (2.8)	71
1998	13 (12.4)		82 (78.1)	4 (3.8)	5 (4.8)	1 (1.0)	105
1999	19 (14.4)	2 (1.5)	103 (78.0)	1 (0.8)	4 (3.0)	3 (2.3)	132
2000	8 (8.8)	1 (1.1)	76 (83.5)	1 (1.1)	4 (4.4)	1 (1.1)	91
2001	23 (24.5)	2 (2.1)	49 (52.1)	8 (8.5)	12 (12.8)		94
Total	86	15	523	42	32	8	706

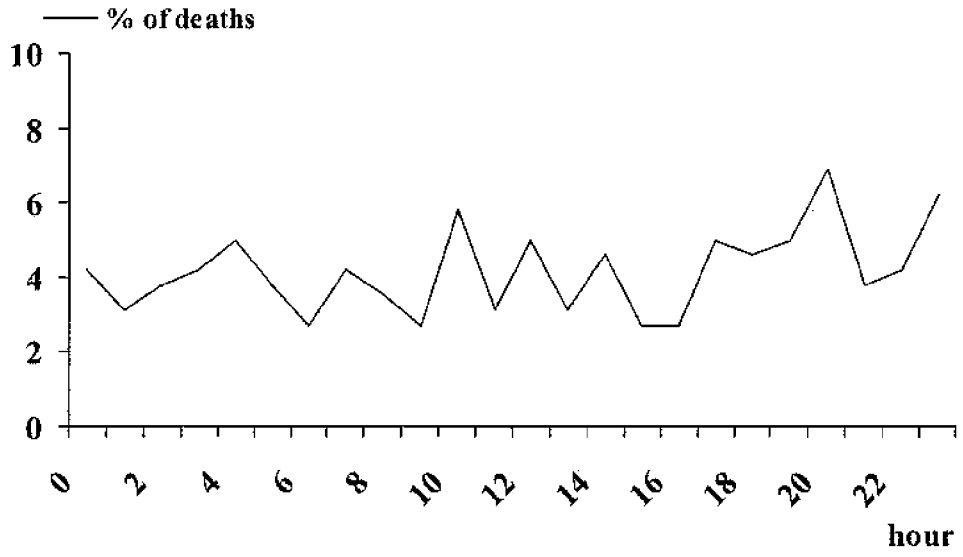
Most patients admitted to Dryad ward had been transferred from acute hospitals. Only in 2001 did the proportion of admissions directly from home approach 25%, a finding that is likely to be partly explained by the increase in admissions for respite care (Table 4.5).

The time of death had been recorded in the admissions book in 260 cases (64.2% of the 405 deaths on the ward). Deaths are reasonably equally distributed among hours of the day (Table 4.7 and Figure 4.1).

Table 4.7. Time of death (data recorded in only cases only).

hour	year of admission									total
	1993	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	
0	1 (5.0)	4 (11.4)		1 (5.9)	1 (3.3)			4 (15.4)		11 (4.2)
1	1 (5.0)	2 (5.7)	2 (6.7)	1 (5.9)		1 (2.3)			1 (4.3)	8 (3.1)
2	1 (5.0)	1 (2.9)	3 (10.0)		1 (3.3)	2 (4.5)	1 (2.9)	1 (3.8)		10 (3.8)
3	1 (5.0)	1 (2.9)			1 (3.3)	2 (4.5)	5 (14.3)	1 (3.8)		11 (4.2)
4		3 (8.6)	2 (6.7)		2 (6.7)	1 (2.3)	3 (8.6)	1 (3.8)	1 (4.3)	13 (5.0)
5	1 (5.0)		1 (3.3)	1 (5.9)	2 (6.7)	2 (4.5)		2 (7.7)	1 (4.3)	10 (3.8)
6			1 (3.3)		2 (6.7)	3 (6.8)			1 (4.3)	7 (2.7)
7	1 (5.0)	2 (5.7)	2 (6.7)	1 (5.9)	3 (10.0)		1 (2.9)	1 (3.8)		11 (4.2)
8		2 (5.7)	1 (3.3)	2 (11.8)	1 (3.3)				3 (13.0)	9 (3.5)
9	1 (5.0)				1 (3.3)	3 (6.8)	1 (2.9)		1 (4.3)	7 (2.7)
10	1 (5.0)	3 (8.6)	1 (3.3)		2 (6.7)	5 (11.4)	2 (2.7)		1 (4.3)	15 (5.8)
11	2 (10.0)		1 (3.3)	1 (5.9)	1 (3.3)	1 (2.3)	1 (2.9)		1 (4.3)	8 (3.1)
12			2 (6.7)	2 (11.8)	4 (13.3)	2 (4.5)		2 (7.7)	1 (4.3)	13 (5.0)
13		3 (8.6)		2 (11.8)	1 (3.3)	2 (4.5)				8 (3.1)
14	2 (10.0)	1 (2.9)			1 (3.3)	3 (6.8)	1 (2.9)	3 (11.5)	1 (4.3)	12 (4.6)
15		1 (2.9)	1 (3.3)		2 (6.7)		2 (5.7)	1 (3.8)		7 (2.7)
16						1 (2.3)	2 (5.7)	2 (7.7)	2 (8.7)	7 (2.7)
17	1 (5.0)	1 (2.9)	2 (6.7)	1 (5.9)	1 (3.3)	2 (4.5)	2 (5.7)	1 (3.8)	2 (8.7)	13 (5.0)
18		2 (5.7)	2 (6.7)	2 (11.8)		1 (2.3)	3 (8.6)	2 (7.7)		12 (4.6)
19	4 (20.0)	1 (2.9)	2 (6.7)	1 (5.9)		1 (2.3)	3 (8.6)		1 (4.3)	13 (5.0)
20	1 (5.0)	2 (5.7)	3 (10.0)	2 (11.8)		1 (2.3)	3 (8.6)	3 (11.5)	3 (13.0)	18 (6.9)
21		1 (2.9)			2 (6.7)	3 (6.8)	2 (5.7)		2 (8.7)	10 (3.8)
22	1 (5.0)	2 (5.7)	2 (6.7)		1 (3.3)	3 (6.8)	1 (2.9)	1 (3.8)		11 (4.2)
23	1 (5.0)	3 (8.6)	2 (6.7)		1 (3.3)	5 (11.4)	2 (5.7)	1 (3.8)	1 (4.3)	16 (6.2)
Total	20	35	30	17	30	44	35	26	23	260

Figure 4.1. The percentage of deaths on Dryad ward, 1993-2001, in each hour of the day (n=260).



Discussion

Some qualifications about the admissions book as a source of date must be noted. There were occasional errors in the book, for example the admissions of some patients had not been entered on the day of admission, and some information was occasionally missing, for example the source of admission. Nevertheless, the book was generally complete, and can be assumed to represent a reasonable description of admissions throughout the period.

The information from the admissions book reveals a changing pattern of cases being admitted to Dryad ward. Most patients were admitted from acute hospitals and with general medical problems, dementia or after surgery. However, from 1998, the proportion with dementia decreased, and there were increases in the proportions of admissions that were for respite care or following surgery. These changes in case mix are important when interpreting changes in mortality. The proportions of admissions that ended in death declined from 1997. However, the annual number of

admissions increased, and consequently the total numbers of deaths did not decrease until 2000. It is not possible to describe in detail the changes in case mix of patients admitted to Daedalus and Sultan wards, but it is almost certain that changes did occur. There may also have been changes in case mix in the period 1988 – 1993 with respect to admissions to Redclyffe Annexe, and the male and female wards. If follows that any comparisons in mortality rates between those in the wards of the Department of Medicine for Elderly People at Gosport or between Gosport and other community hospitals must be interpreted with considerable caution.

More or less similar proportions of patients died in each hour, as would normally be expected. The finding of a predictable distribution of deaths throughout the hours of the day serves to reduce concern about the possibility of sudden death following the administration of lethal drug doses.