

CHAPTER 12

FACTORS ASSOCIATED WITH FREQUENT ADMISSION TO HOSPITAL FOR PATIENTS WITH CHRONIC AIRFLOW LIMITATION

Adapted from:

Wilson SF, Miller R, Collins N, Comino E, Harris M. Factors associated with frequent admission to hospital for patients with Chronic Airflow Limitation. *Australian Family Physician*. 2001; 30: 822-824

12.1 Introduction

Chronic Airflow Limitation (CAL) defines a group of medical conditions, including chronic bronchitis, emphysema and chronic obstructive pulmonary disease (COPD), characterised by intermittent exacerbations in severity, which for some patients results in recurrent admissions to hospital ¹⁶⁹.

In the process of planning a coordinated service to enhance the quality of maintenance care of patients with a diagnosis of CAL, the author identified a subgroup of patients who were admitted to hospital more than once in the 1999 calendar year. The aim of this study was to identify in this targeted group of patients some of the factors associated with their frequent admissions. The factors, once identified, may assist in the introduction of better systems of maintenance care.

12.2 Methods

This study was performed by an audit of patient files at Campbelltown Hospital. Patient files were recalled for those patients who were admitted to Campbelltown Hospital more than once during the 1999 calendar year with a diagnosis of CAL. The International Classification of Diseases (ICD10) codes J41-J44 were used to identify cases: J41 is the code for simple and mucopurulent chronic bronchitis; J42 is unspecified chronic bronchitis; J43 is used for emphysema; and J44 refers to a variety of sub codes, including COPD with acute exacerbations. This audit of patient records was performed under my supervision by two project officers who were registered nurses, and a general practice registrar.

The files were reviewed to follow the patients' transit from home to hospital and return. The results of this file review were collected and are reported in the following four categories:

- 1) Care and treatment received prior to hospital admission.
- 2) Referral and hospital presentation data.
- 3) Treatment in hospital.
- 4) Treatment on discharge.

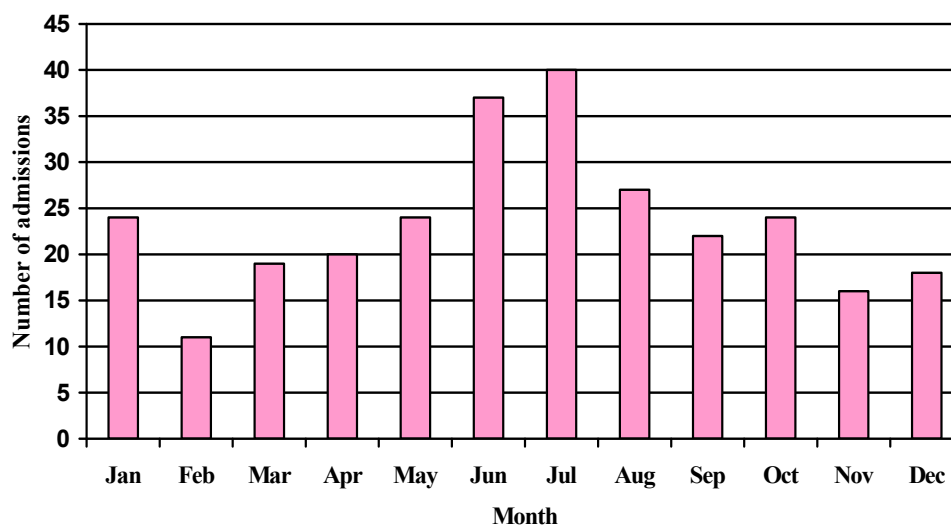
This was a retrospective file review, based only on documented data, with no direct patient contact. A standardised audit form was used and trialled between both project officers for 27 yes-no variables within seven audit sheets. This confirmed excellent inter-rater reliability ($\kappa=0.93$).

12.3 Results

Two hundred and two patients were admitted during the study period with a diagnosis of CAL. The 202 patients had 284 admissions and a total of 1815 bed days. The mean number of patients admitted per month was 23.5 (SD 8.23, 99% CI 16.11-30.89). The lowest rate of admissions was in February and the highest in June and July (Figure 12.1).

The 46 patients (22.8%) identified as being admitted more than once, during the 12 months (with a range of two to five admissions), resulted in a total of 115 (40.5%) admissions and 723 (39.8%) bed days. These 46 patients and their 115 admissions are the focus of the remainder of this chapter.

Figure 12.1 **All admissions to hospital with CAL per month for the**
calendar year 1999; n=284



The presence of a carer was recorded in the notes of 95 admissions (82.6%). Thirty two (27.8%) had commenced antibiotics at the time of presentation to the Emergency Department. Other treatments recorded were oral corticosteroids in 67 (58.26%), and aerosols in 112 (97.4%). Availability of home oxygen was recorded in 49 admissions (42.6%). Smoking status was recorded in all files, and in 25 admissions (21.7%) continuation of smoking was reported. There was no record of home physiotherapy in any file.

The most frequently used mode of transport to hospital was by ambulance in 85 (73.9%) admissions. Information on GP involvement was determined by the presence of a GP referral letter (n=22 (19%)), reference to the GP in the ambulance notes (n=14 (12.2%)), or reference in the notes to the patient consulting their GP prior to admission, (n=28 (24.4%)). Some admissions had both a letter and a reference to GP contact, giving the total number with GP involvement before an admission of 35 (30.5%).

Patients presented for admission every day of the week (Figure 12.2), with 55 admissions (47.8%) between 9.00 am and 5.00 pm, and 95 admissions (82.6%) between 7.00 am and 10.00 pm (Figure 12.3). Patients who had GP involvement were statistically significantly more likely to present for admission between 8am and 8pm rather than between 8pm and 8am ($p=0.003$). There was no statistical difference in presentation times for patients who had no GP involvement prior to admission ($p=0.46$).

Figure 12.2 Weekly distribution of admissions for patients with CAL admitted more than once in the year; n = 115

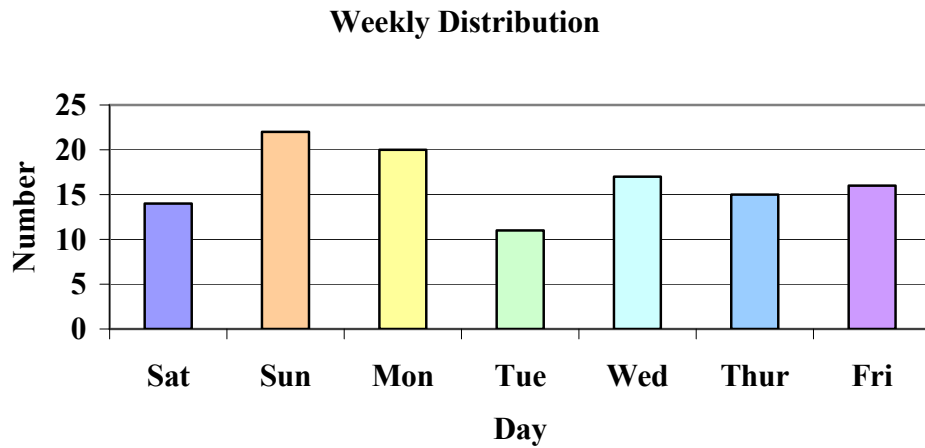
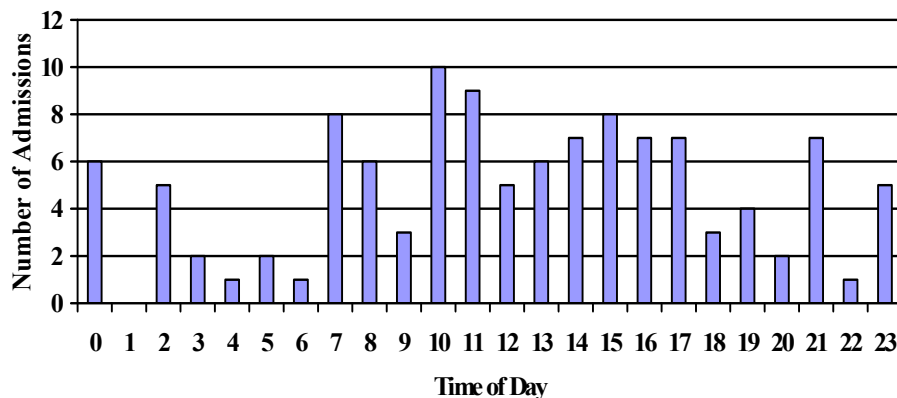


Figure 12.3 **Time of presentation to the Emergency Dept for patients with CAL admitted more than once in the year; n = 115**



Admission to hospital resulted in transfer to the Intensive Care Unit in 12 (10.4%) of the 115 admissions and assisted ventilation in 8 (7.0%). Blood gas analysis was performed in 93 (80.9%) admissions and oximetry in 86 (74.8%). Medication prescribed following admission consisted of antibiotics (n=90 (78.3%)), corticosteroids (n=107 (93%)) and aerosols (n=113 (98.3%)). Allied health involvement in hospital, which had been recorded as absent at home, consisted of physiotherapy (n=60 (52.2%)), occupational therapy (n=25 (21.7%)), social work (n=19 (16.5%)) and speech therapy (n=27 (23.5%)).

The discharge data is based on only 105 discharges as five patients died during admission and five were transferred to local private facilities. The treatment regimes that were commenced at presentation were either completed during hospital admission or continued following discharge from hospital as indicated in the patient's discharge summary. The discharge summary data included treatment with antibiotics (n=61 (57.6%)), corticosteroids (n=97 (91.5%)) and

aerosols (n=104 (98%)). Only two admissions resulted in the prescription of home oxygen.

Patients were referred by discharge summary solely to a Visiting Medical Officer (VMO) in 37 discharges (35%), and to a VMO and GP in 23 discharges (22%). Only 34 discharges (32%) were referred directly to their GP for follow-up, and the remainder, 11 discharges (10.5%), had no indication of any follow-up.

12.4 Discussion and implications for multidisciplinary community care

This audit of CAL hospital admissions has shown that approximately 40% of bed days and admissions were attributed to a disproportionately small number of patients (22.8% of all patients admitted with CAL) who were admitted on more than one occasion. Only 10.4% of these patients were severely ill and required ICU treatment, leaving 89.6% whose treatment followed the current accepted practice of ward admission. The data demonstrates that a large proportion of the study group was admitted between 7am and 10 pm (83.5%), but involvement of the GP only occurred in 30.4% of admissions. General practitioner involvement in follow-up occurred in only 54% of discharges, with 10.5% of discharges receiving no recorded follow-up at all.

A retrospective audit of medical records allows only examination of documented events. This study has not sought out GP or allied health records, nor has it sought to include mention of telephone referrals, nor interview patients or carers. Clinical pathways were not in place during the time of the assessment period and, therefore, all practical management decisions were left to individual clinicians and not standardised in any way. Assessment of discharge details were taken

from the discharge summaries and no attempt was made to contact the GPs involved to determine receipt of the summary or whether other contact with the admitting team was made.

Although there is currently much concern about patients in the chronic respiratory diagnostic group (CAL) being admitted frequently to hospital, most previous research has concentrated on the total CAL population¹⁷⁰. Further prospective studies are needed to evaluate the relationship between the factors associated with admission and readmission and the severity of CAL. These results question the necessity for all CAL patients to be admitted for their treatment when it has been demonstrated that most patients are treated in the wards and do not require intensive care¹⁷¹. The study suggests that GPs are not involved in the decisions relating to hospitalisation of patients with CAL. Community nursing on its own has not demonstrated a reduction in hospital admissions for patients with CAL¹⁷². The impact of Enhanced Primary Care and a range of acutely responsive ambulatory services, e.g. nursing, physiotherapy, occupational therapy, social work, working with GPs in the care of all patients with CAL¹⁷³ has not been fully researched and may provide an alternative¹⁷⁴ to hospital admission.