

An analysis of the appropriate use of the Caledon ambulance service in the Overberg

A short report

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The objective of this study was to determine the possible extent of the inappropriate use of the ambulances of the Caledon station of the Overberg Regional Services Council. The trip sheets of the ambulances for the period 1987 - 1990 were retrospectively analysed, and the appropriateness of calls prospectively determined over a 7-month period. The results showed that the vast majority of calls (68%) were of a non-emergency nature, and that only 34% of the trips warranted the use of a fully equipped emergency vehicle. Various cost-containment measures are suggested.

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The emergency transport of patients by ambulance is an important and expensive element in a modern health care system. Most ambulance services provide both emergency transportation and care, as well as non-emergency transportation for medical reasons. The inappropriate use of emergency equipment and personnel (e.g. a fully equipped ambulance) for the transportation of non-emergency cases is the topic of this short report.

Ambulance services in South Africa used to be the responsibility of the respective provincial administrations.¹ In the Overberg Region of the Western Cape, the ambulance service is provided by the Overberg Regional Services Council, as agent for the Cape Provincial Administration. The town and district of Caledon, with a total population of 18 362, are served by the Caledon ambulance station with five fully equipped ambulances.

The total cost of the ambulance service of the Overberg region during the 1990/91 financial year was R2 747 982,68, of which 22% was directly related to the kilometre usage of the ambulances. This amounted to a fixed and variable cost of R1,54/km and R0,44/km respectively.

In practice the ambulance has to respond to all calls (circular notes 22/1991 and M91/1986, CPA, Hospital + Health Services Branch), including maternity cases, irrespective of the degree of urgency (A. G. MacMahon — personal communication).

As family physician in Caledon at the time of the study, one of the authors (S.F.) decided to undertake a study to determine the extent of possible inappropriate use of the ambulance service, and to identify areas where the service could perhaps be improved and costs reduced.

Methods

The trip sheets of the ambulances of the Caledon station for the period 1987 - 1990 were analysed in respect of date of occurrence, sex, race and age of the patient, the reason for the call (following the Cape Provincial Administration's coding), the caller, the distance and the time of day.

Trips where more than one patient at a time were transported could not be distinguished, but these are unusual in a rural area. It was also impossible to determine, from the available casualty record cards, whether a specific trip was justified on medical grounds. To overcome the latter shortcoming, a prospective survey was conducted over the 7-month period from July 1991 to January 1992. All ambulance patients received at Caledon Hospital during this period were judged by the attending registered nurse to have been either 'appropriately' or 'inappropriately' transported by a fully equipped emergency vehicle.

The diagnosis and the caller (doctor, clinic, police or the patient or his/her substitute) were also recorded. Although this survey measured only very basic information based on opinion, any more sophisticated protocol would have been impracticable for the staff in this rural area.

Results

A total of 4 692 trip sheets (i.e. records of patients transported) were analysed retrospectively.

Analysis of the distance travelled per diagnosis group (Fig. 1) shows that only nine diagnosis groups accounted for 82% of the total distance travelled by the ambulances of the Caledon station, the majority (68%) being of a non-emergency nature, viz. inter-hospital transfers, discharges to home, outpatients and maternity.

The highest rate of utilisation was by women in the 21 - 40-year age interval, of whom 26,2% were maternity cases.

In the prospective survey, data were recorded for 264 consecutive patients transported to the hospital by ambulance. In only 34% of these patients was the use of the fully equipped ambulance judged to be necessary; in 47% it was judged to be unnecessary, while 19% were maternity cases. Less than 4% of the maternity cases were complicated.

Of the callers, the district nurse (who examined the patient) attained the highest accuracy score (57,1%) in the prospective survey, followed by the doctor (31%) (who usually had not seen the patient). The patient/substitute and the police scored very low accuracy rates.

Discussion

This study has shown that by far the largest proportion of

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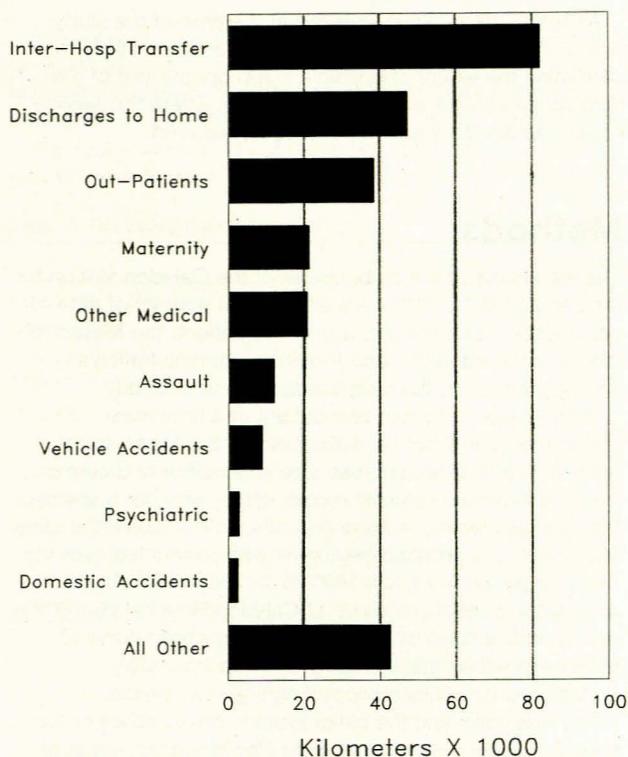


Fig. 1. Distances travelled by Caledon ambulances between 1987 and 1990, per CPA diagnosis group.

the workload of the Caledon ambulance service consists of non-emergency transportation. Total elimination thereof (however unrealistic) could reduce the total workload by 68%, resulting in a possible saving of more than 10% of the total costs of the Overberg ambulance service. The transportation of outpatients was privatised successfully following this study.

Another cost-reducing strategy would be to increase the use of minibus-type vehicles for the transportation of 'non-emergency' patients, instead of the considerably more expensive fully equipped ambulance.² This could reduce the number of fully equipped ambulances needed, the total running costs and initial capital expenditure.

Improvement of the screening skills of ambulance dispatchers through in-service training should improve the ability to assess the validity of calls and the appropriate type of vehicle for a particular trip.

The public should also be persuaded, by educational means, to use alternative transportation wherever available and practical. In an area with a better public transport system and a population with a higher socio-economic status, the vast majority of maternity cases would not need an 'emergency' mode of transport, such as an ambulance.

This study confirmed that the fully equipped ambulances of the Caledon station are being used inappropriately for various reasons, resulting in unnecessary costs. As this situation may also apply to other ambulance services, further research to investigate this, as well as new cost-saving measures, are indicated.

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100 years ago . . .

I will endeavour to formulate the elements of some code by the use of which healthy adults might regulate the quantity of alcohol they take, and pledge themselves to keep within a certain boundary.

To form such a society or association it would be necessary to give it a name. I suggest "THE RATIONAL DRINKERS' BOND" as an appropriate one. The two main principles of membership should be: (1st) never in any period of 24 hours to exceed the quantity of alcoholic liquor [two ounces of pure alcohol] which I have specified as the Anstie allowance; (2nd) for each member to keep a daily record of any quantity of alcoholic liquor he may consume, or record the fact that he has taken none.

The foregoing would form the two essential pledges of such an association, but as recommendations I should add: — That for those between the ages of 21 and 50 the *habit* of daily life ought to be to abstain from alcohol, and that the Anstie allowance be only taken occasionally, say one day in every seven or ten. This ought to amply cover the requirements of ordinary social life. For men over 50 the Anstie allowance *per diem*, simply, at their discretion to take less but not more, would suffice; and all under 21 years should not be eligible for membership, as they ought to abstain entirely.

I think if an association of men and women were formed under the above conditions it might raise a flag under which none need feel ashamed to stand, and such a membership would not only be a credential of temperance, but an indication of intelligence and self-control.

(Walter T. Harris, *S A Medical Journal*, November 1895, p. 184.)

50 years ago . . .

Many things we still lack in the Transkei — the absence of a second opinion which we would often like, or the aid of X-ray and the pathologist, but these are on their way.

We are not "out of humanity's reach" save as regards juvenile education, and most of the existing villages are happy sporting communities, with an intimate flavour peculiarly their own.

The General Practitioner has a small European practice, and knowing each patient intimately, his background, home environment, familial traits, etc., is in an excellent position to give him the attention needed, or to refer him to the right quarter for further care. The General Practitioner will remain in the fullest sense, in the Transkei, removing offending molars or domestic disharmonies with equal alacrity.

I see no reason why the present happy relations as between patient and doctor should vanish, no matter what Socialistic upheaval of the profession results from National Health Service in the still nebulous future.

(W. Fraser-Shearer, *S A Medical Journal*, 10 November 1945, p. 410.)