

work load is heavier, which may account for about half the Members giving up their other jobs. Political life has extended Dr Summerskill's interests to industrial and occupational medicine (Halifax harbours many industries), prison medicine (including the issue of tranquillisers for prisoners), vivisection, and alcoholism, among others.

Dr Summerskill's achievements outside medicine and politics are less well known. Between St Thomas's and house jobs at Carshalton, for example, she did a few months' supply teaching of all subjects in a tough secondary modern school in Vauxhall, an experience that has given her insight into the task of teaching unruly girls and the problems of educators generally; she was also a manager of a group of London primary schools. Her most unlikely success, and probably the most endearing one, was when she wrote a romantic novel called *A Surgical Affair* which sold in Norway and Canada as well as in Britain. She much enjoys writing fiction and looks forward to writing more books in her old age; there is too little romance in the House of

Commons, she says, to tackle a novel at the moment, and she has no desire to write an autobiography—an autobiographical novel is more her line. If her luck holds, we shall have to wait a long time for her next book, however, because equal opportunity reigns at the House of Commons and MPs of both sexes receive no pension until they are 65; Shirley Summerskill thinks that this is right, but that under the social security scheme retirement should be optional for both sexes any time between 60 and 70.

The success story of Shirley Summerskill's life may sound like that of a ruthless woman with relentless ambition, but, though she may be a doughty adversary in debate and could certainly outwit many of her opponents, she rarely appears in the limelight. She has great courage and determination to have survived in the House for so long, but her easy manner and scintillating smile must have attracted many more than the 500 votes that are usually rated as the "personal" vote. Halifax people are lucky to have such a delightful woman as their MP, and it would indeed be surprising if they elected someone else.

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## Hospital Topics

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### Edinburgh Emergency Asthma Admission Service: report on 10 years' experience

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#### Summary and conclusions

**In December 1968 an emergency service was begun in Edinburgh to expedite admission to hospital of patients with severe acute asthma. During the first 10 years requests were made to admit 112 patients to a respiratory unit with provision for intensive care on 360 occasions. Four of the patients died of their disease, one in hospital and three before admission. It was thought that the death rate would have been much higher had conventional admission procedures been observed.**

**Owing to ethical objections to a controlled trial it was not possible to obtain substantive proof that the service reduced deaths from asthma. Nevertheless, there was strong circumstantial evidence that organised facilities for the immediate admission to hospital of patients with a history of life-threatening attacks would result in fewer deaths at home. Earlier admission also apparently reduced hospital mortality and the number of patients requiring tracheal intubation and mechanical ventilation.**

**It is concluded that there is a prima facie case for an**

**emergency asthma admission service similar to that operating in Edinburgh to be established in all cities and large towns.**

#### Introduction

In December 1968 a service was introduced at this hospital to secure direct admission to a respiratory unit of patients with severe acute asthma. The objective was to eliminate the delays inherent in conventional hospital admission procedures and ensure prompt treatment by a specialised medical team. The names of all patients attending the respiratory unit who had experienced an episode of life-threatening asthma were entered on an emergency admission list. Copies of this list were held by ambulance control and the emergency bed bureau, and the unit undertook to admit these patients at any time regardless of the source of the request. Details of the selection of patients, the organisation of the service, and the results up to August 1975 have been given.<sup>1</sup> We now report the results of 10 years' experience up to December 1978.

#### Patients

When the service was inaugurated there were 36 patients (18 male and 18 female) on the emergency asthma admission list. By 1975, 82 patients had been included, and by the end of 1978 there were 112. Table I gives their age and sex distribution. There had been a total of 162 admissions up to the end of 1975, but in the next three years there were a further 195, bringing the total for the 10 years to 357. Because of organisational problems with the ambulance service the list was separated in 1969 into sections A and B, section B including

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TABLE I—Age distribution of 112 patients on entry to emergency asthma admission service

Age in years:	<10	10–	20–	30–	40–	50–	60–	70–4
Male patients (n=53)	6	22	8	5	2	5	2	3
Female patients (n=59)	2	28	7	10	6	2	4	0

patients living outside the Edinburgh City boundary, who were admitted to hospital only with the consent of their general practitioners.<sup>1</sup>

### Analysis of admissions

Of the 357 admissions, 91 resulted from intervention by the patient's general practitioner. Most of the remaining 266 occurred after a telephone call to the unit, and a few were arranged through the emergency bed bureau or resulted from 999 calls. Most patients were brought to hospital by ambulance, but about one-third came in a relative's or friend's car or by taxi.

### DEATHS

Five patients died during the 10 years. As reported,<sup>1</sup> one was a 63-year-old man who died at home from myocardial infarction, and another was a 30-year-old woman admitted with asthma who died suddenly from a tension pneumothorax as mechanical ventilation was being started after tracheal intubation. The other three patients died at home, all before arrival of the ambulance. A 50-year-old man had required repeated and progressively more frequent admissions and responded poorly to bronchodilators and corticosteroids. On the final occasion he resisted his wife's demands to call an ambulance until his condition became critical. Two particularly tragic deaths occurred in young women. In one, aged 16, there was delay in calling an ambulance because when the family recognised the severity of the attack they were unable to find a public telephone that had not been vandalised. A 20-year-old girl, who had been included in the service only two months before, was alone when she telephoned for help. She was clearly desperately ill, and the ambulance crew found her dead when they arrived at her home only seven minutes later. The case of the girl whose family could not find a functioning telephone was particularly disturbing, and everything possible has since been done to have telephones installed in the homes of all patients on the emergency admission list.

### TRACHEAL INTUBATION AND MECHANICAL VENTILATION

Most patients responded to routine treatment with bronchodilators—usually a salbutamol aerosol delivered by intermittent positive-pressure breathing via a tightly fitting oronasal mask<sup>2</sup>—massive doses of corticosteroids given by intravenous injection, and supportive measures, including oxygen. Only three patients needed tracheal intubation and mechanical ventilation after being placed on the emergency admission list, one on a single occasion, another twice, and the third no fewer than 15 times. This last patient, a woman aged 21, had a history of major attacks of asthma that developed with alarming speed, and respiratory and cardiac arrest had occurred on several occasions immediately after admission. She survived, however, and between acute episodes was completely well, with near-normal ventilatory function values.

### Hospital deaths from asthma in Edinburgh

Since the potential benefits of the service could not be evaluated in isolation, we obtained figures from the Information Services Division of the Common Services Agency for the total number of emergency admissions for asthma, the number of deaths, and the percentage death rate for three hospitals in Edinburgh during the nine years 1969–77 (figures for 1978 were not available). Table II gives the results. One was a large general hospital (hospital A) with no special facilities for treating severe asthma, the second (hospital B) had two respiratory units, and the third was this hospital, in whose respiratory unit the emergency asthma admission service is based. Table II also

shows separately for this hospital figures for “routine” emergency admissions and those for emergency asthma service admissions only, excluding the three patients who died at home. For all emergency admissions mortality from asthma was lower in the respiratory units than in the general hospital, although the difference was significant at the 5% level only between the general hospital and the respiratory unit at this hospital. The overall death rate for the three hospitals (0.9%) compared favourably with an estimated mortality rate of 1.0–2.4% for hospitals in Greater London<sup>3</sup> and about 2.5% in Cardiff hospitals.<sup>4</sup> Other workers also find that hospital mortality from acute asthma is lower in specialised respiratory units than in general hospitals.<sup>5, 6</sup>

TABLE II—Deaths from asthma in three Edinburgh hospitals (1969–77)

	No of emergency admissions	No (%) of deaths from asthma
Medical units in general hospital A	671	10 (1.5)
Respiratory units in hospital B	1280	11 (0.9)
Respiratory unit in Northern General Hospital	1056	6 (0.6)
<b>Total</b>	<b>3007</b>	<b>27 (0.9)</b>
Northern General Hospital (excluding EAAS admissions)	756	5 (0.7)
Northern General Hospital (EAAS admissions only)	357*	1 (0.3)

\*Includes 1978.  
EAAS = Emergency asthma admission service.

### Discussion

There are two possible reasons for expecting an emergency admission service on the Edinburgh pattern to prevent unnecessary deaths from asthma. The first is that some patients who might die at home or on the way to hospital are more likely to survive if they can be admitted quickly to a hospital with facilities for respiratory intensive care. The second is that if fewer patients are admitted in extremis there should be a fall in the number of deaths from asthma in hospital and less need for major resuscitative measures. We have therefore tried to assess the value of the Edinburgh service in the light of these two propositions.

There was only one hospital death from asthma among the 357 admissions through the emergency service, representing a death rate of 0.28%. This figure, which is lower than all others in table II, relates to high-risk patients, all of whom had had one or more episodes of life-threatening asthma and in whom a death rate greatly exceeding that in a sample of routine emergency admissions might have been expected. It is therefore reasonable to extrapolate a death rate of 0.28% to all the other emergency admissions to estimate the expected number of deaths from asthma in the three Edinburgh hospitals during 1969–77 if it had been possible for all patients with the disease to have access to an emergency admission service.

The total number of emergency admissions, excluding the 357 conducted through the asthma admission service, was 2707, and the predicted number of deaths, based on a death rate of 0.28%, would be 7.6. Since the actual number of hospital deaths was 26, up to 18 or 19 of these (roughly two per year) might have been preventable. This, of course, presupposes that all patients with life-threatening asthma can be identified. That this is not practicable is illustrated by the last two entries in table II, which show that the lower death rate at this hospital was restricted to admissions through the emergency scheme. The other deaths occurred in patients till then unknown to the respiratory unit or whose severity of asthma had gone unrecognised. Nevertheless, our observations suggest that an emergency asthma admission service could have saved at least some of the patients who died from asthma in the three hospitals. Even if the number amounted to only one a year (in hospitals serving a population of under half a million) over 100 hospital deaths yearly in the United Kingdom could probably be prevented.

vented. There was some support for this in an analysis of 53 patients who died in Cardiff hospitals over 10 years.<sup>4</sup> It was estimated that 28 of these might have had a better chance of survival if they had been admitted early in the attack to a specialised respiratory unit.

It is much more difficult to estimate the number of deaths from asthma outside hospital that were prevented by the emergency asthma admission service. Three patients died at home from asthma out of 360 for whom admission was requested, representing a death rate of 0.83% in a group of patients known to have a severe form of the disease. This is virtually the same as that recorded for all emergency admissions to the three Edinburgh hospitals (0.9%), and we cannot believe that the number of deaths occurring at home would not have been larger among patients on our emergency list if they had been subject to the delays inherent in conventional admission procedures. It was certainly the impression of the medical team who treated them that but for the scheme several would not have reached hospital alive and more would have needed tracheal intubation and mechanical ventilation.

In another Cardiff survey<sup>7</sup> it was reported that in about one-third of 90 deaths occurring outside hospital the fatal exacerbation of asthma lasted less than two hours, and in about one-fifth less than 30 minutes. Hence it was estimated that over 10 years at least 33 deaths could have been prevented had the patients been able to admit themselves directly to hospital.

Without a controlled trial, which most doctors would regard

as unethical, it is impossible to obtain incontrovertible proof that an emergency asthma admission service saves lives, but we believe that there is now a strong prima facie case to support that contention. The type of service operating in Edinburgh, and now also in Melbourne, Australia, could be made available in most cities and large towns, provided that all hospitals with facilities for respiratory intensive care were prepared to co-operate with the emergency admission services, the ambulance service, and local general practitioners in its organisation.

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# ABC of Blood Pressure Measurement

## Reconciling the controversies: a comment on "the literature"

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In the 80 years since the sphygmomanometer was first introduced a large body of reports has developed around the subject. We comment here on some of the papers most relevant to our discussion on blood pressure measurement.

### Aspects of measuring blood pressure

*Observer error and the importance of training*—The three major causes of observer error are: poor technique, observer bias, and terminal digit preference.<sup>1</sup> Proper training would probably do much to eliminate the errors arising from technique and bias,<sup>2</sup> but unfortunately the training techniques available are not widely known, and there is no standard programme for training and assessing competence.

*The standard sphygmomanometer*—Reports on the conventional sphygmomanometer show that as many as half the sphygmomanometers in hospital use are inaccurate<sup>3</sup> and that hospitals usually have no policy for maintaining sphygmomanometers. The mercury sphygmomanometer is the most accurate, reliable, durable, and economical of all sphygmomanometers and must be recommended for general use in preference to aneroid and semi-automated devices. Several workers have examined the faults and problems common to sphygmomanometers.<sup>3-8</sup>

*Cuff bladder dimensions*—Selecting the best dimensions for the inflatable rubber bladder is one of the most controversial topics in blood pressure measurement. The best width for the bladder is generally agreed to be 12 to 14 cm, and it would seem reasonable to choose a 12-cm wide cuff for adults to allow as much room as possible for applying the stethoscope. Three independent groups of workers<sup>9-11</sup> have shown that the most accurate blood pressure measurements were obtained when the bladder completely encircled the arm and they recommended a bladder length of 40 cm. More recently, Burch and Shewey<sup>12</sup> challenged this recommendation, showing that a bladder encircling half the arm circumference was adequate, and pleaded for retaining the standard 23-cm long bladder. There the controversy rests for the moment, and the most reasonable compromise would be to recommend a 35-cm long bladder that would encircle most adult arms.<sup>3</sup> We recommend that the bladder should measure 12 × 35 cm and if a bladder

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