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EMERGENCY CARE IN A COUNTRY PRACTICE

The history of general practice is largely the history of medicine. Politicians have commented that there are as many different concepts of general practice as there are general practitioners; on the other hand as many types of general practice are demanded by patients as there are types of patients. Yet a common thread runs through the whole of general practice—the supply of the skilled medical service to all those who need it at all times.

General practice is about people, the doctors, the nurses, the paramedical staff on one hand, the patients and their relatives on the other. In Britain personal medical care can be traced to pre-Roman times. Medical care began with the family—women looking after their children, and their men learned, for example, that bleeding could be staunched by pressure from the hand, and that thorns and parasites could be extracted with the fingers. They treated minor ailments with simple domestic remedies and those who became particularly skilful at it were increasingly in demand as the communities grew: the origins of general practice. Serious disease which prevented the sufferer from taking his share of the tasks that were required of him differentiated him from the rest of the tribe. His fate then depended on the basic nature of the economy. It may have been economically necessary to kill members of the nomadic hunting and fruit gathering groups once they were incapable of carrying out their duties. The economy of later static agricultural societies would have allowed them to take a more liberal attitude towards those who were ill, and to attempt to provide them with medical care. General practice evolved through the ages and indeed continues to evolve with the new contract introduced last April.

Many of today's problems are not really new; satisfactory medical care still requires more than technical knowledge. To see the patient as a whole human being requires a compassionate doctor who has the knowledge, skill and resources to provide relief of symptoms, comfort of body and, if possible,



cure of the condition. The general practitioner has been defined by the Royal College of General Practitioners as a doctor in direct touch with patients who accepts continuing responsibility for providing or arranging their medical care which includes prevention and treatment of any illness or injury affecting the mind or any part of the body.

My practice is in Ballyclare, a small market town in Co Antrim, the valley of the Six Mile Water. The name originated not from the length of the river but from the distance from Carrickfergus, being the first watering place on the journey north for troops. The practice is mainly rural with farming being the principal industry: the lowlands cultivated for crops and the hills grazed by sheep. Many small villages lie scattered through the countryside linked by country roads, but the area is also traversed by main trunk roads and motorways running from the province to Belfast and the port of Larne. The practice is based at Ballyclare Health Centre with a patient population of

Herbert Baird

13,854 who are looked after by six doctors and a practice team of 31. In 1989, 34,108 consultations took place at the health centre and 6,827 home visits were made. This is a patient/doctor contact of 3.0 per annum.

Tonight, I want to concentrate on one aspect of general practice care which is often overlooked but is nonetheless important, an aspect in which we in Ballyclare have had a special interest and have therefore developed it to a greater degree than many other practices. Emergency care, or to give it its modern name immediate care, I define as the provision of early comprehensive medical care by a skilled practitioner with the appropriate equipment. In the nine months from 1 June 1989–31 March 1990 we received 147 calls requesting urgent medical assistance.

	No.	%
Cardiac	43	29.3
Trauma	28	19.1
Cerebral	20	13.6
Respiratory	18	12.3
Abdominal	13	8.8
Others	24	16.3

Twenty-eight (19.1%) of the call-outs were for trauma and 129 (80.9%) were for serious illness. Eighty-one (55.1%) of the patients attended were male, 66 (44.9%) were female and the ages ranged from birth to 96 years. The timing of the callouts showed that the greatest frequency was in the early morning for illness, and in the late afternoon for accidents. The quietest period was from 10.00 am to 4.00 pm. Cardiac conditions were the commonest reason for requesting an urgent call-out, with 43 (29.3%) recorded. Trauma 28 (19.1%) was the second commonest; and conditions affecting the central nervous system, 20 (13.6%) third commonest. (Table I). Maternity care was provided for 140 women in the nine months and intrapartum care provided for 48 in the GP Maternity Unit at the Moyle Hospital but these figures were not defined as emergency call-outs. Respiratory conditions, abdominal conditions, metabolic and diverse group of conditions were all recorded and analysed.

I would like to discuss the management of some of these groups of conditions and the preparations made by the team for dealing with them. Each doctor is responsible for his personal medical bag and his

personal emergency kit. The medical bag contains his normal everyday equipment plus some basic common medication and the methods for giving them. The personal emergency bag will contain basic dressings and instruments, airways, giving set and IV fluids, which could be required any time in his day to day work. An additional supplementary emergency kit is kept at the health centre during the day and is carried by the doctor on call at night and weekends. A communication system which gives rapid access to the doctor on call either at home, in his car, or in a patient's house is essential. We have an emergency telephone line, the number of which is known to patients, ambulance control, fire service and police. The car of the doctor on call is fitted with a portable telephone and he carries a bleeper in his pocket. This ensures that at all times he is in rapid communication with his home or health centre. A green "medi-flash" beacon is carried in the car for use on the way to urgent cases or accidents.

ANALYSIS OF EMERGENCIES

This survey of emergency call-outs commenced 1 June 1989 and finished 31 March 1990 with each doctor completing a proforma following the call-out. After discussion the definition of what constituted an emergency call-out was agreed and defined as one that "necessitated an early response".

Other conditions—24 (16.3%)	
Vascular	6
Hypoglycaemia	5
Infections	3
Suicide	3
Miscarriage	2
Cot death	1
Alcohol intoxication	1
Musculo-skeletal	1
Acute vertigo	1
Delivery in ambulance	1

To deal first with the less common conditions, (Table II), it was surprising that there were only five emergency call-outs for diabetic patients. Four of these were for insulin coma—patients were treated with 50% dextrose in two cases, and decadron was required in addition in one of these. Oral administration of sugar was sufficient in two to abort the attack. The remaining case, a male aged 20, was found

Herbert Baird

to be dead in bed: he was recognised as someone who took minimum care of himself and of his diabetes, and on quite a number of occasions had had hypoglycaemic attacks in the past. Only one patient in this group required hospital admission. Also included in this group are peripheral vascular conditions, three suicides, a cot death and a delivery of a baby in an ambulance. The experience of dealing with a cot death is always traumatic for the doctor as well as for the parents. To understand the parents' sorrow, feeling of guilt and often aggression towards the doctor who may have seen the baby in the previous day or two with a minor upper respiratory tract infection which may or may not have required therapy, requires all the general practitioner's skill and empathy, particularly as the involvement of the police has to be explained to the parents and also the requirement for a post mortem examination.

The delivery of a baby in the ambulance took place at 5.00 am. I received a call from the ambulance control asking me to attend an ambulance at the roadside where a patient was being delivered by ambulance personnel. On arrival I found two ambulancemen, a mother with a newly delivered baby, third stage incomplete, and her husband in the ambulance. On examination, the placenta had separated and I delivered it and was about to give syntometrine when I noticed the ambulanceman who had performed the delivery on his knees at the front of the ambulance. He was complaining of severe chest pain radiating into his shoulders, and as I looked at him he collapsed, losing consciousness. We lifted him on to the stretcher, applied the monitor leads to his chest and discovered a heart rate of 30 per minute. This responded rapidly to atropine intravenously, increasing to 80 per minute. He regained consciousness, still complaining of his pain. The electrocardiograph showed no evidence of infarction. The pain was relieved by diamorphine and his condition stabilised. I then returned to the baby, clamped the cord, separated the placenta but unfortunately my only ampoule of syntometrine had dropped to the floor and smashed. Despite this being her fifth child she did not bleed, and both mother and baby are well. Unfortunately, the ambulanceman died the following day and a post mortem revealed he had a dissecting aneurysm. The mother was naturally upset at his death.

Respiratory conditions accounted for 12% of the call-outs (Table III). The commonest condition encountered was asthma (61.1%), as might be expected. The management of the acute asthmatic attack has changed in the past few years from intra-

venous therapy to the administration of nebulised drugs. Eleven patients, eight female (72.8%) and three male (27.2%) were treated, nine by portable nebuliser with good effect and one with intravenous aminophyllin (she had previously used her own nebuliser without effect). In one patient the condition had settled prior to the doctor arriving, 14 (77.8%) were treated at home, and only four (22.2%) required hospital admission. There were no deaths from respiratory conditions.

Respiratory conditions—18 (12.3%)		
Asthma	11	61.1%
Infections	3	16.7%
Choking	2	11.1%
Pneumothorax	1	5.6%
Bronchitis and emphysema	1	5.6%

Abdominal conditions necessitated 13 emergency call-outs (Table IV) and included five various abdominal colics, two cases of acute retention of urine and only one with a perforated duodenal ulcer (a condition which now is encountered less frequently). Six patients (46.2%) required hospital admission and seven (52.8%) were looked after at home.

Abdominal conditions—13 (8.8%)		
Bowel colic/obstruction	3	23.1%
Renal colic	2	15.4%
Urine retention	2	15.4%
Perforation	1	7.7%
Torsion of testes	1	7.7%
Cholecystitis	1	7.7%
Pelvic inflammatory disease	1	7.7%
Others	2	15.4%

Cerebral events necessitated 20 call-outs (Table V)—12 (60%) female, 8 (40%) male. This was a surprising finding and constituted over 13% of the work. Febrile convulsions accounted for four, and three of these required treatment with rectal diazepam prior to admission to hospital. Epileptic attacks were diagnosed in eight patients and in three of these patients it was the first attack. Two patients, a man of 83 and a girl of 16 required hospital admission, both with first attacks. Nine patients (45%) in the group were admitted to hospital, and 11 managed

Herbert Baird

at home. Two deaths occurred: a male with a cerebrovascular accident, and a girl of 22, known to be epileptic, was found dead in bed the cause of her death being aspiration of stomach contents.

Cerebral events – 20 (13.6%)		
Febrile convulsion	4	20%
Epileptic fit	9	45%
Cerebrovascular accident	3	15%
Faint	2	10%
Others	2	10%

The commonest symptom necessitating an emergency call-out was chest pain (Table VI). Much is written of the hospital cardiac team—in general practice it is usually a team of one. It requires preparation and practice to optimise medical care.

Cardiac conditions 43 (29.3%)		
Myocardial infarction	24	55.8%
Acute angina	13	30.2%
Left ventricular failure	3	6.9%
Others	3	6.9%

We have found it advantageous to assemble a cardiac kit, composed of an electrocardiograph, monitor and defibrillator, with a cardiac case containing syringes and needles, venous access cannulas, drugs, airways, ambu-bag, and dressings. This ensures that all is to hand when required. Twenty-four (55.8%) of these patients were diagnosed as having suffered a myocardial infarction; 13 (30.2%) were suffering from angina; and three (6.9%) were acutely short of breath caused by left ventricular failure. Nine men and four women were diagnosed as having acute angina. They were treated with either nitrolingual spray, glyceryltrinitrate tablet or nifedipine capsules to relieve the anginal pain. If this failed diamorphine was given intravenously in sufficient quantity to relieve the pain. All had an electrocardiograph performed to rule out infarction, and blood samples for cardiac enzymes were taken from the five patients managed at home. Eight patients with angina were admitted to a coronary care unit, all of whom had required diamorphine to relieve the pain prior to admission. None of the patients in this group were subsequently shown to have suffered a myocardial infarction.

Myocardial infarction is the most frequent emergency with which a general practitioner has to deal. Mortality rates from heart disease are quoted as 80% for men and 58% for women in Northern Ireland. It is accepted that mortality rates are the highest in the first few hours following a myocardial infarction and that many of these deaths are preventable if medical care is available to prevent or to treat cardiac arrhythmias. The principles of coronary care as first set down in the early days of mobile coronary care are largely unchanged: 1. Relieve the pain. 2. Stabilise the rhythm. 3. Treat the cardiac failure. A fourth principle has been added in the past few years and that is, when possible, to dissolve the thrombus by use of thrombolytic agents.

Twenty-four patients—18 males and six females—were diagnosed as having suffered a myocardial infarction. Eight were dead on the arrival of the doctor. Ages ranged from 34 to 82 years, mean 70 years; all except the 34-year-old had previous heart disease. Death was confirmed by the use of the cardiac monitor. Three patients died when the general practitioner was attending them (early deaths). This is an area where it is theoretically possible to improve mortality rates. They were aged 70–84 years. Two presented with severe cardiogenic shock which did not respond to resuscitative measures. One female of 84 years with a long history of heart disease, who suffered a myocardial infarction confirmed by electrocardiograph, developed ventricular fibrillation during diamorphine administration, and terminal asystole following DC shock.

Two patients, a male of 54 and a female of 74, presented with upper chest pain referred to the shoulders and back. Both had normal electrocardiographs, but both died. The diagnosis of dissecting aneurysm was made and confirmed in one by post mortem examination. Two patients died in the hospital coronary care unit and 11 survived more than four weeks. This produces a gross mortality rate of all patients presenting with presumed myocardial infarction of 54%. This is a depressing figure, but if only those patients who were proved to have suffered a myocardial infarction and who were alive when the doctor attended them are included the mortality rate drops to 33%.

Thrombolytic agents have been used increasingly in the past few years in hospitals. Information is required as to the optimum time to give the drug. We now carry anistreplase (Eminase) but because the majority of our patients are admitted to the Waveney Hospital coronary care unit where the consultant cardiologist (Dr Wilson) is involved in the APSAC

Herbert Baird

European Study, we have been requested not to use a thrombolytic agent prior to the arrival of the cardiac team so that these patients can be included in this study. However, patients who are admitted to other hospitals are considered for the administration of anistreplase and the first such patient—a man of 65 with no previous cardiac symptoms—was given it just following the end of this survey. He is alive and well with no post infarction angina—he did, however, have an episode of ventricular fibrillation when the drug was being given but this responded immediately to a DC shock. The use of the defibrillator can be life-saving. In this short study it was used on three occasions on seriously ill patients but a normal rhythm was not re-established. In a previous much larger survey of our patients, a rhythm was re-established in 39% and long term survival was 22%. We have found it necessary to practise resuscitation on a regular basis. The giving of a DC shock is easy as long as you remember the right buttons to press on the machine!

Immediate care for accident victims I have kept to the end. It has been a feature of this practice for some 25 years since we first developed an accident unit which enabled a doctor carrying the appropriate equipment to be alerted early by ambulance control, police or public when an accident with injury occurred. The accident equipment includes a resuscitation box, splints, stretcher and blankets and 50% nitrous oxide and oxygen (Entonox). A yellow jacket with “doctor” on it is used at the scene. This enables the fire, ambulance and police personnel to identify the doctor and very much aids communication and rescue.

The principles of immediate care for accident victims are 1. Do not increase the injuries by unnecessary movement; 2. Stabilise the patient’s condition—maintaining airway, arresting bleeding, maintaining circulatory volume, splinting major fractures; 3. Treat and prevent shock; and 4. Plan movement. The prevention of shock is important. Once it has become established it is hard to reverse. So think in terms of 1. Relieving the pain; 2. Maintaining the body heat; 3. Maintaining circulation volume; and 4. Reassurance.

The commonest causes of death caused by trauma are obstruction to the airway, haemorrhage (often internal) and cervical spine injury. The object of immediate medical care is to prevent early deaths, one third of which occur before the injured reach hospital and a further third occur in the first 24 hours. Poor care at the scene of the accident is sometimes a contributory factor. Twenty-eight call-

outs for trauma were recorded (19%). (Table VII). The majority, 16 (57%) were for road traffic accidents, seven for home accidents, three for sports injuries and two for gunshot wounds. The commonest type of injury was to the head, in 14 patients, five of whom were unconscious. Major fractures were recorded in eight. Three victims were confirmed dead on the doctor’s arrival. Twenty patients (71%) were taken by ambulance to hospital accident and emergency departments. Three of these required intravenous fluids prior to moving. Five (18%) were cared for at home and three bodies were removed to the mortuary after death was confirmed. As far as I can ascertain there was only one late death in this group, an overall mortality rate of 14%.

Trauma—28 (19.1%)					
Cause			Injury		
Road traffic accident	16	57.1%	Head injury	14	50.0%
Home	7	25.0%	Fracture / dislocation	8	28.6%
Sport	3	10.7%	Minor injury	3	10.7%
Gunshot	2	7.1%	Dead on arrival	3	10.7%

The last accident I attended a few weeks ago occurred at 11.20 pm when I received a call from ambulance control asking a doctor to attend a serious accident where a car had gone under a lorry. I arrived to find an articulated lorry on fire and half a car: the front half was missing. I later discovered it under the lorry, and the body of the driver in the ditch. Death was confirmed using a cardiac monitor. A second accident occurred in the main street of Ballyclare at 3.00 am when a car wrapped itself around an electricity pole trapping the driver’s legs, both fractured and lacerated, under the passenger seat and the dashboard. You will appreciate the difficulty in caring for a trapped victim for 40 minutes until the fire service could cut his fractured legs free. Pain relief was obtained by using 50% nitrous oxide and oxygen (Entonox) and his circulatory state was monitored by pulse rate and volume.

AUDIT

The emergency call-out is a small proportion of the total requests for home visits, only 6.9%, but nevertheless it is an important part where the doctor

Herbert Baird

can influence not only morbidity but mortality. In this series 78 (54%) patients were admitted to hospital, 48 (33%) were managed at home and 19 (13%) were found to be dead. In an attempt to audit this work the doctor attending each call-out was asked to assess the significance of the medical input. In 44 (32%) of the cases, this input was thought to be "very significant", in 61 (45%) "significant" and in 31 (23%) "of little significance". The last figure included the call-outs when the patient was dead on arrival.

The estimated time taken from receiving the request for help and arriving with the patient ranged from three to 25 minutes, average 11 minutes. The time involved with medical treatment at the scene ranged from three to 90 minutes, mean 34 minutes. General practitioners will understand that 34 minutes in the middle of a day is a significant period to be away from the consulting room or from home visits. The busy practice has to make the necessary alteration to the day's routine work to cope when required, and this usually necessitates the other partners seeing extra patients.

The quality of care provided by doctors has been debated at great length in recent months. It has been stated that there is no incentive for doctors to maintain high standards, and that as there is no external method of auditing competence it is astonishing how much good medical practice there is around. Perhaps it is the doctors' "self image" that maintains it.

What do our patients think of our immediate care? I don't really know. It is perhaps an oversight on my part for I have not asked them, but what I can tell you is that our emergency equipment fund is usually healthy and kept so by individuals and community groups.

Over 100 years ago Sir Luke Fildes painted a famous picture entitled "The Doctor". It was hailed as a noble tribute to a noble profession, and was based on a Dr Murray who treated his son who was fatally ill and died on Christmas Day 1877. Let us, who are members of that noble profession, continue to provide a high quality of care; to listen to what patients are saying about better communication (listening and explaining), and about better quality and availability of care; and go forward in partnership and harmony with our patients towards and into the twenty-first century.