

Contemporary Themes

Care of emergencies in the United Kingdom*

MILES IRVING

The United Kingdom can claim the credit for organising the first comprehensive accident service in the world. In 1888 Sir Robert Jones was appointed consultant surgeon to the Manchester Ship Canal. This major project linking the Port of Liverpool with the city of Manchester employed 20 000 workers on its 35-mile stretch. It took many years to build and exacted a high toll in serious injury. In one five-year period there were 3000 accidents.

In order to cope with these emergencies the canal was divided by Sir Robert into three independent sections each with a chain of first-aid stations and each with its own hospital. Each hospital was staffed with a resident doctor and nurses. The hospitals were linked by a railway running the length of the canal that was used to convey the injured to the hospitals. They were also linked by wireless telegraphy to Sir Robert's Hospital in Liverpool so that he could be summoned whenever he was needed.

Haphazard planning

One would think that this early example of orderly planning of accident services would have influenced all subsequent development. Alas, it has not been the case. The rapid expansion of hospital services at the end of the last century, and in the first 30 years of this century, resulted in emergency departments springing up in a haphazard fashion. Such departments often occupied inadequate accommodation in a corner of the hospital and were staffed by an experienced and dedicated nursing staff, but often the most junior medical staff.

When the National Health Service began in 1948 the Ministry of Health inherited an accident and emergency service in which there was no discernable plan. That was not to say there were no centres of considerable excellence. Foremost among these was Birmingham Accident Hospital. This hospital in the industrial midlands was an experiment designed to improve the care of the injured by providing continuous cover from consultant surgeons and anaesthetists supported by a 24-hour radiography and blood transfusion service.

It achieved world-wide recognition under its director Professor William Gissane, who practised in the hospital from 1941 to 1964. With his inspiration a team of surgeons and research staff, including a Medical Research Council Industrial Injuries and Burns Unit, was built up in the hospital. New heights of excellence in managing the injured were reached. The demonstration of the extent of concealed blood loss around

closed fractures, the importance of adequate volume replacement, the problems of venous thrombosis and fat embolism, and the hazards of infection in burnt patients were all thoroughly explored. Hundreds of doctors, including myself, were inspired either by attending courses at the hospital or working there.

Yet, despite its undoubted success in the management of the injured the concept of the "accident hospital" staffed by "trauma surgeons" has not gained acceptance, and the experiment has not been repeated anywhere in Britain. In part this has resulted from the increasing number of patients seen in emergency departments with medical conditions and acute non-traumatic surgical conditions. Such patients can be adequately dealt with only in a large district general hospital in which a broad range of specialties are represented. Along with this realisation, that accident and emergency departments should be an integral part of a comprehensive district general hospital, has died, at least for the present, the concept of the trauma surgeon who deals with all aspects of injury. Thus the ideal place for a surgeon to treat his patient is in a well-equipped hospital to which patients should be brought by highly trained ambulance-men without undue delay.

Small is not beautiful

Increasingly, in the United Kingdom, acutely ill and injured patients are being taken to such well-equipped and well-staffed hospitals. Unfortunately, many will still be taken to a small, ill-equipped, badly staffed unit with no consultant in charge and only a junior resident available for initial assessment and diagnosis.

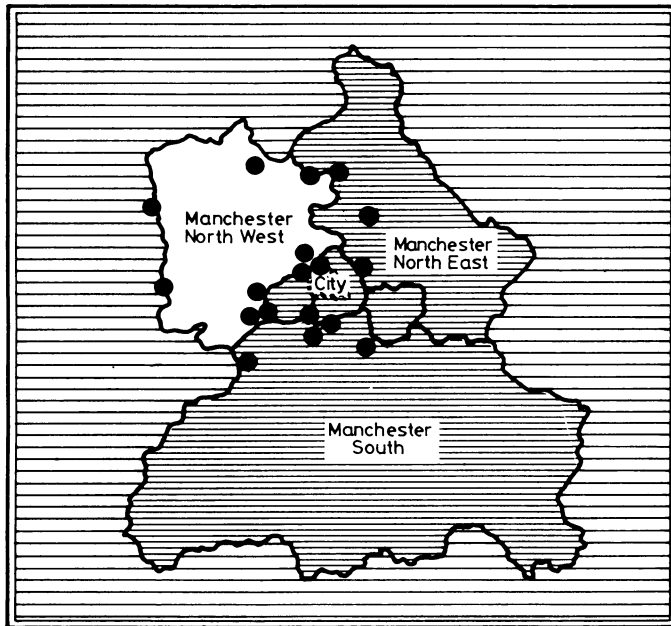
So long as the patients are not desperately ill they may still be reasonably managed in such departments even though they may wait several hours for treatment. Happily in Britain most trauma is musculoskeletal and thus not usually life-threatening. Gunshot wounds are rare. I have worked as a surgeon in city centre hospitals in five of Britain's biggest cities, yet I have never seen a gunshot wound of the chest or abdomen. Sadly, my colleagues in Northern Ireland cannot say the same, and unfortunately I have seen the effects of two terrorist bomb attacks in London. There is no doubt in my mind that these small ill-equipped departments could not cope with such injuries, and by implication that they are not now coping effectively with the seriously injured patient who needs urgent experienced multidisciplinary management.

It is with a sense of shame that I have to admit that nowhere in the United Kingdom is the situation worse than in my own city of Manchester (figure). Each dot on the map indicates a hospital accident and emergency department that receives acutely ill and injured patients. It is hard to believe that there are those who are currently campaigning for an additional department in the area. Only four of the departments in Greater Manchester County have accident and emergency consultants in charge.

*Based on presidential address to the Vth International Congress of Emergency Surgery given on 8 June 1981.

Hope Hospital, Salford M6 8HD

MILES IRVING, MD, FRCS, consultant surgeon and professor of surgery, University of Manchester



Distribution of accident and emergency departments in Greater Manchester.

The distribution of accident and emergency services in Greater Manchester goes entirely contrary to Department of Health policy and to every report that has been issued on accident services. This statement from the Chief Medical Officer in the Department of Health and Social Security is taken from the Lewin report¹: "Concentration of accident and emergency services in major departments in general hospitals, fully equipped to deal with a wide range of clinical problems on a 24-hour per day basis, has been our policy since the publication of the Platt Report,² and remains so today."

Despite this, whenever it is suggested that one of these departments should be closed there is a chorus of protest from consumer groups and local politicians, and some medical practitioners. All these bodies are, in my opinion, guilty of fostering the belief that these small departments have the experienced staff and the facilities to save the lives of the most seriously ill patients. There is not one shred of evidence to support this yet there is ample evidence to the contrary. I believe that if the public was shown the evidence there would be an outcry as it was realised that they were being denied the standard of care that could save the lives of themselves and their relatives in the event of serious injury and illness.

What is the evidence? Unfortunately there are no adequate studies from the United Kingdom, although Yates³ has produced evidence suggesting that the main danger to injured patients from airway obstruction occurs in small hospital accident departments rather than in the ambulance taking the patient to that hospital. Chan *et al*⁴ studied 327 patients with multiple

injuries admitted to a hospital in south-west England. They reported that up to 23% of the patients admitted had an injury missed on initial examination. This shows that things have not improved much since 1965, when we studied missed injuries in patients with head injury and showed similar findings.⁵

There is, however, considerable evidence from the United States. One of the most recent studies is by West *et al*⁶ comparing adjacent counties in one of which accidents are centralised to a single trauma centre, while in the other there is a policy of taking the injured to the nearest emergency department. The differences are staggering, with only 1% of deaths in the single centre trauma unit being considered preventable whereas in the other system between 28% and 73% of deaths were considered preventable (table).⁶ The distressing aspect of this study is that the patients dying in Orange County were doing so because of inappropriate management of such eminently remediable injuries as ruptured spleen, ruptured liver, and extradural haematoma.

The method by which a trauma centre achieves its excellent results is obvious. The combination of senior staff working in good facilities and seeing enough cases to enable them to become well experienced is clearly shown by the figures from St Paul-Ramsey Hospital, Minnesota.⁷ This primary trauma centre, which serves the 700 000 people of St Paul and the surrounding country, receives 450 severely injured patients a year. An analysis of 196 consecutive patients with blunt abdominal injury disclosed that 74% underwent laparotomy within 30 minutes. Only 17.3% were operated on more than one hour after admission. This expeditious approach was one of the factors that enabled them to lower the mortality for abdominal injury from 30% to 18.2%.

This sort of result is attainable in Britain if trauma centres are established and the facilities provided. This does not necessarily mean the provision of new buildings, etc, rather does it require rearrangement of existing work schedules and relocation of services within hospital groups.

Peripheral service by general practitioners

I must, however, emphasise that I believe there is substance in the protestation of the politicians and consumer groups when closure of a casualty department is suggested. It is absolutely right that patients with minor injuries, the so-called walking wounded, should not have to travel several miles to a trauma centre. The solution is obvious, and is that suggested by every committee that has studied the problem—namely, a peripheral service staffed by general practitioners. Such a service could be provided from a community hospital or health centre and should be easily available. After all, if rural general practitioners can provide such a service why cannot the urban and suburban general practitioner? In Greater Manchester this would mean we would be able to reduce the number of hospitals within 10 miles of the city centre receiving major trauma to two or three with a consequent immediate improvement in standards that would be reflected in a lower morbidity and lower death rate.

Effects of centralisation of injury management on 100 trauma patients dying after arrival in emergency department. (From West *et al*⁶ with permission)

	Orange County	San Francisco County
Policy for trauma patient	Take to nearest emergency department	Take to single central department
No of emergency departments	31	1
Population	1.7 million	667 000 (1.6 million during day)
Median age of residents	28	35
Area	2 003 sq km	127 sq km
Preventable deaths	73% of non-CNS related 28% of CNS related	1.1% of all deaths
Missed extradural haematomas	8	0
Average ISS for non-CNS related deaths with predicted mortality	37 (37%)	45 (63%)
Average ISS for CNS related deaths with predicted mortality	38 (35%)	46.5 (68%)
	Ages of majority 10-40	Ages of majority 50+
	Ages of majority 10-40	Ages of majority 50+

ISS = Injury severity score.

Unfortunately, our problems in this are about to be made worse by the doctrine advanced by the present Minister of Health, Dr Gerard Vaughan, that "small is beautiful." He has issued an instruction that no new hospital should be bigger than 600 beds, or 800 beds if it is a teaching hospital. This decision would be fine if such hospitals were allowed to devote their facilities to treating the acutely ill and injured, but the DHSS has decreed that such hospitals should contain wards for the old and the mentally ill as well as the medical specialties.

Dr Vaughan, who is a psychiatrist by training, appears to have forgotten the multidisciplinary nature of trauma management. Can he explain how a patient with a head injury, ruptured spleen and bladder, and fractured pelvis can be effectively managed in a 600-bed hospital where, as in our own case, two of the relevant specialties are in another hospital four miles down the road?

When the Pope was shot he was not taken to the nearest hospital but to the large well-equipped Gemelli Hospital with its well-staffed accident department. The results are there for all to see. I am sure the Pope would agree that what is right for him is right for the rest of us.

What grieves me most about the "small is beautiful" decision is that it has been made without any scientific evidence to support it. Yet there is plenty of evidence from the United Kingdom and abroad to show that large centres with high volumes of specialised work achieve better results. Luft *et al*⁸ have shown that centres that do more than 200 vascular operations each year have death rates 25-41% lower than hospitals doing fewer operations.

In the name of liberty

We can but battle on and hope that common sense and sound data will win the day—there are, however, moments when I envy dictators. It is not only in the question of hospital size that politicians have a lot to answer for. Doctors are often accused of not being bothered about preventing disease. What nonsense! We lay clearly before the Government the dangers of smoking and excessive alcohol consumption, yet they refuse to increase appreciably the tax on either. We have shown the relationship between alcohol and road accidents, yet we lag behind the Continent of Europe in our penalties, and MPs refuse

to sanction random breath tests all in the name of liberty—a liberty that is denied to those, often children, who are damaged or killed by drunken drivers.

Perhaps most criminal of all is the refusal to sanction seat belt legislation. In 1977 road traffic accidents cost the NHS £44m. I presume that by now this will almost have doubled. The evidence that the wearing of seat belts would reduce the number of injuries is incontrovertible,^{9,10} and has been placed before MPs by every section of the medical profession and by the recent Royal Commission.

Despite this, certain obstructive MPs refuse to allow this legislation to be passed on the grounds that it infringes their freedom. Yet presumably these same much-travelled gentlemen do not feel threatened by having to wear a seat belt when they are in an aeroplane.

It seems a paradox that on the medical side so much has been achieved in managing trauma and yet our organisation in many areas is such as to prevent these advances being used effectively. I believe, however, that slowly but surely we are making progress, and I hope that what we hear in this congress will help us all move along the correct paths more expeditiously.

References

- Lewin W. *Joint Consultants Committee report: Medical staffing of accident and emergency services*. London: BMA, 1978.
- Standing Medical Advisory Committee. *Accident and emergency services*. London: HMSO, 1962. (Platt Report.)
- Yates DW. Airway patency in fatal accidents. *Br Med J* 1977;iii:1249-51.
- Chan RNW, Ainscow D, Sikorski JM. Diagnostic failure in the multiple injured. *J Trauma* 1980;20:684-7.
- Irving MH, Irving PM. Associated injuries in head injured patients. *J Trauma* 1967;7:500-11.
- West J, Trunkey DD, Lim RC. Systems of trauma care. *Arch Surg* 1979;114:455-60.
- Fischer RP, Jelense S, Perry JF. Direct transfer to operating room improves care of trauma patients. *JAMA* 1978;240:1731-2.
- Luft HS, Bunker JP, Enthoven AC. Should operations be regionalized? *N Engl J Med* 1979;301:1364-9.
- Trinca G, Dooley B. The effects of mandatory seat belt wearing on mortality and pattern of injury of car occupants involved in motor vehicle crashes in Victoria. *Med J Aust* 1975;ii:675-8.
- Mellbring G, Dahlin S, Lindblod B. The hospital experience of seat belt legislation in the county of Skaraborg, Sweden. *Injury* 1981;12:506-9.

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MATERIA NON MEDICA

Vivé la difference

The warmth and hospitality extended to me during a recent travelling fellowship of centres of geriatric excellence in France prompted me to invite the charming professor in charge of the geriatric centre at Toulouse to visit my own unit and to see something of the country and of Cambridge in particular. Alas, nothing would persuade him. His curiosity extends as far north as Dunkirk and stops abruptly there. In England, he explains, he feels totally "dépaysé"—lost and bewildered in unfamiliar terrain, surrounded by alien beings who speak a strange tongue and survive by looking to the right before crossing the road. His forays into the UK have been confined to a biennial quasi-religious pilgrimage between Heathrow and Twickenham.

One knows how he feels. Which of us has not experienced a syndrome of profound "dépaysement" on disembarking from the car ferry at Calais, late at night, peering anxiously about for signposts, only to be confronted by a road sign depicting a locomotive and bearing the terrifying message "feu clignotant." The words send a frisson of horror down the spine and, through the mind, nightmare visions of gigantic French steam engines clattering down the middle of the road, emitting sheets of flame and incandescent embers, engulfing hapless British motor cars in their thundering furnaces. Only recently was the mundane truth revealed: as regular travellers will know, a "feu" is that most innocent of devices, a traffic light—engaged, in this instance, in the harmless pursuit of winking.

French is riddled with false friends like the feu—simple words, easily recalled from schooldays, whose meanings are somehow quite different from their English equivalent. The young administra-

tor who kindly drove me about Lyons was clearly quite pleased to be complimented on his powerful new Citroën. Yes, he agreed, it was indeed "une voiture nerveuse." The same old stirrings of panic clutched at the heart. Could it be that the volatile Gallic temperament lurked beneath the bonnet of his apparently docile, stable vehicle? And that how ever many "chevaux" were hidden in the engine might suddenly revert to their engine habits and cause it to rear, shy, buck, or bolt without any apparent provocation?

During a ward round we tiptoed reverently past the bed where a hemiplegic old lady lay peacefully semiconscious in the terminal throes of bronchopneumonia. It was explained that we would not disturb her to examine her today, because she was a little "fatiguée"—a word of infinite richness and variety, encompassing the entire spectrum of sickness and disability. After wine and dining in-judiciously my wife was indisposed by a strain of the cholera that is inclined to strike on these occasions, even more incapacitating than my own. "Ah," said our host sympathetically, "Madame est fatiguée." English is insipid by comparison and much is lost in translation. Not so its robust offspring, Australian. We were forcibly reminded of the analogous, if less chivalrous, expression used by one of the Barry MacKenzies with which Perth, WA, is so sparsely populated when asked why he had not brought his sheila, Sheila, to the barbie (barbecue). Holding out his glass for a refill of icy cold Fosters, he explained succinctly, "The old boiler's gone crook."—N K CONI, consultant physician, Cambridge.