

Trauma centres: a British perspective

R. Earlam

Royal London Hospital, Whitechapel, London E1 1BB, UK

What do the words mean? Is a trauma centre a specific building; is it trauma care or is it a system of care for all trauma? A proper system will deal with (1) prevention of accidents, (2) emergency and subsequent hospital treatment, and (3) rehabilitation. Injury has always existed; there is rarely anything totally new. In Liverpool, Hugh Owen Thomas brought his bone-setting skills from North Wales into the centre; Robert Jones brought the injured labourers building the Manchester Ship Canal by train to Liverpool, but there were no specific hospitals for trauma in the 19th century. After the Second World War, the Birmingham Accident Hospital founded by Gissane was a Victorian institution utilized for emergency care for the injured, but it has now been destroyed. So the UK has no specialist trauma centre in a special building such as the Cowley Shock Trauma centre in Baltimore, nor does it have a system like that of the USA described by Howard Champion. What should we do? One suggestion is to build 25 trauma centres.

Each country must develop its own systems based on the hospitals and organization that currently exist¹. When there is chaos the usual reason is historical, and so it is with hospitals in the UK. The present population is about 50 million and there are about 200 health districts (population 250 000) with 250 hospitals (district general hospitals serving a population of 200 000 each). Formerly there were counties each with a county town and these correlated well with a diocese, cathedral and bishop, which explains hospitals in county towns. This was satisfactory for a population of 10 million in 1815 at the end of the Napoleonic War, but by the First World War the industrial revolution had provided sustenance for 45 million and new cities such as Birmingham had developed. Luckily, Florence Nightingale and Waterhouse built a huge chain of hospitals during the reign of Queen Victoria (1837–1901). This is our legacy from the 19th century which is the basis of our districts and their hospitals; they provide acute emergency care for the present population of 50 million. There are plans to reduce the numbers of districts and district general hospitals.

How do new services arise? In general there has been a relatively fast response to the demand for new specialist skills, such as cardiac, pulmonary and plastic surgery and neurosurgery, but their buildings have usually been separated by miles from the old hospitals. I discussed this

once with Sir Francis Avery Jones, the founder of modern gastroenterology with a unit at the Central Middlesex Hospital, and he confirmed that such development would have been impossible in a teaching hospital setting. Should trauma centres then be in separate buildings, with separate staff, away from other acute and injury services? The answer is surely no. As a general strategy for the future, all those specialties, designated in the UK as regional specialties, should be brought back into the acute hospital system. That means about 50 neurosurgical units must be rationalized in the correct place.

What are the essentials of a trauma centre? The first is that any centre (by whatever definition) must fit into the local regional organization for care of the injured and other emergencies, both medical and surgical, because that will utilize the extra facilities to best advantage. Other essentials may be subdivided into places (buildings and equipment), people (doctors, nurses and other personnel) and organization. The place need not be a brand new separate hospital but the chosen hospital must have all the new acute facilities plus neurosurgery, plastic surgery, and maxillofacial and cardiothoracic surgery. A large intensive care unit and its accompanying anaesthetists are essentials. In the UK at the end of the 20th century, there are fewer than ten centres where such facilities exist on a single site.

What goes on at the Royal London Hospital? It remains as a university hospital combined with St Bartholomew's and has neurosurgery, plastic surgery, a dental school with maxillofacial surgeons, cardiothoracic surgery and haematology, all as regional specialties. It is not a dedicated or exclusive trauma centre because officially none exists in the UK. However, it has upgraded itself by its own volition and initially against the wishes of the administration. Details of this trauma care system can be found in a recently published book². There is a helipad on the roof and a helicopter under the control of the London Ambulance Service (LAS) which responds to between zero and four calls per day, triaged by the control room from the 2000 calls received every 24 h. It celebrated 10 000 sorties and its tenth anniversary on 10 December 1998. Initially funded by the Daily Express newspaper under Lord Stevens, which paid for the helicopter and its running costs for 5 years, the helicopter is now owned by Richard Branson and the costs are paid for by the government. The population served is about 10

million in the LAS controlled area, roughly within the circle of the M25 motorway. About 1300 sorties are made each year; about 250 cases come to the Royal London Hospital and a similar number is taken to other hospitals.

This development of trauma care at the Royal London Hospital was essentially achieved by a reverse take over. The subspecialty was shunted backwards into a staid university hospital, forcing those with specialist skills to look after the haphazard severely injured patients requiring surgery, usually at an inconvenient time. Is this concept of a reverse take over applicable to other centres? Its advantages are that it is good for the patient, actually helpful to the specialized unit, and cheaper than other solutions for the government. In the Royal London Hospital there was a concomitant rebuilding of the Accident and Emergency Department because during the previous 10 years concentration of such services by hub and spoke development had increased demand. The emergency room was planned with four bays fully equipped with anaesthetic instruments, which can also service other surgical and medical emergencies. Above all, the imaging equipment was upgraded by an overhead radiography machine in the emergency room and a major battle lasting 2 years was won for a fast spiral computed tomography scanner to be placed in the Accident and Emergency Department. A rerun of this triumph is progressing now to obtain magnetic resonance imaging equipment on a similar basis. The concept is to move

consultants to the patient in the emergency room; the essential consultant radiologist must move with his or her heavy equipment to be as near to the patient as possible. Proximity and speed are paramount.

What is the future for the UK? Good trauma care depends on improving each link of the life-saving chain to avoid breakages. Central government might designate 25 centres, but that will prove useless unless neurosurgery is placed physically in the middle and a dedicated local team takes the initiative. Trauma centres must be allowed to evolve; each centre (whatever the number) will have its problems. For example Leeds now has a superb new helipad based at one central hospital, but both Leeds and Oxford have the problem of integrating two major hospitals (separate because of history). The enthusiasts should study every system in the UK (Stoke on Trent, Hull and Preston), the USA and elsewhere, along with the helicopter systems of Germany and Switzerland. With luck, local enthusiasm will combine with central government agreement to produce better trauma care systems for the whole nation.

References

- 1 Earlam R. Trauma centres. *Br J Surg* 1993; **80**: 1227-8.
- 2 Earlam R. Trauma Care: Helicopter Emergency Medical Service (HEMS): London. Bishop's Stortford: Saldatore, 1997.