Elective Report

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1. **What are the prevalent trauma injuries in San Diego? How do they differ from the UK?**

According to the 2010 San Diego County Trauma System Report(1), falls represented the most prevalent mechanism of injury. Second was motor vehicle (MV) accidents and third most common being assault. The top three mechanisms that led to death was falls, self inflicted and MV occupants. Such trends analysed in 2010 were reflected in the selection of patients that I saw during my time as UCSD. As demonstrated in this same paper, the highest rate of death was due to falls as this mechanism was most prevalent in the elderly population who were at increased risk of severe injury. In contrast, for those aged less than 40, Trauma is the leading cause of death. Both patterns of injury and patient demographic is reflected at UCSD trauma center and The Royal London Hospital which are both large university hospital trauma centers.

In San Diego during the year of 2010, vehicle related accidents made up 38% of all traumas, Fall 34%. This is similarly seen in England, where the most common mechanism of major trauma are road accidents. Cycling related accidents were a hot topic London newspapers in 2013. 14 lives of cyclists were lost during 2013 in central London, of which 6 cyclist died in the space of 2 weeks. This brought up the issue of inadequate road safety measures for cyclists in inner city of London. According to the Department of Transport, in 2012 around 19,000 cyclists were killed or injured. Of these 118 were killed and 3222 were seriously injured and the rest having minor injuries (2). However these numbers under represented the true number of accidents due to casualties not reporting incidence, arguably perhaps because they were related to minor injuries. These numbers had risen significantly in the last few years as the number of cyclists have increased. England is slowly making process in try to make cycling on roads safer, especially in central London. Such safety measures in San Diego also seemed pertinent. It being such a large county, it was difficult for people to go anyway without a car. This naturally led to increased drink driving, driving by those inappropriate for driving such as those with poor vision, cognitive impairment and peripheral neuropathy. These issues were particularly aggravated by the poor public transportation system.

2. **How is health care system organised in the US (private vs. national health). Compare this to the NHS in the UK. What are the advantages and disadvantages.**

US health care system is governed by a mixture of private and public funds(3). The two main healthcare programs are Medicare and Medicaid. This was brought into power by the Lyndon Johnson administration in 1965. Medicare is aimed at those over 65 and Medicaid is designed to finance healthcare for the poor. Most working Americans have private health insurance. Those that utilize medicare have paid payroll taxes in to the program during their working years. When such citizens reach the age of 65 they can apply for Medicare part B, which would set them back $96.40 per month, giving them access to physician services and preventive care. Furthermore, a Medigap policy can be purchased to over the gaps in expenses not covered by Medicare part A and B. in 1997 part C was added to medicare, originally known at medicare+choice. This allowed beneficiaries to received care through a couple of participating private healthcare plan. In 2003 medicare prescription, Improvement and Modernisation act was passed (part c). This was subsequently titled Medicare Advantage Plans, which were very attractive for patients.

The Obamacare introduced the Affordable Care Act in 2010. Its aim is to cut out the inefficiencies in the system to reduce health costs. This ensures that payment rates will only rise slowly. However this means that medicare payment rates fall behind which will ultimately mean that the elderly are not supported for their health needs.

Medicaid as mentioned above is for those who have low income and few assets. Individual states manage their revenue therefore the standard of care for those receiving Medicaid vary greatly. Overall hospitals and doctors are less than enthusiastic in taking these patients, as their reimbursements are weak.

The American system is not without its problems. Medicare faces financial problems due to the rising healthcare costs and life expectancy. Trying to find the balance between adequate health care access to the beneficiaries and preventing the health care system driving the country into bankruptcy.

In the UK, healthcare is governed by the National Health Service (NHS), which provides ‘free’ health care for all citizens. This is funded by tax from the working populations, therefore cannot technically be called free. No citizen in the UK pay for their physician consultation or treatment. In terms of prescription drugs; it is free for under 18’s in full time education and over 65’s. Those aged between 18 and 65 pay a fixed fee per prescription. There are however, some drugs that are free for all, for instance anti-depressants, anti-psychotics and contraceptive pills. These are drugs that have low compliance and cost the NHS more money to manage the sequalae of not taking the medication. With the same reason as stated above for the US, the NHS is becoming increasing unsustainable.

The similarity between both systems is that emergency care is always given,

regardless of citizenship or financial status that are already known or may arise in the future.

3. **How do trauma surgeons interact with and delegate responsibility with other surgical specialties to manages a poly-trauma case.**

In the US, Trauma surgery is a specialty in itself, unlike in the UK where it is a subspecialty of a larger specialty such as general surgery, vascular surgery, plastic and orthopaedic surgery. Therefore, In the US Trauma surgeons take care all abdominal and thoracic trauma and the medical management that follows. The specialties that were commonly referred to were orthopaedic surgeons, neurosurgeons, and neurologists. Trauma surgeons remained the primary care team for these patient through ICU care and discharge. This meant that patient's received succinct care.

In the UK the emergency departments run the trauma calls, along with speicalists that are called in relation to the incoming patient's demographic, mechanism of injury or other major co-morbidities. They carry out the secondary survey either before, after or during the imaging, depending on the patient's status. The system itself does not recognize trauma surgery as an isolated specialty, as there is no training program specific to trauma. Most trauma surgeons have other main specialties that they belong to; such as general, vascular, orthopaedic, cardiothoracic plastics. Therefore patients are managed in a more multidisciplinary manner as each part of the management is undertaken by specific specialists. This being said, such delegation process is different throughout the county depending on hospital trends and the specialty training that doctors have at those particular hospitals.

Furthermore, unlike the US, in the UK, once the surgeons have operated on the patients, those that require ICU care will be referred to the ICU team, which is comprised of 'intensivists' who most often train through anaesthesia. This was one of the things that I thought was great about trauma surgery in the US as the surgeons were able to medically manage their sick patients. Also by remaining as the primary care team, the patients' needs were better assessed as both the medical and surgical problems were easily prioritized, as the bigger picture could be seen.

4. **How is post-graduate training organised in the US.**

Postgraduate training in surgery is usually a 5 year to 6 year residency program followed by fellowship and board exam to ultimately become an attending. Most candidates directly enter their choice of specialty, where the first year is called the internship year or 'transitional' year, during which they often rotate through related specialties. This broadens their spectrum of knowledge and allows them to gain experience in understanding how related services work and how patients with multiple medical and surgical conditions are managed in as a multidisciplinary team. This is different to the UK where

all graduates enter the foundation program. Here candidates rotate through several different specialties including a mixture of surgical, medical and general practice. Then candidates reapply for core-medical or surgical-training, which can last between 2 to 3 years. Here, graduates begin to narrow down the field of specialties. Once this is over, graduates apply for a specialty residency program, which can last upto 6 years. There are some specialties that have a ‘run through’ program, which means that candidates enter the specialty program straight from F2, entering on average 8 year program. These specialties include, Obstetrics & Gynaecology, Neurosurgery, ophthalmology.

5. How does research in microsurgical skills acquisition translate to clinical setting?

At the Blizard institute, the Plastics and Reconstructive academic teams are undertaking translational research in simulated microsurgery. The team looks at learning curves, curriculum design and simulation model. Simulation began in the world of laparoscopy, as the European working time directive was passed, the number of hours spent in hospitals by trainees dramatically reduce thus having a negative impact on case load and learning. This made simulation an integral part of surgical training and this mentality has been adopted by the plastic surgeons. The aim of this research is to improve surgical training and hence improve surgical outcome and delivery an optimal standard of care.

(1) Count of San Diego Health and Human Services Agency Emergency Medical Services, “San Diego County Trauma System Report 2010”, 2012.
(2) “reported Road Casulties in Great Britain: 2012”, Department of Transport, 2013.
(3) Ben Irvine, “Healthcare systems: The USA”. Civitas. 2002 (revised in 2013 by Elliot Bidgood).