ELECTIVE (SSC5a) REPORT (1200 words)

A report that addresses the above four objectives should be written below. Your Elective supervisor will assess this.

During this 6 week elective, I spent time shadowing both the Acute Surgery and Trauma teams at St Joseph's Medical Centre in Phoenix, Arizona, USA. Although both the UK and the US practice evidence based medicine, have access to similar technologies and have advanced healthcare systems, there were noticable differences in the way care was delivered between both countries.

I noticed a difference in the availability and use of investigatory procedures and tests. Although CT scanning and availability has become a lot more common in the UK, this technology was used on almost every patient I encountered during my time at St Joseph's. For example, rather than immediately operating suspected cases of appendicitis as we do in the UK, patients were first scanned to confirm the diagnosis. This helped patients avoid unnecessary surgeries and allowed for a better understanding of pathology. However, it also sometimes uncovered "incedental findings" that had to be followed up and investigated, sometimes leading to longer hospital stays. Overall though, I think this was probably beneficial to most patients as it meant that problems that may have gone unnoticed were addressed in plenty of time.

Another difference between the UK and US healthcare systems was cost. I was shocked to find out that every element of care was monitored for billing purposes. Even the simplest of equipment, such as gauze, siccors and tape, was locked away with a computer ensuring any use would be accounted for and added to the relevant patient's bill. Further to this, medical notes had to include specific phrases for billing and insurance purposes. It was comforting to see however that this didn't seem to impact care decisions as much as I had feared they might with clinical decisions being solely made based on need and clinical evidence.

I also noticed more support staff than in the UK. In the emergency department (ED), where I was lucky enough to spend some time, each clinician had a scribe that shadowed them and typed notes. Furthermore, there was a bigger presence and utilisation of Physician Associates and I noticed that what would be considered routine doctor tasks in the UK, such as taking bloods and inserting cannulas, were almost exclusively only conducded by dedicated staff such as phlebotomists. This allowed physicians to focus on the tasks they were trained to do and help ensure smooth and effective care.

Within the Trauma department especially, contrasts in patient demographics and injury types were also apparent. The US seemed burdened by more gunshot wounds and high speed motorvehicle collisions. This is reflected in data from the Global Burden of Disease study which shows that the USA's prevalence of firearm injuries in 2019 was 531.75 per 100,000 (Institute for Health Metrics and Evaluation, 2019). This compares to a global prevalence of 182.2 per 100,000 for that same year (Institute for Health Metrics and Evaluation, 2019). In Arizona specifically, 58,041 trauma incidents were reported in 2020 with 17.04% being due to being a passenger in a motorvehicle accident (making it the 2nd most common Trauma injury type that year), and 3.43% being due to firearms (making that the 6th most common Trauma injury type that year) (Arizona Department of Health Services, 2021). In the UK, road traffic collisions and falls also make up some of the most common causes of major trauma but penetrating injuries such as kife or gunshot wounds only make up 2% (National Audit Office (NAO), 2010). I noticed that these more prevalant gunshot wounds often resulted in more lifethreatening injuries and required more intensive treatments. Indeed, whereas the stab wounds I saw in the UK resulted in relatively predictable single organ damage, bullet

wounds often resulted in multiorgan damage due to the high velocity encountered and shrapnel produced. In fact, gunshot wounds carried the highest mortality of all trauma injuries in Arizona in 2020 (Arizona Department of Health Services, 2021).

I was also surprised to see how many of the patients were homeless and/or regular drug users. According to data from the Arizona Department of Health Services, 25% of trauma patients were suspected or confirmed to be under the influence of drugs or alcohol in 2020 (Arizona Department of Health Services, 2021). This complicated care as it meant that these patients often had accompanying medical issues we had to manage and were less able to physiologically compensate for their traumatic injuries. I also found that these socio-ecenomic factors sometimes contributed to the cause of a patient's injuries. Many patients I encountered had gotten into fights or motorvehical accidents whilst under the influence of alcohol and/or drugs which are known to inhibit senses, increase aggression and increase the likelihood of accidents (Riuttanen, Jäntti and Mattila, 2020). Worldwide, almost half of all alcohol related deaths are due to accidents and intentional injuries sustained under the influence (Riuttanen, Jäntti and Mattila, 2020). This highlights the importance of public health and economic interventions, such as drug addiction programmes and housing support, in reducing socio-economic burdens on health and traumatic inury recovery; not just in Arizona but worldwide.

Amongst the differences in Trauma population however, I also recognised some similarities. Both the UK and US trauma services were heavily burdened by ground level falls in the elderly which required longterm and multidisciplinary care. Discharge, like in the UK, was also heavily dependent on follow up and physio care in the community being available which, due to the pressures and limited availability of these services, sometimes meant delays to discharge in both countries.

Trauma cases in the UK are usually managed within a resus bay by an ED physician who acts as trauma leader and manages the initial resuscitation. A dedicated trauma team, made up of surgeons, then manage care post resuscitation. They do so with support from other teams that need to be involved, such as ICU and Neurology. In Phoenix, trauma is managed by a dedicated trauma team that also consists of surgeons but in a dedicated trauma bay that doesn't see any medical emergencies. That same team then continue caring for the patient, with input from other specialties such as respiratory and neurology as needed. As well as the lack of ED involvement, a stark difference in US care was that trauma ran their own ICU service specificaly for trauma patients post-resuscitation whereas in the UK, trauma patients would go to a generic ICU from which the trauma team would monitor progress.

I am very grateful for the experience I have gained during my time at St Joesph's Medical Centre. Not only did I learn about the difference in care and trauma burden between the UK and the USA, I also got to see and experience interventions and procedures which are less commin in the UK such a robotic surgery. Furthermore, there were plenty of opportunities to witness and practice important and lifesaving skills such as suturing, intubation, chest drain insertion, thoracotamies and more. The team were fantastically receptive to my presence and got me involved in many levels of care, from presenting patients and cases on rounds to assisting in surgeries and decision making. By integrating with and working as part of the team, I have consolidated my clinical knowledge and improved my communication, presenting, time management and teamworking skills. This experience and the lessons I have learnt have influenced my clinical practice for the better and I believe have made me a better rounded and well equipped clinician.