

## **ELECTIVE (SSC5a) REPORT (1200 words)**

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

My elective placement in South Africa took place in Chris Hani Baragwanath Academic Hospital (CHBAH) which is famously the largest Trauma Centre of the continent and one of the most renowned in the world. This District General Hospital is serving the population of Soweto, a region often compared to a notorious 'ghetto', characterised by the thriving criminal activity, deprivation, and inequality. As such, this hospital, while wildly under-resourced, manages to respond impressively to a constant influx of cases of assault. The majority of the patients present with gunshot or stab wounds, with many implicated in gang violence, burglaries or road traffic accidents. Notably, women often present with injuries implicated after domestic or sexual abuse, while children as young as 2 years old are suffering with various degrees of burns secondary to either neglect or infrastructural failure. The patient population is derived from a background of poverty, where healthcare and other inequalities are very common and consequently influence the quality of life of people. In an environment where provision of basic needs may be hindered, people often resort to the use of violence or other criminal behaviour, which in turn is translated to the high levels of gang crime, and corruption. While the dissolution of the apartheid era was a significant step towards improving inequalities and discrimination, the subsequent poverty in combination with the corruption of both the government and the police limits the bridging of the gap in income and wealth. Consequently, the patient population in this community is bound to have a lower life expectancy than the equivalent in the other parts of the country, as well as suffer with injuries like the ones described previously.

Trauma in the United Kingdom (UK), an economically developed country presents differently, and while theoretically a significant contributor to mortality, it represents a total of less than 0.2% the emergency departments' total activity. The most common presentations are those resulting after road traffic accidents, resulting to approximately 5400 deaths per annum. UK is a country where income inequality is significantly more bridged between different socioeconomic classes than in South Africa, and as such, crime is far reduced. Consequently, the British trauma units seldom face cases of gun or stab wounds, while the infrastructural superiority of a developed nation makes burns less frequent presentations. (1) (2)

My time in CHBAH has proven pivotal in shaping as well as enhancing my clinical assessment skills, especially in the context of trauma. The general principles applied in this country resemble those implicated in an equivalent setting in the UK, however, they are performed in a faster pace and with significantly limited resources. The key tool in effectively evaluating and managing an acutely unwell patient suffering from an injury is the thorough yet efficient completion of the 'primary survey', the basis of which forms any A-E assessment. (3) Upon arrival patient handover becomes pivotal as it guides management. Therefore, paramedics and members of staff adopt the "AT-MIST" protocol, whereby they provide information about the patient's **A**ge, **T**ime of the injury, **M**echanism of injury, **I**njuries sustained, **S**ymptoms and signs and **T**reatment provided. (4) Once this is completed, the trauma team assumes responsibility and guides further management. The team leader, usually a senior Registrar, is the one to assign responsibilities. The first priority is always to check whether there is massive haemorrhage, the management of which is of utmost importance, as it poses a significant risk to life. After this, the patency of the patient's airway should be assessed and maintained using appropriate manoeuvres, adjuncts or intubation should this be necessary. Depending on the mechanism of injury, the protection of the cervical spine is vital, especially while managing the airway. Following this, breathing is evaluated by enquiring about the position of the trachea, the depth, and the symmetry of chest expansion, as well as the levels of oxygen saturation of the blood. Interventions at this point include oxygen supplementation, ventilation, insertion of a chest drain or needle aspiration depending on presentation and severity. Once stabilised, the team is tasked to assess the haemodynamic stability of the patient by examining central and peripheral pulses, blood pressure, heart rate and any sources of evident bleeding. Intravenous access becomes pivotal necessitating the insertion of two large bore cannulas in the antecubital fossa. Additionally, special attention is given in the pelvic area, where injuries in its rich vasculature could prove fatal. Appropriate fluid or blood product resuscitation can be administered at this point, while arterial or venous blood sampling is obtained for analysis. The team then determines the patient's Glasgow Coma Score (GCS) and the responsiveness and reactivity of the pupils. Finally, the patient is undressed and is thoroughly examined for any potential missed injuries, including once in the spine and in the rectum. A digital rectal examination is often performed in polytrauma cases to either confirm or refute the presence of haemorrhage. (3) (5) After the initial assessment is completed and the patient is no longer in immediate danger the history is then obtained following the so called "AMPLE" protocol, covering **A**llergies, **M**edications, **P**ast medical history, **L**ast meal, and **E**vents associating with the presented trauma. Further to this a 'secondary survey' which forms a more detailed comprehensive examination is performed and further guides patient management. (6) This process is largely

similar to the one adopted in the UK, despite the limitations observed in an under-resourced Institution like CHBAH.

Having been part of the CHBAH team, I have noticed that the major differences in the trauma management protocols between South Africa and the UK focus around the criteria on the use of radiology in the assessment of patients. The majority of the patients deemed serious enough for the Resuscitation (Resus) Unit undergo 'Iodox' screening, a full body low dose x-ray delivered in 13 seconds so as to quickly check for bullet fragments, fractures or obvious soft tissue injuries. The equivalent protocol in the UK states that the preferred imaging modality is that of a whole-body computerised tomography (CT) imaging or one isolating to the area of suspected injury. In addition to the Iodox scan, patients receive an extended focused assessment with sonography for trauma (eFAST) as a means of quickly assessing the presence of fluid around vital organs. Additionally, the trauma team in CHBAH utilises the Canadian CT head rule (CCTHR) (7) (demonstrated in figure 1 below) to determine whether a patients require such imaging. While similar, the UK guidelines follow the ones recommended by National Institute for Health and Care Excellence (NICE) (illustrated in figure 2). (8)

All in all, my time with the CHBAH trauma team proved to be an invaluable experience which allowed me to further practice my skills and enhance my confidence in performing under extremely stressful conditions. I was welcomed in an incredible team, whose motivation, teaching abilities as well as competence allowed me to expand my knowledge but also provide me with the motivation to further improve myself. I would recommend this to any fellow future student.

### Canadian CT Head Rule

Head CT is **ONLY INDICATED** for adult minor head injury<sup>1</sup> patients **WITH ANY ONE** of the below<sup>2</sup>:

**High Risk (for neurological intervention)**

- GCS score <15 @ 2 hours after injury
- Suspected open or depressed skull fracture
- Any sign of basal skull fracture (hemotympanum, 'raccoon' eyes, cerebrospinal fluid otorrhea/rhinorrhea, Battle's sign)
- Vomiting ≥2 episodes
- Age ≥65 years

**Medium Risk (for brain injury on CT)**

- Amnesia before impact ≥30min
- Dangerous mechanism (pedestrian struck by motor vehicle, occupant ejected from motor vehicle, fall from height >3ft or 5 stairs)

<sup>1</sup> minor head injury: loss of consciousness, definite amnesia, or disorientation in patients with a GCS score of 13-15

<sup>2</sup> exclusions: use of antiplatelets or anticoagulants, pre-existing bleeding disorders, penetrating skull injury, acute focal neurological deficits, unstable vital signs associated with major trauma

Algorithm 1: Selection of adults for CT head scan

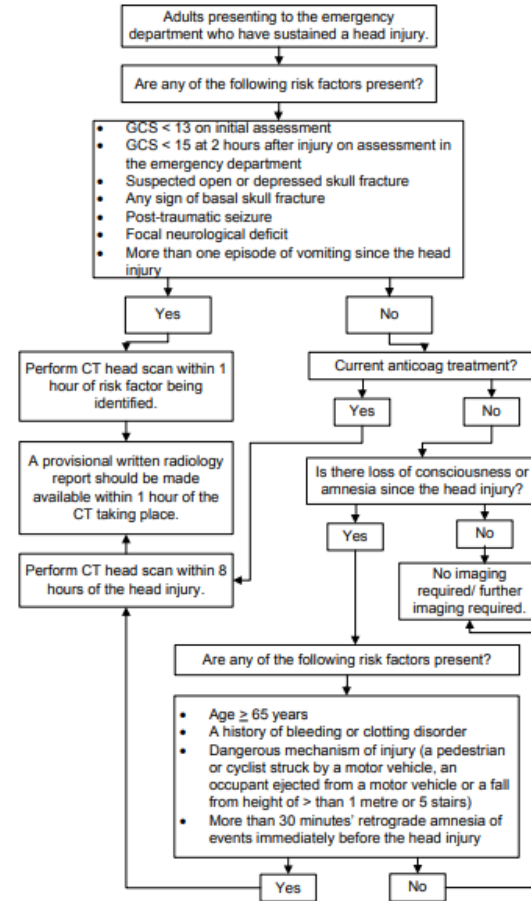


Figure 1: (A) The Canadian Head CT Rule.

(B) The UK Head CT NICE Algorithm

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