ELECTIVE (SSC5b) REPORT (1200 words)

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

The Neurosurgical department at Tygerberg hospital covers most subspecialties of neurosurgery that one would expect to find in most neurosurgical centres in the UK. The department is comprised of 4 full time consultants, 7 registrars in various stages of their training (which is a 6 year pathway in South Africa) and 1 medical officer, together with two private consultants who operate periodically at the Hospital. As such, and in keeping with the UK, the care of patients is typically very consulant lead with registrars frequently clerking and assessing patients then double checking scans and management of these patients with the consultants. The department has 3 full days of operating lists; Tuesday, Thursday and Friday during which one or two neurosurgical theatres will be available for use. Monday is reserved for clinics, and Wednesday is an academic day, comprised of a Mortality & Morbidity meeting in the morning, a ward round, journal club, radiology meeting (and occasionally other MDT meetings, such as the pituitary meeting) and supplementary lectures. The only operating done on Monday and Wednesday is for emergent cases and is generally performed by the on call registrar. These on-call shifts involve both assessing new patients who have presented at the front room and the management of patients on the neurosurgical ward and from other departments.The registrars are on call from 8am in the morning for 24 hours, after which they have a normal working day. Consultants are on call for the week and so are called in to hospital to operate cases outside of the registrars competence or are available to provide advice on management over the phone.

Whilst the mainstay of neurological disease in South africa is similar to that of the UK; such as spinal pathology, intracranial and intraspinal malignancies, vascular pathology (aneurysms and AVM's) there are several noteworthy differences. Firstly; the sheer frequency of trauma presenting to Tygerberg Hospital means that probably the majority of the caseload of the department is neurotrauma. This comprises skull fractures, Extradural & Subdural haematomas, Subarachnoid haemorrhages (of which trauma is the most common cause, unlike the UK), penetrating injuries from gunshots and stabbings, and other traumatic brain injurys from blunt trauma. This results in pathology not seen frequently in the UK, such as Brown-Sequard Syndrome from Spinal Cord hemisection and Spinal Shock from various spinal insults. The management of these injuries was, I found, surprisingly non-interventional. Penetrating trauma to the brain causes massive swelling, and any operation to such anatomy will result in significant complications and poor outcomes. As such these cases are generally amitted to neurointensive care for approximately 10 days for supportive measures, after which the injuries are surigically debrided if necessary. Similarly with spinal cord injuries due to trauma, there is often little point intervening surgically as there are few therapies that will affect the prognosis. As such these patients are assessed to determine whether their injuries are due to spinal shock or to an organic spinal cord lesion, and are then treated supportively. Whilst intracranial haematomas and fractures are operated on emergently, there are often delays to treatment (as will be discussed below) and so recognition of the

The high prevalence of HIV and TB also leads to relatively frequent presentations of neurological sequalae of these conditions such as Cerebral Tuberculomas and Neurotoxoplasmosis, again, conditions which aren't seen frequently in the UK though are commonplace in South Africa. The Neurosurgery unit in Tygerberg also provide Paediatric Neurosurgical assessment and treatment, most commonly for Hydrocephalus, but also for paediatric malignancies and craniofacial syndromes.

Contrastingly in the UK these services have been delineated from general neurosurgeons and are now provided only in specialist centres which focus on these areas. There is also little functional neurosurgery that occurs in the deartment, mainly due to the cost involved in the technology for these surgeries. Whilst at least one case of DBS has been performed previously this was due to the department finding external funding for this procedure.

Indeed, the pressure the department is under is significant; a combination of financial constraints, bed space and sheer patient load. This leads to large waiting lists for elective operations as might be expected, whilst also creating a knock on effect to the emergency patients. There is little theatre time for emergencies (there are generally only one or two emergency theatres open for such cases at any one time and these are shared between all surgical disciplines) resulting in a backlog of such emergency cases of up to a few days depending on the number of patients in trauma at any one time. This is amplified by the lack of beds in the neurosurgical ward and in neurointensive care which may further postpone both elective and emergent cases. As such, the surgeons, and particularly the consultants have to prioritise these cases as best they can, and are therefore exquisitely familiar with the progression of these neurosurgical conditions, their respective prognosis both with and without surgery, and their non-surgical management to reserve surgery first and foremost, for those who will benefit most from it.

The department at Tygerberg sees only patients who have government provided health care. As a large, tertiary & academic centre only patients with referrals from district hospitals or primary healthcare providers are seen or admitted (both electively and in emergencies). Whilst there are private wards at Tygerberg hospital for fee paying patients they are generally not for neurosurgery. Private healthcare and publicly funded healthcare exist in parallel in South Africa, with 20% of patients receiving private healthcare. In publicly funded institutions, patients are placed into three groups; fully paying patients (treated by private consultants) who are either privately funded or non South African citizens, partially subsidised patients who, depending on their income have some proportion of their fees paid by the government, and finally fully subsidised patients, who are referred from primary healthcare providers.

In my time here at Tygerberg, I have been fortunate to observe a large number of a variety of different operations, to scrub and assist in these operations, and to even perform large parts of procedures myself, under supervision. In so doing, I have become more familiar with basic surgical principles as well as specific neurosurgical techniques, concepts and pathologies. I have spent time both during the day and on call, out of hours with consultants, registrars and medical officers and have therefore gained an appreciation of the job at different levels of training. This opportunity has supplied me with many experiences I would not have been afforded in the UK and has certainly allowed me to realistically consider a career in neurosurgery as an option for myself in the future. I would like to extend my thanks to everyone in the department at Tygerberg Hospital who made me feel so included in the team, and who contributed to this elective which was far and away the most immersive, and enjoyable of all of my placements at Medical School.