## ELECTIVE (SSC5b) REPORT (1200 words)

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

**Objective 1: Describe the epidemiology of neurological diseases that occur in the UK population and compare in the context of global health.**

**There is a vast difference in the epidemiology associated with neurological diseases particularly between the UK and global populations. These are largely influenced by access to free healthcare, public health awareness campaigns, socioeconomic status as well as population dynamics. It is an imperative to understand that neurological conditions may affect sensorimotor and cognitive function including memory. For instance, in the UK alone there are currently 10 million people who are living with a neurological condition. The majority of these patients (80%) are able to manage their lives on a daily basis, whilst the rest of them may require further assistance due to issues relating to cognition, memory or physical disability. (Donaghy et al, 2001)**

**The 80% population cohort mainly includes patients who are diagnosed with mild to moderate Alzheimer's disease particularly in the elderly as well as multiple sclerosis or Parkinson's disease. In the adult population, common neurological conditions such as migraines, tension-type headaches or cluster headaches may particularly affect employment and social lifestyle of individuals. Approximately 12.5% of this patient cohort would be disabled by their neurological condition including those diagnosed with stroke, cerebral palsy and Primary Lateral Sclerosis (PLS). Approximately 350,000 patients require significant assistance with their day-to-day activities; many of whom have been diagnosed with primary and secondary progressive MS, cerebrovascular disease as well as other neurodegenerative conditions like motor neuron disease.**

**Estimated calculations of the global burden of disease were provided by the World Health Organisation (WHO) in the early 1990s. Here data was quantified in accordance to disability-adjusted life years (DALYs), years lived with disability (YLD) and absolute number of deaths. DALYs is a measure of overall disease burden that is expressed as the number of years lost due to ill health, disability or death. Based on past trends, WHO made predictions for percentage of global DALYs projected for 2005, 2015 and 2030. The highest single contributor to DALYs comes from those patients inflicted with cerebrovascular pathology. In terms of the global population, neurological disorders contribute to 92 million DALYs in 2005 which was predicted to increase by approximately 12% to 103 million DALYS by 2030. However, Alzheimer's disease and various other subtypes of dementia are projected a significant increase of 66% from 2005 to 2030 figures; suggesting high prevalence in accordance to an increasing global population. (Association of British Neurologists, 1992).**

**Objective 2: Describe the pattern of health provision for neurological diseases in the United Kingdom, compared with the Asian subcontinent?**

**In the UK, a multidisciplinary approach is mainly adopted in the care for neurological patients. Initial referral to secondary care principally occurs by the patient's general practitioner to a neurologist. A thorough assessment of the patient's concerns are taken by medical history followed by examination and any relevant follow-up investigations including blood tests, MRI, CT, lumbar puncture, EMG or nerve conduction studies. Most of these investigations occur in the secondary care setting. Neurologists**

**may also work alongside neurosurgeons particularly in the context of brain injury, stroke, epileptic seizure or space-occupying lesions. For a certain group of diseases, there may be more integrated care that would be required to assist the patient within the community setting. This may include involvement of several groups such as physiotherapist, dietician, community nurse, social worker and a dedicated neuro-rehabilitation team.**

**In the Asian subcontinent, there seems to be a disparity in the number of trained neurologists compared with the population. Approximately 20% of the world's neurologists are located in Asia, which heralds 60% of the global population. Financing for neurological services in many parts of Asia is largely due to out-of-pocket payments. Neurologists also tend to congregate in large capital cities and in private practice. Therefore there is often a shortage of neurologists within towns or villages. Likewise there is a shortage of personnel seen in many subspecialties such as stroke, epilepsy or paediatric neurology. Specialist equipment such as MRI, CT or clinical neurophysiology services are generally available in larger cities. (Mishra et al, 2013)**

**Objective 3: Describe how global research may have influenced UK healthcare management of motor neuron disease?**

**Motor neuron disease (MND) is a rare disorder with variations in clinical presentation. They can either affect upper motor neurons (UMNs), lower motor neurons (LMNs) or some instances a combination of both. It is a progressive neurodegenerative disease of unknown origin and often affects patients with disabling complications. These may involve difficulty in mobilising, swallowing and even breathing towards the latter spectrum of the disease. There have been a few influences in how global research has shaped the management of MND patients within the UK.**

**In terms of pharmaceutics, riluzole is the only drug that has been identified to provide a modest improvement in survival by approximately 3-4 months on average. A French double-blind randomised controlled trial compared the efficacy vs adverse effect profile of riluzole 50mg and 200mg dose. In order to reduce systematic error, the patients that were recruited for this study had a known diagnosis of amyotrophic lateral sclerosis (ALS) for approximately 5 years. They were subsequently randomised according to site of disease onset such as bulbar-onset or limb-onset MND. The authors suggested that 100mg dose of riluzole was sufficient to improve life expectancy whilst balancing any adverse reactions. (Lacomblez et al, 1996)**

**In recent years many patients have experienced the benefits of using non-invasive ventilation such as bilateral positive airway pressure or BiPAP. Bourke et al. concluded that there was a modest improvement in the survival and quality of life with patients who were diagnosed with ALS. It has widely been shown that interventions such as nutrition and feeding and multidisciplinary team discussions and end of life care may significantly reduce in-hospital stay and improve survival outcomes. (Bourke et al, 2006)**

**Objective 4: From this elective placement, what interpersonal skills have you achieved?**

**During my time at the National Hospital of Neurology and Neurosurgery, I have had the fortunate opportunity to witness unique patient cases during general neurology outpatient and specialised MND**

**clinics. I was able to develop insight into conditions such as myasthenia gravis, fibromyalgia, complex regional pain syndrome and multiple sclerosis. I was also able to follow-up patients who required further investigations such as nerve conduction studies in the hospital neurophysiology department. During the specialised MND clinics, I effectively listened to patient's concerns with regards to their symptoms and the impact of their condition on a day-to-day basis. I was also involved in a particularly difficult conversation where the family decided that DNACPR would be the best outcome for the patient.**

**Furthermore, I also spent some time on neurology ward rounds as well as observe patients in medical ICU. I was able to develop my enthusiasm for the subject by having engaging conversations regarding patient management with registrars and consultants. To further my learning, I intend to complete an audit which will provide insight towards interactions between multidisciplinary team members that are involved in the early medical and holistic management of MND patients. This will involve using graph theory and statistical software to analyse the efficiency in networking between different multidisciplinary members of the primary and secondary care team.**

**Word Count = 1200 words**

**References**

**Association of British Neurologists. Neurological Rehabilitation in the United Kingdom: Report of a working party. London ABN, 1992.**

**Bourke SC, Tomlinson M, Williams TL, et al. Effects of non-invasive ventilation on survival and quality of life in patients with amyotrophic lateral sclerosis: a randomised controlled trial. Lancet Neurology 2006; 5:140-7.**

**Donaghy M, Compston A, Rossor M, et al. Clinical Diagnosis. In: M Donaghy (Ed). Brain's diseases of the nervous system (11th ed). New York: Oxford University Press; 2001 p.2-59.**

**Lacomblez L, Bensimon G, Leigh PN, et al. Dose-ranging study of riluzole in amyotrophic lateral sclerosis. Amyotrophic Lateral Sclerosis/Riluzole Study Group II. Lancet 1996; 347:1425-31.**

**Mishra, S, Trikamji B, Singh S, et al. Historical perspective of Indian neurology. Ann Indian Acad Neurol 2013; 16(4): 467-477.**