

## **ELECTIVE (SSC5b) REPORT (1200 words)**

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

**My elective was a very enjoyable time. Many of my colleagues were surprised that I chose to undertake an elective in the same city we have trained. However, I believed there were many reasons that this was in fact a good plan (apart from the obvious reason that it's all I could afford!). London is a diverse city, with an incredible breadth of clinical demand, particularly in my chosen field (paediatric infectious diseases). Many students and clinicians travel across the world to get the opportunity to work or spend time shadowing clinicians in London. I feel lucky that I have had the opportunity to train in this city, and I am glad to be able to say that at the end of my elective I still think this was the right choice for me. The following report will summarise just a few aspects of my elective, focusing firstly on the objectives I set beforehand, and then on my favourite parts of my time at St Marys.**

**My first objective was to learn about the range of Paediatric Infectious diseases in London, and consider how the global burden of these disorders might impact on this local population. During my elective I saw an incredibly diverse range of infectious disorders and their sequelae. Although beforehand I was particularly interested in considering the burden of blood-borne viruses such as HIV in this population and globally, during my elective I spent more time considering the issue of antimicrobial usage and antimicrobial resistance (AMR). Whilst here I have been struck by the sheer complexity of the antimicrobial regimes that many patients end up on. I wanted to know if this was because of antimicrobial resistance or because these children were particularly sick. After discussing this issue with various doctors it seems to me that the answer is probably a mixture of both.**

**Some of the patients we were treating were incredibly sick, and often very comorbid. Of particular concern for many of our patients was their level of immunosuppression, either due to other conditions (e.g. HIV, genetic disorders, etc) or for iatrogenic reasons (particularly transplant patients). The antimicrobial regimes for many of these patients were often incredibly complex and was made worse by the spectrum of resistance patterns we were seeing. When considering the global burden of AMR it is interesting to consider how much this impacts paediatric infectious disease services in London. With global travel now common place this poses a real risk to this population, as many places in the world exhibit extreme resistance patterns, which can be imported into London relatively easily. This issue was highlighted by the clinical histories I observed: one of the first questions that all the clinicians would ask in a history was regarding recent foreign travel.**

**We are lucky in this country that we have incredible tertiary services in fields such as Paediatric infectious diseases, where there is access to a large multi-disciplinary team, and advanced diagnostics. Of course, this is not the case globally, and it was interesting and sad to hear stories from many Consultants regarding the contrasting conditions and resources in other parts of the world. This makes tackling AMR even harder in these places.**

Although global AMR patterns are incredibly worrying, there is certainly hope that it can be tackled. This is likely to require a huge multinational effort, in many different industries, not limited to healthcare. However, one of the interesting solutions to this problem is improved diagnostics, which may provide earlier and more accurate diagnosis. The major benefits of this in infectious disease are early and more accurate diagnosis. This has the potential to impact hugely on AMR, as this will hopefully reduce the burden of 'unnecessary' antimicrobials, and also will allow us to restrict the use of broad spectrum antimicrobials. Both of these are drivers for AMR. As I have previously mentioned, diagnostics in the department I was in are very advanced and are improving all the time. However, many of these tests are very expensive, and are therefore unsuited to widespread global use. The feeling I got from some of the consultants I was working with was often one of remorse that this disparity in resources exists, particularly in their field, where improved diagnostics are vital to how this service is run in the UK.

This leads me on to the less clinical side of my elective, which was to undertake a small research project within the Department of Paediatrics. As I have a background in Mathematics I had arranged to undertake some research with a senior research fellow in Bioinformatics. This was an incredibly steep learning curve, but one that I thoroughly enjoyed. I have been lucky enough during my time to work on two projects, both looking at the possibility of improving diagnostics in infectious diseases using measurement of RNA in blood samples. This technique has the potential to one-day provide both highly accurate and possibly cheap diagnostics, although we are a few years away from this goal. This opportunity was one of the more unique parts to my elective, and was one of the reasons I felt very comfortable staying in London during this time. We are hoping to write-up this work in the next few months for a small publication or two.

The activity I enjoyed the most while at St Mary's was definitely the academic MDT meetings we held once a week. During these meetings we had a combination of paediatric ID consultants and ICU consultants combine to discuss the most complex cases within these departments. I often don't enjoy these MDTs in medicine, as I often think there is not much actual problem-solving happening, but instead MDTs can feel like an exercise in risk-sharing. However, these meetings were nothing like this, and were a true exhibition of the problem-solving capacity of a genuinely multi-disciplinary team. As so many of the doctors present were academics there were often very novel solutions presented, often to no avail, but sometimes leading to very unique discussions and solutions. I personally found these meetings exhausting mentally, as the cases were so complex I had to balance frantic googling with following complicated chains of thought. But I loved every one of these I attended, and they inspired me to continue trying to be the best I can, with the aspiration of one-day being able to contribute in similar discussions.

#### Conclusions:

My elective was very challenging. I saw some emotionally tough sights, and was challenged to the limits of my thought processes. I am grateful to have been able to shadow so many interesting and enthusiastic clinicians, and also to work with some very driven and passionate academics with a variety

of skills. I have learnt a vast amount from my time, but have left with a bigger reading-list than I came with. Although undertaking an elective in the UK having trained here may be perceived as a missed opportunity by many people, I would encourage others to at least consider undertaking an elective here. As I hope I have illustrated above, there are many benefits of this, including a huge range of research opportunities. In addition, these electives are often easier to organise than those abroad.