Elective Report

The first part of my elective involved a 2-week placement at Karachi Institute of Heart Diseases (KIHD) in Pakistan. It is a tertiary care hospital and a centre of excellence for cardiovascular diseases. The second part was a 4-week placement in Brigham and Women's Hospital (BWH), a teaching hospital for Harvard Medical School. The reason for choosing these placements was to observe healthcare provision in a developing country and in a developed country known for its research.

Understand the incidence and prevalence of cardiovascular diseases in Pakistan and the USA.

The long term documented data for incidence and prevalence of cardiovascular diseases in Pakistan is sparse. At an estimate, cardiovascular diseases are responsible for 50% of deaths in the adult population and 30% of all deaths. It has been suggested that an adult population of 14% suffers from Hypertension and Coronary Artery Disease. Rheumatic Heart Disease is present in 5% of school age children. The topic of cardiovascular diseases is therefore an important one in Pakistan.

Cardiovascular diseases are accountable for 1 in 4 deaths in the USA. The leading cause is coronary heart disease that alone costs the USA in excess of $100 billion. More than 80 million individuals suffer from cardiovascular disease[i]. Almost half of all Americans have at least one risk factor for cardiovascular disease (high blood pressure, high LDL cholesterol, and smoking)[ii]. Cardiovascular diseases are therefore a significant source of morbidity and mortality in the USA. The statistics represent a typical picture of cardiovascular diseases in a developed country.

Observe the delivery of cardiovascular health services in Pakistan and the USA.

Pakistan has a mix of both private and public sector healthcare. Though private sector provides for the majority of health care facilities, accounting for up to 80% of outpatient visits. In KIHD the medical services are available at a subsidised rate due to government funding. In terms of diagnostic Cardiology, a wide array of options including electrocardiography, echocardiography, exercise tolerance test, nuclear imaging, and CT angiography are available. All these facilities are available to both inpatients and outpatients at a small cost.

During my time spent in the emergency room, common presentations included non-cardiac related chest pain, acute coronary syndrome and arrhythmias. The drugs used in the management of these are similar to those in the UK. In the case of acute coronary syndrome, however, Primary Coronary Intervention (PCI) is not available and the mainstay is thrombolysis with Streptokinase. Once the patient has been admitted to the emergency room, their family member or person accompanying them to the hospital is provided with a list of drugs to buy before management can be commenced.

I had the opportunity to attend a series of talks on the subject of cardiovascular diseases and infection control in Pakistan. The talk regarding infection control was quite relevant as the steps undertaken within the hospital to ensure this can be improved further. Due to the huge turnover of patients it is often difficult for the healthcare workers to ensure high standards of hygiene.

I was also introduced to cardiac shock wave therapy (CSWT), which is a novel technique being used in end-stage coronary artery disease patients. This non-invasive therapy works by inducing angiogenesis through low intensity shock waves. It was interesting to note almost no patient discomfort during the procedure that was being performed in an outpatient setting.

Healthcare in the US is mainly provided via privately owned businesses. Individuals requiring medical facility pay for it through insurance cover and/or themselves. Massachusetts Health Reform Act passed in 2006 means that all residents must have health insurance if they can afford it, while those who cannot are eligible for state funded health insurance known as MassHealth. My placement was primarily with the general cardiology team at the Brigham and Women's Hospital. I had the opportunity to take history and perform physical examination of newly admitted patients. I was then able to follow their progress during their stay at the hospital. This was an extremely useful learning process as it allowed me to focus on one subject in great detail and improve my knowledge of Cardiology.

In addition to the teaching sessions, I attended the morning case report and afternoon conference in the hospital on a daily basis. The process of working through clinical presentations using logical arguments made the cases all the more interesting. I appreciated the finer aspects of Internal Medicine and how every piece of detail matters. A negative test result holds a similar importance to a positive test result, in that they both lead to the correct diagnosis. Although, I was unfamiliar with some of the diagnoses presented, it was useful to go through the process as a team.

Understand the public health programmes adopted in Pakistan and the USA to tackle cardiovascular diseases.

Health awareness takes place at both the national and local level. Formation of Pakistan Cholesterol Awareness Society (PCAS) is one such example that aims to educate the public regarding hazards of high cholesterol and to promote healthy eating. Many hospitals liaise with local schools to inform children about the importance of good hygiene and exercise. Although health awareness in Pakistan is gradually improving, much needs to be done to ensure a more healthy community.

USA is a developed country and therefore offers its citizens a good public health program. There are national interventions and then state specific. There are a number of primary prevention programmes in Massachusetts. One such example is "Heart Disease and Stroke Prevention and Control Program" that offers base level of funding to a state for underlying strategies to combat these diseases. These include adoption of food service guidelines, physical activity in schools and awareness of

high blood pressure. A combination of these steps ensures that all age groups are involved and cardiovascular disease is targeted at its roots.

Improve communication and team-working skills in a setting where language barriers may be present

The local languages spoken in Karachi include Urdu and Sindhi. Although I have some understanding of these languages, I found it difficult to discuss and understand certain medical symptoms. Though when in doubt I requested the patient to point towards the area of concern or alternatively turned to the Intern on the ward for advice. The time spent with each patient is dependent on the patient turnover. This is especially true for the emergency room. The lack of time rarely allowed the healthcare staff to communicate in enough detail the diagnosis and the medication prescribed.

In the USA, language was not a barrier as English remained the common language however the dialect was different. In some instances, the patient could only speak Spanish and even though I have some understanding of the language it was difficult to communicate from a medical point of view. The solution to this was to talk to the patient via other healthcare workers who were fluent in Spanish. The alternative was to request the family to help translate. I was able to improve my communications skills through this experience. Despite these limitations, there was never an instance where I could not take a history due to a language barrier.

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[i] Murphy SL, Xu JQ, Kochanek KD. Deaths: Final data for 2010. *Natl Vital Stat Rep*. 2013;61(4).
[ii] CDC. Million Hearts: strategies to reduce the prevalence of leading cardiovascular disease risk factors. United States, 2011. *MMWR*2011;60(36):1248–51.