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WICK.

GENERAL  
MEDICINE

Elective Report for the Medicine Sub-Internship MD54L program at St Luke's Hospital undertaken as part of the Columbia Medical School exchange program.

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1381 words excluding summarized patient cases.

Objectives: first two set by the medical school.

- 1) Describe the pattern of disease/illness seen at St Luke's Hospital (part of Columbia University College of Physicians and Surgeons), discussing this in the context of global health.
- 2) Describe the pattern of healthcare provision in the United States, specifically State of New York and contrast this with healthcare provision in the UK.
- 3) Summarize 3 anonymized cases seen while on the attachment.
- 4) Reflect on doing a residency in the US explore anticipated/potential challenges and discuss what can be done to further prepare + reflect on placement activities and experiences.

When asked on the first day of my Sub-Internship in Medicine at St Luke's Hospital which team I would most like to join, I chose the B-junior General Medicine team. I chose a general medicine team in order to try to get as broad a picture of the pattern of illness seen at St Luke's as possible. This strategy worked incredibly well and I got to see a broad variety of patients from all walks of life, giving me a good general understanding of the pattern of illness seen in the local community (Harlem). I saw and helped manage a great number of patients with a variety of conditions ranging from several patients with acute myocardial infarctions and several with severe congestive heart failure, with large volume pleural effusions to patients with diabetic ketoacidosis and fulminant hepatic failure. There were patients coming in with sickle cell crises precipitated by infections, as well as patients with chest infections, wound infections, and urinary tract infections. I helped look after a patient with a BMI of 66 and a patient with a BMI of 13 and patients with every other BMI category in between. There were also patients with neurological disorders, such as seizure disorder, others presenting with symptoms of a stroke as well as several patients with psychiatric conditions such as schizophrenia and severe depression. The population served by this city hospital came from all corners of the world, and all socioeconomic and educational backgrounds. This diversity proved to be a challenge but at the same time a wonderful opportunity to start putting to good use the great volume of information and clinical and diagnostic skills learned during 5 years of Medical School. In all of this diversity however there were some conditions that were encountered consistently. In particular, type II diabetes, hypertension, hyperlipidemia, coronary heart disease, asthma, and COPD were rather prevalent. This pattern of chronic illness seen at St Luke's is consistent with that reported in the rest of the US and in developed countries throughout the world including in the United Kingdom.

The US and UK healthcare models are often portrayed as polar opposites in the sustainable healthcare provision debate. Often this debate takes on an ideological/political undertone, harking back to the way that Socialist and Capitalist countries portrayed each other during the Cold War. However, what struck me is how similar the two systems are to each other in very many respects. As in the UK, the US has PCP's (Primary Care Physicians/Providers) the equivalent of GP's (General Practitioners) in the UK, as well as secondary and tertiary care hospitals providing specialist services to admitted patients. Also as in the UK patients are often brought to the hospital by ambulance. In New York, this can either be by the FDNY ambulance network, or other ambulance networks run by the hospitals themselves. The duties of the General Medicine Interns are very similar to those of their UK counterparts the Foundation Year Doctors, consisting of patient management including the collection of samples, performing bedside procedures and the implementation of the treatment suggestions of various members of the multidisciplinary healthcare team.

There are however some notable differences, the most fundamental difference being healthcare funding. In the UK, healthcare is centrally funded through one central healthcare budget that all working citizens contribute to through their national insurance contributions. The NHS (National Health Service) is then given control of this central budget, which is divided first by broad geographic region. It is then further divided by trust and/or hospital and then further by service/department, according to perceived need. In order to work, the UK system is highly reliant on a large number of GP's, who make up a large proportion of practitioners, and play a pivotal role as gate-keepers of the health service. They do this by

screening non-critical patients in the community, and determining the patients' access to specialists, and specialist services. As the UK system undergoes reform the role of PCP's/GP's in shaping local service provision by shaping the financing of these services is likely to increase.

The US system is a much more complex mix of private insurance through a variety of private insurance providers, out of pocket payments and copays (in which only some of the costs are covered) and government funding through Medicaid (funding for the poorest), Medicare (funding for the elderly) and the VA system that looks after veterans. Often the various private insurers also offer different packages, leading to various issues and additional considerations that need to be borne in mind by physicians, especially when discharging patients. In this healthcare model the social workers and physicians work in synergy. As the social workers' in-depth knowledge of local service availability and insurance is invaluable in planning a safe discharge. Another unique aspect of US healthcare I encountered was patients being admitted either to the teaching service, or into the private service. In the UK, all NHS services are teaching services. Private patients were cared for by external doctors who often also looked after them in the community. This provided an interesting dynamic, as these external doctors often only communicated with the team managing their patient's, through the team's senior resident. The last major difference between the two systems is the control of access to healthcare resources. In the UK, the main gate-keepers are the PCP's/GP's one must be registered with a GP to access any healthcare. In the US as there aren't so many PCP's and being registered with one isn't mandatory. The responsibility of triaging patients falls solely on the ED. As all patients are entitled to emergency care and treatment in accordance with state law, this means of gaining access to healthcare can be one of the only means by which patients with no insurance can get treatment.

Three anonymized patient cases.

I, B 53 y/o M ex-professional athlete, with PMH: Dementia pugilistica p/c chest pain. Chest pain started a couple of months ago, pain in central substernal, soreness radiating to the left arm, worse with exercise and also occurring at rest. After 3 months of pain on and off, and one week of continuous pain pt's girlfriend managed to convince pt to come into ED to have pain investigated. On arrival in the ED, pt was given Aspirin 325mg, an EKG was performed it was in normal sinus rhythm with no ST changes, pt's CBC and Chem-7 were all within normal limits, however the pt had a raised CK 1200's, Troponin I levels were taken in the ED and the first value was normal. Pt was admitted to the unit and placed on telemetry and Troponin's were trending. Pt's Troponin's remained within normal limits over the next 24hrs, telemetry showed no acute events, CK levels were down trending and VS stayed stable. A CT coronary angiogram was performed showing that the pt was right coronary artery dominant and the right coronary was arising from the left aortic cusp before taking an aberrant interarterial course between the aorta and the main pulmonary artery. On further reading it was found that this can be a cause of sudden death in athletes and could account for the pt's symptoms. As the patient was stable they were discharged with Cardiology follow-up. I chose this case as it was highly unusual both in its presentation and in the findings of the CT coronary angiogram.

S. E, 47 y/o F PMH: Obesity with BMI 66, Asthma, obesity hypoventilation syndrome/obstructive sleep apnea. p/c SOB with hypercapnea. Pt had a 10yr history of SOB, early morning headaches, constant feelings of tiredness and weakness, pt was previously put on home O2 at night and was using 3L every night and was using this machine for 8hrs before it broke last year. Since the machine broke the pt had been feeling gradually worse. 2 weeks prior to admission the pt had a URI which left the pt feeling congested and wheezy, pts breathing got progressively worse and finally they felt bad enough to present in the ED. In the ED the pt was found to be hypoxic and hypercapnic as well as complaining of pleuritic chest pain and wheeze. The pt was given Percuset and oxygen and stopped breathing at which point she had to be intubated and taken to the ICU. After spending a couple of days in the ICU the pt was placed on Albuterol Nebs, standing 3L of O2 by nasal specs during the day and BIPAP at night and the patient was given a course of antibiotics and taken to the floor. All of the pts labs remained stable throughout and WNL except a low Cl 95, persistently high CO2 in the low to mid 30's, high phosphate at 5.2 and high Hematocrit at 47. This persisted throughout the patients stay. Pts VS were stable with normal pulse, BP and RR, however the pts Sats were in the low 90's on 3L O2 and could drop to the high 70's if the pt was exercising on room air. Over the course of the pts stay the pt gradually improved and was weaned of the standing O2 and albuterol nebs, was given lots of information on diet and exercise and was given a personalized diet and exercise plan with set goals which she began to implement while in hospital. The main barrier to the patients discharge was a lack of insurance that had lead to the patient being unable to get BIPAP or even O2 at home, and potentially getting no follow up. During her stay the team helped the patient obtain provisional Medicaid cover so that she could be discharged into a Skilled Nursing Facility where she could get BIPAP pending further pulmonary follow up an outpatient sleep study and qualifying to have a BIPAP machine at home.

55 y/o F with PMH: Vascular dementia, HTN, DM2, bipolar disorder, a pituitary cystic mass that was drained surgically in the 1980's leaving the pt with a diagnosis of DI. p/c Nausea/Vomiting and headache found to be aseptic bacterial meningitis. Pt was a resident at a long term nursing facility, and had trouble assessing light brightness for 3 months prior to admission, a couple of days before admission the patient developed a headache and N/V and was admitted to the ED. In the ED the pt had stable vitals but was found to have photophobia, a stiff neck and confusion. Due to the above the pt was sent straight to the ICU. In the ICU a LP was performed revealing a high WBC count with neutrophil predominance, however no organism was identified from CSF cultures, pts course was then later complicated by elevated troponin's, the possible diagnosis of DI and QT prolongation on EKG. After 4 days in the ICU the pt was transferred to the floor to be medically managed. The Vancomycin and Ampicillin started in the ICU where continued for a further 4 days (8 day total course) before being discontinued per ID recs, Ceftriaxone was continued until a 10 day course had been completed before being discontinued. Pt was given rehab and continued to be monitored, throughout the patients hospital stay the pt remained afebrile, BP remained stable between 120 to 150 systolic and 80 to 100 diastolic, pulse remained stable within normal limits, the patient however did swing between having a high and low sodium level and while acutely unwell in the ICU did have high blood sugar readings. On lab tests the pt had a normal WBC count but the neutrophil fraction was consistently elevated. Input and output charts for the patient performed before the pt was given desmopressin showed an input and output of 8-8.5L, after desmopressin was given the pts input and output dropped to 1L. An MRI

performed with contrast showed a punctuate focus of restricted diffusion at the dependent portion of the left occipital horn and questionable blunting of the right occipital horn and an old infarct at the right occipital pole. Pt also had chronic lacunar infarcts involving bilateral cerebellar hemispheres as well as a cystic appearing lesion resulting in remodeling of the sella turcica. These MRI findings would be consistent with the patient's pituitary cyst, vascular dementia and also visual changes diagnoses. Pt was also feeling weak and had a residual tremor after the episode of meningitis and in order to try to investigate this further, FSH, LH, TSH, ADH and Oxytocin levels as well as cortisol levels were ordered to try to see if pituitary function was effected and all tests came back WNL, a Neurology consult was also sought to help manage the patient from a Neurological point of view. As the patient had only been mildly hypernatremic before desmopressin was initiated (pt was on normal saline at the time) and had stayed 2yrs off desmopressin a water restriction study with serum and urine osmolality measurement was performed to try to differentiate a possible diagnosis of DI from psychogenic polydipsia. Psychiatry were also involved in the patient's care as the patient had a diagnosis of bipolar disorder and they recommended holding the patient's medications and monitoring QT intervals on repeated EKGs as the patient's previous medication Fluphenazine prolongs QT intervals and so would be dangerous to administer in a patient with a prolonged QT interval.

I have thoroughly enjoyed my time as a Sub-Intern on the SBJr General Medical Team working at St Luke's, the teams of rotating doctors I have worked with have been phenomenal both in their general attitude to medicine, as well as their approach to patient care. This experience, more than anything, has left me excited about, and looking forward to a future in which I am doing what I love most- managing the needs of patients, solving clinical problems, and more than anything advocating for my patients and helping them through what is often one of the most stressful and scary points in their lives. More than anything, over the past four and a half weeks, I have learned that the Physician-Patient relationship, together with maintaining a strong knowledge base, inquisitiveness coupled with a willingness to ask questions and most importantly listen, is the key to success and achieving good outcomes. After three years of clinical placements the hospital environment has become a familiar setting, one which I enjoy working in. However in almost all of my patients, finding themselves in a hospital setting had the opposite effect, and was associated with anxiety and a fear of the unknown. In all of this I found that it was the little things that make the biggest difference, such as making sure that patients had enough water to drink by their bedside, and where comfortable/pain free every time I stopped by. A smile with my morning pre-round, and a willingness to spend those extra 5-10mins in the morning to just sit and listen to them talk, discuss their thoughts and fears, and answering any questions made all the difference, both to my experience on the placement and the patient's experience in the hospital. Coming to St Luke's straight after passing my Medical School Finals and USMLE Step 1 and 2 exams, I found myself asking if I feel ready for the challenges and responsibilities that becoming an Intern and future US Internal Medicine resident will bring. After completing the Internal Medicine Sub-Internship at St Luke's I can finally answer this question with a resounding yes. I feel ready to work hard, to accept the challenge of managing patients with multiple comorbidities and complex needs as part of a multidisciplinary team. I cannot wait to do my utmost to make a positive difference to the lives of my future patients and my future medical team, and I look forward to applying for an Internal Medicine Residency position in the United States.