ISP Summary Paper
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Introduction: On December 1st, I began the first day in a four week clerkship at Xuanwu Hospital (宣武医院) in Beijing, in the People's Republic of China. My original goals at the beginning of the clerkship were to

- Gain an understanding of the healthcare system in the PRC
- Observe their methods of balancing traditional remedies with evidence based methods
- Further my knowledge of the Chinese language, with a focus on medical terminology

As this project encompassed "boots on the ground" experience with myself as a primary source, I would like to preface this paper with the statement that all statements made are based off of my own observations, and whatever knowledge was passed to me by the healthcare providers that I interfaced with. Statistics are provided where appropriate, however this paper is meant to be subjective in nature, as a primary source for information regarding first hand interaction with the system.

Medical Education in the PRC: As of this moment, the medical education system in China is undergoing standardization after a long period of producing junior residents with varying levels of education. The system is modeled after the former Soviet Union, beginning with entry into a medical university after high school, with a five year course of studies before graduating with an equivalent of a Bachelor's degree and admission into a residency program. Many residencies today also require completion of a 3 year PhD/Masters program while working as a resident.

This early specialization is also reflected in the types of residency programs I encountered. While there were some general internal medicine physicians or general surgeons practicing, there were also many PGY-3s who had already specialized early on into a narrower field, such as Neurology, Vascular Surgery, Cardiology, etc. In contrast to the US, early specialization appeared much more common.

Admittance to a residency program drastically differs from the US. There is no centralized application for distributing graduates across the country. Prospective residents will generally apply the first program on their personal rank lists, and await notice of employment or rejection. If they are rejected, they will proceed on to their second choice, and so on. This does result in some uneven distribution of graduates, limited solely by the funding allocated to each hospital's various services and the number of residents that that hospital will require. Changes are beginning to be implemented regarding resident sharing among hospitals, and some unification of the residency application process, but nothing near the scale of ERAS in the US is close to being implemented.

Fellowship appears to be similar to residency in that there is also no common application. The difference here is in certification – most certifications in the Chinese system that equate to a fellowship in the US are localized to the institution the provider trained at. For example, a surgeon who qualified in Vascular surgery may only have that qualification at the hospital he trained at, and other hospitals may not accept his credentials unless he has a reputation or connections within the system. This results in much less migration between hospitals in the Chinese system as opposed to in the US.

Provider/Patient Interactions:

Before I delve into provider/patient interactions, I would like to illustrate a typical day in the outpatient section of a Chinese ED. The service itself is named "Flowing Water" (流水), which I believed was an apt descriptor for the service. Imagine a room, about the size of two typical patient exam rooms, with two desks, two computers, and two exam tables. Two senior fellows/junior attendings (about 10 years out from their medical school graduation) staff this service at any given time, working 12 hour shifts. These shifts typically involve 200+ patients, split between the two physicians. While observing this service, I estimated that each patient received an average of about 5 minutes of attention from each provider, which included intake, labs, and prescriptions. The room was usually flooded with patients and family, making patient privacy impossible to ensure. Organization was difficult to maintain as everyone crowded towards the providers instead of lining up.

Because of the short time allotted, the provider/patient relationship became a lot more constrained simply by the lack of time available. Records review is limited solely to records brought by the patient. Aside from the History of Present Illness and Past Medical History, all other sections of the note that would be addressed in the US are ignored or focused solely on what relates to the disease process at hand. Frequently, additional history taking or examination was dropped in favor of immediate imaging or laboratory studies to rapidly narrow down the diagnosis. The cost controlled nature of most laboratory studies and imaging favors this approach.

Given the high patient volume, chaotic environment, and impatient patients, the tone of these interactions is much different than the average outpatient or ED visit in the US. Physicians do not have the time to build a rapport with the patient and negotiate a plan that the patient can carry out. Instructions are given, prescriptions written, and the impetus is on the patient to carry out the instructions. The authoritarian tone that most providers exude drastically differs from the cooperative one taught in the US.

Outpatient visits, such as at a cardiology clinic or an endocrinology clinic, function much the same way as the Flowing Water service, but with a little bit more time per patient encounter, and occasionally provider familiarity with the patient's PMH if the patient is fortunate to arrive on a day the provider is working.

System Differences:

The reasons for this crowding of Chinese hospitals can be narrowed into three – a large starting patient population, ineffective utilization of medical services by the population, and a lack of primary care physicians. The first reason is self-explanatory – the population of the PRC is 1.3 billion as of 2017, compared to the US at 300 million. Physician density is also lacking compared to the US, at 1.49 vs 2.55 in 2011[1]. Rapid migration to urban centers further swells the patient load that physicians in major metropolitan areas have to work with.

In my time there, I observed hospitals frequently running out of hospital beds for patients. In contrast to the maximum of 2 to 3 beds per room we have in the US, I encountered rooms with up to 8 beds, with each patient allotted little more than a bed, a nightstand, and a small walkway of space. This was in sharp contrast to the comparatively luxurious amount of space that patients in the newly constructed Jacobs Medical Center received.

[1] https://www.cia.gov/library/publications/the-world-factbook

Ineffective utilization of healthcare was another contributor to this overcrowding, largely because the average patient would proceed directly to a tertiary care center for any ailment instead of relying on first or second line centers first. This results in a sharp imbalance of patient loads, where tertiary centers are overwhelmed while 1st and 2nd line centers are typically empty. Multiple explanations may exist for this phenomenon, but the first reason that most physicians brought up when I asked them why patients behaved this way, was that all patients simply wanted the best care available. In China, this meant seeking out a tertiary care center, be it a severe bout of pneumonia, or something as simple as a medication refill.

A lack of primary care physicians only exacerbates this problem, as there is no filter that helps prevent the simplest cases from resorting to a specialist. Chronic conditions that would be managed by a PCP in the US are instead handled by specialists, such as cardiologists treating chronic hypertension, pulmonologists treating mild to moderate asthma, and endocrinologists treating subclinical hypotension. Family medicine as a specialty does exist in China, however such physicians are few in number and the scope of their practice is severely limited compared to their Western counterparts.

Role of Traditional Chinese Medicine:

There exists a sharp divide between specific TCM practitioners and Western-style physicians, with most Western style physicians mistrustful of much of the TCM field. However, this is paired with consistent utilization of TCM throughout the hospital by the same providers. Examples include the use of berberine, a typical TCM component, for IV infusions to control hypertension, or poultices to treat post operative ileus. TCM physical exam findings are used as well, with several older attendings checking patient's tongues to determine reasons for constipation, to checking eyelids for anemia.

However widespread the use of these methods of TCM in Chinese hospitals, the clear majority of treatments are based off of evidence sourced from Europe and the US. TCM, when used, was generally limited to more benign conditions, and in cases where its use would not likely be harmful to the patient. TCM pharmacies are present at every hospital, primarily for patient safety. Experts in the field would be available for consultation, and to source components of poultices.

Final Notes:

During my observation period, I did note a few differences that do not fit into any of the categories above, but would bear mentioning.

- The healthcare system in China consists of a single payer insurance funded by the government. A typical plan consists of 20,000 yuan allotted to each person to be spent in a year, with a deductible of 2000 yuan. Copays are between 10-20% of any total cost. Strict price controls are in place for all medications, lab studies, and imaging studies. For example, a CBC drawn in China cost a patient 20 RMB in total, with a 4RMB copay. 500mg of Rivaroxiban cost a total of 137 RMB in China, equivalent to 45 USD. The same amount may total to 180 USD, depending on location. Variations in the insurance system and copayments exist based off of province, and out of region/in region spending.
- Hospital organization differs somewhat from the US. General internal medicine does not exist as a specialty – instead, cases are split between the different specialties, with acute cases leading to inpatient stays handled by a dedicated "Inpatient Emergency Ward". This service includes their own ICU beds. Examples of cases handled by this team

included community acquired pneumonia, and acute CHF exacerbations. Each specialty also has their own wards. Interestingly enough, the Cardiology service and the Cardio Surgery service shared the same ward and Critical Cardiac Unit.

- The quality of physicians in China is, by my opinion, on par with the average American physician. I initially expected the inverse, however I was proven wrong due to the fact that many Chinese physicians have opportunities to travel abroad and study in European and American healthcare systems. Many attendings that I encountered frequently travel to Europe or the US to participate in conferences, and several key figures in Chinese medicine initially trained in the US.
- The quality of healthcare in general, however, is lacking compared to the US. This, I believe, is still a simple case of resource availability – there simply exists far too many patients in China versus the US for the system to handle. The lack of many of the primary prevention measures taken the US but not in China, such as dedicated anti-smoking measures, only exacerbates the issue.
- The high patient volume presents an opportunity for greater training by experience. Senior residents in China see a patient volume per week that American residents would have difficulty hitting in a month. This does present unique opportunities for exchange programs for American residents and medical students, should the language barrier be overcome.
- The electronic medical systems in place in China are also universally despised, similar to systems in the US and American physicians' opinion of them. Some things appear to be universal no matter where in the world you go.