

A Review of the Modern Mongolian Healthcare System

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Objectives: Known to most as the horse-loving homeland of Chinggis Khan, Mongolia is today a country of increasing geopolitical, economic, and popular cultural significance. But even as an increasing number of health workers visit the country, its healthcare system remains unexplored in the medical literature. Here follows a broad-brushstrokes overview of the modern medical system of Mongolia, its structure and challenges. It is comprised of an overview of the country's demographics, health profile, and medical history, followed by a brief summary of selected issues that affect the modern healthcare system. **Methods:** Descriptive single-case study consisting of clinical observations by the authors, original hospital-level data, and interviews with practitioners and policymakers. **Results:** The Mongolian healthcare system has performed well through the tumultuous transition from a socialist to a capitalist economy. Our analysis reveals three areas that require improvement: delivery of care, practitioner experience, and health systems administration. **Conclusion:** This article reviews not only the history and structure of the modern Mongolian healthcare system, but also its strengths and challenges. It is hoped that in explicating these issues, current and future efforts to assist Mongolian healthcare providers may be directed more constructively and efficiently.

Keywords: Mongolia, Delivery of Health Care, Asia, Central, Global Health, Internship and Residency

Introduction

Mongolia, birthplace of empires, former Soviet satellite, forever Land of the Blue Sky, is a country familiar with change. In the last one hundred and fifty years it has transitioned from an almost entirely nomadic country to one whose population is predominantly urban and sedentary. Recently the fastest growing economy in the world, today experiencing slowed growth, many aspects of its infrastructure, including its healthcare system, are complex and as yet evolving; they deserve careful consideration by foreign nationals seeking to provide aid. Nevertheless, there

exists little information in the medical literature regarding the Mongolian healthcare system.

The following is a broad overview of the modern medical system of Mongolia: its structure and challenges. It begins with an overview of the country's demographics, health profile, and medical history (relevant as many issues faced today are rooted in the recent past). It continues with a brief summary of selected issues affecting the modern healthcare system. This latter summary is broken into three sections: the first treats issues that directly affect care, the second practitioner experience, and the third larger systemic problems.

Overview

1. Demographics

On July 1, 2014 the population stood at 2.9 million with a two person per kilometer population density. This statistic makes it the least population-dense country in the world even as 68.1% of the national population lives in an urban setting. An estimated 2.81% of the population has migrated annually from the countryside to urban areas since 2010 [1]. The World Bank reports that in 2014 persons under 15 comprised 27% of the population, those between 15 and 64 years of age represented 69% and persons 65 and over made up 4% [2, 3]. In 2014, 29.8% of the population lived at or below the national poverty line. This statistic represents an increase since a 2012 estimate of 27.4%; nevertheless, both levels are a significant decrease from 2010 when 38.7% of the population was reported to live in poverty [4]. Notably, despite this figure, Mongolia's adult literacy rate was reportedly 97.8% in 2012. According to country analysts, this statistic may reflect the country's abiding respect for education or else a loose definition of literacy [2].

2. Health profile

In the last quarter century Mongolia's health profile has transformed. Since the 1990's both death and fertility rates have declined. The fertility rate, at 4.05% in 1990, dropped to 2.09% in 2002; by 2014 it had crept up to 2.44%. Similarly, the population growth rate was 2.0% in 1990, reached a nadir of 0.76% in 1994, and rose to 1.48% by 2014 [3].

In 2013 the infant mortality rate rested at 26.4 deaths per 1,000 live births [1]. The adult mortality rate (between ages 15 and 60) in 2013 was reported at 305.4 per 1,000 persons for men and 145.1 for 1,000 persons for women [2]. The average life expectancy was 67.55 years [3]. Not surprisingly, morbidity and mortality patterns have evolved with Mongolia's socioeconomic development. The prevalence of communicable and respiratory diseases has declined while that of neoplasia, cardiovascular disease, injury, and poisonings have increased. Respiratory disease nevertheless remains the nation's leading cause of morbidity [2]. It is followed by gastrointestinal, genitourinary, and cardiovascular disease, in that order. Cardiovascular incident, malignancy, injury, and gastrointestinal disease are, in order of

incidence, the leading causes of mortality [5].

Total healthcare spending has increased with GDP over the last several years and is the fifth greatest government outlay [6]. Recent figures report that in 2013 total health expenditure represented 6.01% of GDP [7]. 60.25% of that expenditure was public, a decrease since the 1990's and early 2000's when public spending comprised approximately 80% [3, 8].¹

3. History

Traditionally, medicine in Mongolia has been conducted by shamans, Mongolian Buddhist healers, acupuncturists, bonesetters, and countryside healers. The tradition continues today as, most public hospitals in Mongolia have both modern and traditional wings. The country's first system providing "modern" medicine was structured under the Semashko model introduced by the Russians in the early twentieth century when the USSR (effectively, if not officially) occupied Mongolia. The Semashko model created a free national healthcare system whereby the state was responsible for delivering and financing medical services. The Soviet model also presumed that healthcare (from primary to intensive care) was to be provided almost exclusively in the inpatient setting. This philosophy led to the establishment of a large, diffuse hospital network with intense human resource requirements [9]. In 1990, when the Soviet subsidies needed to support this large network of hospitals ceased, the system underwent partial privatization. However, despite the larger political and economic changes ongoing at the time, for years, much of the thinking regarding healthcare provision and administration remained unchanged.

Mongolia has made great strides since that period in revising its healthcare system and adapting it to a market economy. This accomplishment is no small feat given the country's modern history of severe socioeconomic hardship. Still, several challenges extant today trace to the Soviet era. Most patients still expect hospitalization for the treatment and diagnosis of even minor medical problems. This reality understandably strains government finances and clinician time, and perpetuates the existing expansive hospital network and healthcare sector. There has been some shift to outpatient treatment in the past twenty years, especially as private hospitals, capitalizing on their presumed superiority to public institutions, build clinics. However,

¹ The ADB reports that in 2014 total governmental expenditure represented 2.9% of GDP, a decrease since 2012 [6].

it is challenging to establish successful public outpatient clinics given the current system of reimbursement.²

4. Issues affecting modern healthcare system

4.1 Issues directly affecting care

4.1.1 Access to healthcare

The World Bank reports a 2.84 to 1,000 doctor to patient ratio (a relatively high proportion); however this statistic does not reflect the unequal distribution of physicians in the country [3]. As in many countries, doctors are concentrated in cities and scarce in rural areas. Most prefer to stay in the capital after medical school for both professional and personal reasons.

In countryside soums (districts), healthcare access is challenged by lack of infrastructure, low population density, and residents' nomadic lifestyle. Similarly Ulaanbaatar's (UB) public hospitals, built during the Soviet-era when the capital was less than half its current size, are clustered in the town center. They are on average an hour's drive from the ger districts (shantytowns) that house about 60% of the city population. Furthermore, unless individuals are registered with the government – a difficult task for the city's many recent migrants – they are not eligible to receive social services including health care, education, and disability and unemployment insurance [9].

While the majority of the population makes use of public institutions where care and medications are ostensibly paid for by national health insurance, wealthy inhabitants of UB seek treatment in purportedly higher quality private hospitals. The Asian Development Bank (ADB), in its analysis of this phenomenon, reported "there is a risk that the health system will become a dual system in which public facilities are used by the poor and private facilities by the better off" [9].³

4.1.2 Hospital system

The public hospital system in Mongolia is organized as follows. There are dozens of "first level" clinics which provide primary care and treat minor maladies. Patients with more significant

illnesses are referred to one of the twelve closest UB district hospitals or twenty-one aimag (province) hospitals considered "second level" institutions. Should a patient in a rural region require a level of care beyond that which is available at the local aimag hospital, he or she is referred to the nearest of the five "zone" hospitals known as "Regional Diagnostic and Treatment Centers." These larger facilities, located in the Khovd, Orkhon, Uvurkhangai, Umnugobi, and Dornod aimags, provide the highest level of healthcare available in the rural setting to the denizens of neighboring provinces.

If necessary, these zone and all UB district facilities will refer patients to the central UB hospitals for definitive care - Hospitals One, Two, and Three, and the National Center for Maternal and Child Health (NCMCH) - or else to the larger specialty centers. These specialized facilities are known as "National Centers" and treat only their designated pathologies. There are centers for infectious disease, oncology, psychology, trauma, orthopedics, zoonotic disease, dermatology, and gerontology as well as centers for pathology (autopsy), public health, and traditional medicine. There is also a stand-alone blood bank. Even the generalist Hospitals One, Two, and Three are somewhat specialized. All neurosurgery and cardiothoracic surgery in the country is performed at Hospital Three.⁴ Hospital One covers proctology. Hospital Two was formerly the hospital for government officials and today remains unspecialized.

Almost all of the national centers have affiliated emergency departments. Given that, by and large, the field of emergency medicine does not exist in Mongolia, emergency departments reflect their hospital's specialty. That is to say, emergency rooms are staffed by specialists or else by generalists with extensive experience in that hospital's discipline – e.g. cardiologists at the cardiac hospital, oncologist at the oncology hospital, etc. [10].

The private hospital system is not similarly coordinated with respect to acuity and specialty. There do exist, however, both traditional Mongolian and Western-style clinics which provide largely generalist care. As one might expect, the greatest differentiation between Western-style and traditional hospitals lies in the populations they serve and the types of

² Beyond the scope of this report is a full exploration of national efforts to increase the supply of primary care physicians. Of note, traditional (alternative) medical practitioners very frequently function as primary care givers in both the countryside and cities. Multiple national and international projects exist to promote traditional medicine in order to increase the overall supply of practitioners with a mind to preventive care and countryside practice.

³ That quote continues with: "... Such enterprises may, for instance, bypass the HIF (health insurance fund) by registering individuals under subscription payments and charging fees or by entering into service contracts of PHC services with private enterprises" [9].

⁴ Hospital Three also has a cardiac catheterization laboratory.

medicine they utilize. Of the former, several have tertiary-care level facilities if not always a full staff to support them. There are some more specialized clinics, maternity clinics for example, but specialization is by and large the province of public hospitals.

4.1.3 Insurance and inpatient services

Adult admissions are strictly limited to ten days, regardless of pathology, prognosis, or disease course. If a patient requires continued care, he or she must go to a different facility for the subsequent ten days. Government insurance, available to all citizens, covers ninety percent of hospital costs. Pediatric inpatient stays are unlimited and public insurance pays for all necessary services except those outsourced to private hospitals. CT and MRI, for example, are frequently unavailable in public hospitals; for such imaging patients must go to separate facilities and pay out of pocket. Of note, public reimbursement is not linked to hospital performance [11]. As one would expect, admission to private hospitals requires the purchase of private insurance or payment out of pocket.

4.1.4 Pharmacy

All publically-prescribed inpatient medications are bought for hospitals by the government and are supplied by Mongolian companies who bid competitively for this business. These firms contract with foreign pharmaceuticals and are responsible for quality control. Mongolia does have an indigenous pharmaceutical industry, but most medications come from Europe, Asia, and the United States. All US Food and Drug Administration (FDA) approved medications are permitted in Mongolia, per a recent government law. (Previously all medications had to be re-approved by the Mongolian Ministry of Health. Now, if they have been certified by the US FDA, they may be imported immediately.) Medication shortage is reportedly an issue in adult hospitals. When supply runs out at a given facility before the next shipment arrives, the patient's family must purchase the drug at a private location out of pocket. There have been no such shortages at NCMCH in the last two to three years.

In the outpatient setting a selected few medications are free and provided by the government (e.g., insulin for diabetics and pain medications for oncologic patients). Certain other commonly used generic medications are discounted by the government (i.e., partially covered by insurance). Other drugs

must be paid out of pocket. Mongolian drugs, being cheaper, are more attractive in this setting than imports.

4.1.5 Technology

There are, in the public and private sectors combined, approximately ten CT and ten MRI scanners, a significant increase from the reported three and zero available in 2006 [10]. There are numerable x-ray and ultrasound machines in country. NCMCH alone reports twenty-five ultrasound and five x-ray machines.

4.2 Issues affecting practitioner experience

4.2.1 Medical school and residency training

The six years of medical training are most commonly undertaken at the Mongolian National University of Medical Sciences, home to approximately six thousand medical undergraduate and fifteen hundred graduate students. It uses a case-based learning approach and teaches by organ system.

In the fall of 2015, the national residency curriculum will undergo drastic reform. In years past, residency followed six years of general undergraduate medical training and two years of paid but unstructured work (i.e., no curriculum) in countryside and city district hospitals. Nonsurgical residencies including obstetrics were one and a half years long. Surgical residencies were three years long and all fellowships were six months.

All graduates from 2015 onwards, having completed medical school, will now do two years of paid, structured work (following a curriculum) in countryside and district hospitals. All national residencies will be four years long, regardless of type; fellowships will continue to be of six months duration.

Residents, in the future as in the past, will continue to pay for residency. The hospital requires an average of 700 USD a year to train a resident. Historically, most parents paid this fee for their children. If they did not, doctors were required to take part time work both to pay for their training and to support their families. (Note that residency starts around age 24 when the average Mongolian has children.)

In the future, what was once a peripheral opportunity for the willing will become the national expectation. Namely, those typically short-staffed countryside and city district hospitals where physicians do their first two years of postgraduate

work will pay for residency in exchange for the practitioner's commitment to return to their facility.

There exists no national standardized contract between residents and hospitals, but physicians have traditionally been obligated to return to work for about three years. If a resident chooses not to partake of such an agreement for personal or professional reasons, he or she must pay for training out of pocket. It is unclear whether or not these agreements will cover living expenses, or if residents will still need to take part-time work.

Medical training at all levels – medical school, residency, and fellowship – follows an observational and apprenticeship model. Medical students, even in their final year, are observers, meaning there is no equivalent to the sub-internship in the American system. Residents are, in the words of one physician, “attending’s helpers” and do not direct patient care. Fellows have a similar role to residents, but have priority over procedures. It is thus not until one becomes an attending that one has real, full clinical responsibility. It is unclear if this aspect of training will also be reformed under the new system.

4.2.2 Brain drain

Public to private sector brain drain is acknowledged by all to be a significant problem. Private clinics that cater to the wealthy and foreign make it their business to snap up the best residents and more experienced doctors from state clinics. If they are willing to handle some professional instability (state hospitals provide guaranteed employment, private clinics are only as stable as the national economy), physicians will enjoy shorter hours, less bureaucracy, and salaries up to five times greater.

Although clinicians' reasons for changing institutions are manifold, physicians in both the private and public sectors opine that it is the difference in salary which mostly spurs the change. Anecdotally, one physician who trained abroad and worked briefly in the public sector before entering private practice reported that her ideas for clinical improvement were frustratingly contingent on the support of senior physicians and/or foreign consultants. She cited her exasperation with that reality, as well as improved salary, as a reason for leaving to work in the private sector.

It is difficult to quantify brain drain given that the reasons staff cite for leaving are many and frequently do not reference switching institutions. Often, it is not until months after someone departs that their coworkers discover the physician is working

at a private hospital. NCMCH noted that in a single year of its two hundred and twenty five employees, approximately ten (of their best and most experienced physicians) left for the newest tertiary care hospital alone. In 2014, a reportedly average year for hospital turnover, a total of twenty-nine doctors and thirty-six nurses left that institution.

4.2.3 Medical mindset

Historically physicians were educated in the Soviet style of medicine. This approach relies heavily on visual diagnosis. It assumes that one diagnoses and subsequently explicates the patient's symptoms and treats accordingly. This system contrasts with the contemporary western approach in which one builds a differential diagnosis from the observation of symptoms and syndromes. Physicians note that the latter technique was adopted by the Mongolian National University of Medical Sciences in the early 2000's, but that the transition in thought is still underway. This issue is compounded by the fact that clinician scientists are very few in Mongolia: one is either a practitioner or a medical researcher. There is, however, expressed interest in encouraging young doctors to perform research and incorporate that critical mindset in their clinical practice.

Of note, Mongolians are remarkably open-minded to adopting foreign practices which they deem functional and efficient. Frequently polyglots and increasingly fluent in English, Mongolians are no stranger to studying abroad. In a way, their culture of nomadism was transmuted during the communist era when all manner of professionals were sent to countries throughout the Soviet bloc to observe, study, and train. This practice has continued since Mongolia's democratization and in medicine has created a professional culture very accepting of changes in practice.

4.3 Larger systemic issues

4.3.1 Institutional turnover

Incoming political powers may, and traditionally have, replaced all government employees. Healthcare consultants note that rapid turnover manufactures short institutional memory and complicates program implementation as new staff must be trained and pre-existing projects explained anew. Notably, after the most recent election the new government retained top employees at the Ministry of Health, a very promising sign that

this practice may be discontinued.

4.3.2 Resource utilization

Given its strategic geopolitical position, Mongolia receives a significant amount of foreign aid from varied and different organizations, each with their own motives and demands. This aid takes the form of medical missions, donated technology, and grants.

Mongolian hospitals have a respectable amount of medical technology and they have successfully sent practitioners abroad for advanced training. Observation suggests that the benefits of this boon could be increased with greater knowledge of how to maintain technologies and best deploy available human capital.⁵ A simple example of the latter phenomenon is how physicians who train or study abroad frequently and quickly transition to working at the Ministry of Health where they do not practice clinically.

Conclusion

This article has reviewed not only the history and structure of the modern Mongolian healthcare system, but also its strengths and challenges. It is hoped that in contributing for the first time this information to the medical literature, clinicians who visit the country may prove more effective in their practice.

Conflict of Interest

The authors state no conflict of interest.

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⁵ Visitors to Mongolia have noted that relatively poor equipment maintenance undermines the utility of said technologies [10].