Are Biomedical Exchange Programs Inside The People's Republic of China Feasible: Report of a Six-Month Study at Hubei Provincial Medical College

GAIL E. HENDERSON, M.A., AND MYRON S. COHEN, M.D.

The University of Michigan Center for Chinese Studies, Ann Arbor, and Yale University School of Medicine, New Haven, Connecticut

Received July 17, 1980

Between November 1979 and April 1980 we lived at Hubei Provincial Medical College (HPMC) in Wuchang, Hubei Province, People's Republic of China, in order to organize an exchange program on behalf of the Infectious Disease Section at Yale University School of Medicine. HPMC consists of a medical college, two affiliated Western-style medical hospitals, and a dental hospital. This institution and the living and working conditions arranged on our behalf are described. Ultimately our work centered on epidemic hemorrhagic fever (EHF), a disease with a high incidence in Southern China; the study of EHF may serve as a focal point for ongoing collaborations. Our results suggest that institution-to-institution exchange programs are feasible and will probably become more common in the future.

INTRODUCTION

On January 31, 1979, during the visit to the United States of Chinese Vice Premiers Deng Xiaoping and Fang Yi, two major agreements concerning science and technology and cultural relations were signed [1]. Since that time, the number of Americans and Chinese involved in exchange programs in these fields has steadily risen. On the American side, participation has been administered for the most part by the Committee on Scholarly Communication with the People's Republic of China (CSCPRC), which is jointly sponsored by the American Council of Learned Societies, the National Academy of Sciences, and the Social Science Research Council. The CSCPRC programs encompass a variety of formats designed to meet the needs of both students and researchers (over 110 by spring 1980 [2]), as well as shorter visits by lecturers and delegations [3]. The areas of research of those scholars sponsored by the CSCPRC range from the basic sciences to the humanities. Reports from these initial trips have been generally favorable, although first ventures understandably encountered certain logistical, technical, and bureaucratic problems [4,5,6].

More recently, we have attempted to initiate an ongoing exchange program between Yale University School of Medicine and Hubei Provincial Medical College. In contrast to the government-sponsored programs described above, this exchange was undertaken on the basis of personal relationships and is part of a blossoming...
number of institution-to-institution, and even state-to-province (e.g., Ohio–Hubei), relationships between Americans and Chinese. The idea for this exchange was sparked by the merging interests of diverse groups at Yale. The Section of Infectious Diseases at Yale University School of Medicine had previously sponsored exchange relationships with infectious disease specialists from other countries. The head of virology at the Yale-affiliated West Haven Veteran’s Administration Hospital, Dr. G.D. Hsiung, had recently reestablished contacts with former classmates now in leadership positions at Hubei Provincial Medical College. The Yale–China Association was well known for its long history of interest and investment in medicine in China before 1949 [7] and was eager to renew this tie. Finally, the authors presented themselves as a willing and likely team: a physician-researcher representing Yale’s Section of Infectious Disease, and a doctoral candidate in sociology at the University of Michigan with a working knowledge of Chinese, and financial support from the University of Michigan Center for Chinese Studies.

Thus the ad hoc exchange began. Instead of applying through official channels, letters were written to the leaders of Hubei Provincial Medical College. They, in turn, applied to the appropriate provincial and national authorities in China. After eight months of letters and cables, the necessary visas were approved. In November 1979 we set off for China, yet neither we nor our hosts had a clear understanding of just what we would be doing once we arrived. Communications had been so difficult that very little about our visit could be planned in advance. In this article, we describe our living and working conditions at Hubei Provincial Medical College. In addition, we hope to convey the process through which the actual exchange—goals, tasks, and realistic possibilities—gradually evolved. We believe that understanding this process will serve as a guide for future scholars and investigators who have the opportunity to participate in this and similar programs.

HUBEI PROVINCIAL MEDICAL COLLEGE

Hubei Provincial Medical College (HPMC) is located in Wuchang,1 the capital of Hubei Province, in central China (Fig. 1). The campus is on the outskirts of the city, along East Lake. The Medical College has 1,334 faculty and staff, and 1,500 students.2 Like all other work organizations in China, HPMC is called a “unit” (danwei). The dual function of a unit is to provide access to higher levels of government and to provide services for constituency and staff. HPMC is a relatively large unit [8] which provides housing, dining halls, day care, and primary school for its staff. Students and scholars who go to China will inevitably be associated with a unit, so it is essential to understand its central importance in Chinese society. In addition to being a place of work, the unit often directs or influences much of one’s personal life. For the larger units, which seem to operate in isolation from one another, the effect is one of a rather self-sufficient urban village. Units are not independent actors, however, and, in fact, decision-making powers usually rest with higher levels of authority. Units can best be described as conduits which administer power from above and channel communications from below.

HPMC is part of such a multi-tiered administrative hierarchy (Fig. 2). It is directly responsible to the Provincial Bureau of Health, which controls all financial matters,

---

1Three cities are located together along the Yangzi River: Wuchang, Hanyang, and Hankou. They are commonly referred to as Wuhan.

2The five-year Medical College enrolls 500 students in each class. Ordinarily total enrollment would be 2,500, but because the College was closed during the Cultural Revolution, it is only gradually returning to that figure.
ARE EXCHANGE PROGRAMS INSIDE CHINA FEASIBLE?

FIG. 1. The exchange program was initiated at Hubei Provincial Medical College in Wuchang. Wuchang and Hankou are separated by the Yangzi River. Wuchang, Hanyang, and Hankou are collectively called Wuhan.

FIG. 2. Hubei Provincial Medical College and Its Three Attached Hospitals.
as well as the assignment of staff. The Medical College, in turn, administers three attached hospitals: two medical and one dental. The first attached hospital and the dental hospital are both located in other parts of Wuhan and are constructing new facilities. The second attached hospital is located directly adjacent to HPMC.

Patients treated at HPMC's attached hospitals are usually referred from lower level city, county, or commune hospitals, or from neighborhood or work unit clinics. All the hospitals attached to Wuhan's two medical colleges, as well as several of the city hospitals, are designated as supervisory hospitals for counties in the Hubei countryside. Patients are referred up and medical personnel are periodically "sent down" [9] to these counties as part of a mutual assistance relationship. Table 1 summarizes the HPMC patient population between 1978 and 1979.

We were assigned to the second attached hospital of HPMC. It is a Western-style hospital with 580 beds, 300 physicians, 300 nurses, and 250 other staff. Its departments include internal medicine, surgery, infectious diseases, neurology and urology, ENT and dentistry, obstetrics and gynecology, pediatrics, radiology, and combined Western and traditional Chinese medicine. We were given an office in the infectious diseases ward. There we embarked upon several projects designed to provide us with the information which would allow us to design an exchange program. To acquire general knowledge about the delivery of medical care, we toured the Medical College and its three hospitals and interviewed officials in these units. More concretely, we became integrally involved in the daily activities of the infectious diseases ward. This proved to be the bulk of our experiences at HPMC and the background from which the elements of an exchange emerged.

THE INFECTIOUS DISEASES WARD OF THE SECOND ATTACHED HOSPITAL

Organization

The ward itself is situated in a wing of the hospital, separated from the rest of the building by a locked door and a washing room antechamber. The door is locked because the patients have "contagious diseases," although the only processes that represent a public health hazard are hepatitis, dysentery, and typhoid fever [10]. Admissions to the ward between January and February 1979 are shown in Table 2. The ward contains forty beds in eight rooms, a central nursing station, a medicine

| TABLE 1  
| Patient Population at the Three Attached Hospitals of Hubei Provincial Medical College, 1978 and 1979 |
|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| First Attached Hospital | Second Attached Hospital | Dental Hospital |                      |
| 1978 1979 | 1978 1979 | 1979 |                      |
| Avg. length of stay in hospital (days) | 19.9 19.4 | 19.2 19.0 | 19.3 |                      |
| Patients per bed per year | 15.4 15.2 | 16.9 16.9 | 14.4 |                      |
| Percentage beds used | 84.9 83.3 | 88.8 87.8 | 77.4 |                      |
| Avg. no. days bed in use | 309.9 304.1 | 324.2 321.0 | 282.5 |                      |
| No. patients discharged from hospital per year | 9,739 9,925 | 6,944 7,071 | 1,019 |                      |
| No. patients seen in outpatient dept. per year | 557,482 575,665 | 363,231 371,876 | 128,367 |                      |
| Avg. no. daily visits to outpatient department | 2111.3 2257.5 | 1402.4 1458.0 | 623.5 |                      |
| Death rate | 4.0 3.5 | 3.9 3.7 | – |                      |
ARE EXCHANGE PROGRAMS INSIDE CHINA FEASIBLE?

TABLE 2
HPMC First Attached Hospital Infectious Diseases Ward Admissions: January–February, 1980*

| Diagnosis       | No. | Duration of Stay† | Deaths |
|-----------------|-----|-------------------|--------|
| Hepatitis       | 49  | 37.8 ± 3.39 (n = 30) | 5      |
| EHF             | 5   | 49.4 ± 4.5        | 0      |
| Schistosomaisis | 5   | 39.4 ± 1.96       | 0      |
| Dysentery       | 19  | 17.0 ± 3.88       | 0      |
| Other†          | 7   | 12.8 ± 3.5        | 1      |

*Admissions: January 1–March 1
†Mean ± standard error of the mean
‡This category includes typhoid fever, gall bladder disease erroneously diagnosed as hepatitis.

Room, an on-call room, two small offices, and a storage room (Fig. 3). The largest patient room has six beds and the smallest, for the sickest patients, has three. All the rooms have windows which face into a central hallway, as well as doors and windows which exit into a locked courtyard to be used only by the infectious diseases patients.

The infectious diseases ward was actually established by the national government as a public health measure, and special precautions are maintained. The staff change shoes on entry and exit. They wear gowns with sleeve ties and hats, as well as wraparound gowns to examine patients with typhoid fever. Gloves, an expensive commodity in China, are rarely used, and are always reused after sterilization. Instead, a basin filled with a chloramine solution is available, and the staff soak their hands for three to five minutes after working with patients. All doors are on swinging hinges and are nudged open with the feet rather than opened at the handles. Stethoscopes, flashlights, and other patient care equipment are stored in a sealed cabinet in which formaldehyde is aerosolized. Needles, rubber tubing, and bottles are autoclaved and reused, except for materials used in the treatment of hepatitis, which are discarded. Each two patient rooms share a bathroom, but we were unable to ascertain the destination of flushed wastes.

Staff

At the inception of our project, the ward was staffed by five physicians (two female, three male), eleven nurses (all female), and three health workers3 (two female, one male). A job which combines the duties of nurses' aides and cleaning personnel.

FIG. 3. A floor plan of the infectious disease ward of the second attached hospital of HPMC.
one male). The physicians had all been trained in six-year, Western-style medical schools before the Cultural Revolution (1966–1976), but all used a smattering of Chinese traditional drugs and one had studied to become the resident Chinese traditional medicine expert. (Consultation in this area is also available from the hospital’s combined Western and traditional medicine ward.) Although all the physicians were over forty, four of the five were still at the lowest job rank, the resident physician (zhuyuan yisheng). Very few physicians had risen to the next level, the main treatment doctor (zhuzhi yisheng), because of the upheavals of the Cultural Revolution. The ward had a single director (zhuren yisheng), the highest hospital rank for physicians, who had been promoted shortly before our arrival.4

During our visit fluctuations in the composition of the physician staff occurred. Two doctors were excused from their duties to study English for six months, one was assigned advanced training in immunology at a major hospital in Sichuan province, and one was assigned to work with us. These vacancies were rapidly filled from within the hospital, and with “returnees” from language study and from countryside duty.

The nursing staff was composed of nine nurses and two head nurses. The older nurses had received formal training in traditional three-year programs. Younger nurses had been trained on the ward during the Cultural Revolution. The youngest were graduates of abbreviated training at recently reopened nursing schools which are now reverting to their pre-Cultural Revolution curriculum.

The health workers on the infectious diseases ward were all recent high school graduates. Two had actually filled posts left vacant when their parents retired. This kind of nepotism is increasing, and rules have been established to regulate it.

During our visit, the nine nurses—and often the head nurses— all shared their tasks equally, as did the health workers. In fact, the health workers frequently helped the nurses when they were busy. While we were in China, however, we witnessed the beginning stages of reestablishing more specialized job ranks. For physicians, this constituted a variety of meetings to decide upon criteria for promotions and academic posts. For nurses and health workers, it meant preparation for a series of province-wide examinations for assignment to the new job designations, and for possible further job training. In addition, qualifying examinations were given to nurses who had been allowed to practice medicine during the Cultural Revolution as well as to those older, experienced nurses who wished to become teachers.

Working Environment

A daily pattern emerged within a few weeks after our arrival. We went to the ward at 8 A.M. Monday through Saturday and listened to morning report. This involved a meeting of all doctors and nurses circled around the nursing station desks to listen to the doctor and nurse on duty the previous night, and to hear bulletins from the Medical College or the hospital (Fig. 4). Subsequently, we would make rounds with the doctors assigned to work with us and would occasionally meet in a group to discuss interesting patients. Our morning would end at noon, at which time everyone eats and rests for two hours.

Shortly after we arrived, we agreed to teach spoken English to a class of physicians and scientists four afternoons a week. One of the authors (GH) taught three of those afternoons, as well as several classes for the Medical College English teachers. We also attempted to establish a routine for rounds on the general medicine ward, but

4Academic appointments for hospital physicians at the Medical College are not based directly upon hospital rank, but rather upon length of service, education, and age.
because no special relationship with these physicians developed, it was not as fruitful as the work on the infectious diseases ward. Free afternoons were spent organizing our experiences and data.

After several weeks we became comfortable with our routine and became familiar with the Chinese style of medicine. We then directed our attention to plans for the exchange itself. The most promising plan seemed to be to begin a project in a specific area unique to China which might thus pique the interest of our American colleagues. For this reason, during the latter half of our stay in China, we focused our attention on epidemic hemorrhagic fever (EHF).

EHF is a disease of presumed viral etiology [11], encountered in Asia and Northern Europe. Clinical manifestations include disorder of the kidneys, lungs, liver, CNS, hemostatic and immune systems [13]. Research areas for future investigation include virology [11], nephrology (mechanism of renal failure) [13], immunopathology, and neurology (mechanisms of CNS disturbances) [14], as well as others. The leaders at HPMC were enthusiastic about our interest in this disease. HPMC is a designated EHF research center and virologists, epidemiologists, and clinicians have been working in this area since the early 1960s.

Our task, therefore, was to collect the background information essential to collaborative research to be done in China. This involved review of patient records, both retrospectively (1970–1979) and prospectively during our visit; a summary and assessment of research concerning EHF at HPMC, and a review of the Chinese literature on EHF. The Medical College authorities cooperated with these goals to the best of their ability. One physician and several translators participated in the chart and literature review, and all HPMC investigators freely discussed their work and future plans. Since we have returned to the United States, communication with HPMC continues, and collaborative articles are now in preparation [14,15].

Living Conditions

We were the first foreigners to live at HPMC since before the Chinese Revolution in 1949, and, consequently, the College leaders were especially concerned about our physical comfort during our stay in China. In our earlier communications, we had requested housing with our Chinese colleagues. However, since most foreign visitors are placed in hotels, we were surprised and delighted to discover that an apartment had been prepared for us on the hospital grounds. We lived in a small three-room
apartment with a bathroom and kitchen, and a balcony off the bedroom. Our building housed seven other families, in identical apartments, and was located a two-minute walk from the hospital. Because Wuhan is damp and cold for most of the winter, the hospital authorities arranged to pipe in steam from the hospital furnace and thus provide us with the rare luxury of radiator heat and hot water. In addition, we were given an electric heater for very cold nights. Our completely furnished apartment included a refrigerator, a coal-burning stove (later replaced by a more convenient gas burner), comfortable furniture, kitchen utensils, and linens.

Despite our desire to eat with other staff in the hospital dining hall, our hosts insisted upon providing us with a cook who arranged for a supply of food in addition to preparing lunch and dinner. Our rations followed the national government regulations for foreigners in China, and we ate very well. While we went out to work six days each week, a day care teacher came to our home to look after our daughter, Jessie.

Initially, we found it difficult to assess our cost of living at HPMC, primarily because few guidelines for foreigners were available, and our hosts seemed quite uncomfortable with this issue. Eventually, through a series of discussions with the hospital leaders, we arrived at a financial arrangement acceptable to all concerned (Table 3). Although this situation was appropriate to our funding and accommodations, those involved in future exchanges will certainly have to renegotiate on an ad hoc basis.

DISCUSSION

Our stay in China provided a window to view the living and working conditions at HPMC. The living conditions are excellent. The leaders and staff became close

TABLE 3
Living Expenses at HPMC: November 1979–April 1980

1. Foreign visitors' income: 300 yuan*/month for English teaching in addition to funding sources cited above.

| Expenses                                      | Amounts          |
|----------------------------------------------|------------------|
| rent (including utilities)                   | 150 yuan/month   |
| food (including cook and 15% fee for purchase of food) | 200–300 yuan/month |
| day care                                     | 50 yuan/month    |
| transportation (in unit-owned bus or jeep)   | .25 yuan/kilometer |

2. Income of typical person in our unit: 40–50 yuan/month

| Expenses                                      | Amounts          |
|----------------------------------------------|------------------|
| rent (for building maintenance)              | 5–7 yuan/month   |
| food (mostly at the unit dining hall)        | 20–30 yuan/month |
| day care                                     | 1 yuan/year      |
| transportation (mostly by bicycle, but when a person uses a unit car) | .50 yuan/kilometer |
| consumer goods (the most expensive item on any budget in China): |         |
| shoes                                        | 20 yuan          |
| warm jacket                                  | 30 yuan          |
| TV                                           | 200–400 yuan     |
| bicycle                                      | 100 yuan         |

*1 yuan = $.67
friends over a short period of time, and are anxious to develop an exchange program with Yale University. Although the HPMC has broad priorities and would like to focus research in a variety of areas, they are enthusiastically willing to allow an EHF project to serve as a beginning. We hope to arrange the equipment necessary to engage in collaborative investigation at HPMC in the areas of virology and immunology. Negotiations are under way to arrange for visits by one or two Yale faculty members to participate in this program, and to provide support for further training of a Chinese investigator. This project, it is hoped, will grow enough to have a positive impact upon the quality of health care and research at HPMC, to sustain this exchange program, and to make a contribution toward our understanding of EHF.

In the pursuit of our goals to create a viable exchange program, we were not entirely free of bureaucratic snafus. We wanted to study the local and national EHF morbidity and mortality records, records which are rigorously collected. We also wanted to review work presented at a national conference on EHF in 1977. Our unit requested this information of the appropriate agencies, but we received no reply. We asked the United States Embassy in Beijing to intercede in our behalf with the Ministry of Health, and the United States Embassy never replied. Although we were disappointed to leave China without this information, this problem was certainly overshadowed by the success of our mission in all other areas.

Finally, we would like to emphasize unique factors which affected our experience. First, we were allowed to bring our child with us. Although she certainly limited our ability to travel (and we spent a fair amount of time worrying about her well-being!), she made us a family. Our acquaintances in the unit quickly became attached to Jessie, and because of her they were able to relate to us in a very natural fashion. We would also like to believe that, as a family, we offered a more realistic perception of Americans than might be obtained through interaction with a tour group or an isolated field investigator.

Second, although we were certainly vigorous in our attempts to investigate the unit itself, an openly expressed goal, we were also able to make a positive contribution. One of us (MSC) participated directly in medical care and education. We both taught English to a carefully organized class of physicians and scientists who are candidates for study abroad, as well as to the English teachers of HPMC's Foreign Language Department. Although these activities detracted from the time available to us for research, they introduced us to people we otherwise would not have met, and concretely integrated us into the unit. These arrangements certainly helped to make us feel comfortable living at HPMC, and we believe they contributed directly to the success of our visit.

In summary, we have attempted to describe the living and working conditions which we encountered at HPMC. Because so few Americans have participated directly in exchange programs with China, this information should be useful to investigators who may be afforded such an opportunity. Furthermore, this report emphasizes the possibilities for constructive institution-to-institution exchange programs, which we believe will become common in the near future.

ACKNOWLEDGEMENTS

The authors wish to acknowledge the significant contribution of a variety of people who made possible a journey to the People's Republic of China: Drs. John B. Starr, John Morris, Samuel O. Thier, Martin K. Whyte, and Michel Oksenberg. We are particularly grateful for the encouragement and support of Dr. Richard K. Root, Dr. G.D. Hsiung, and Marilyn P. Root, B.A. Above all we wish to express our deep
gratitude to our friends and colleagues at Hubei Provincial Medical College for opening their "home" to us and our daughter. The technical assistance of Carson Harden was invaluable in the preparation of this manuscript.

REFERENCES

1. China Exchange Newsletter 7(1):3, 1979
2. China Exchange Newsletter 8(1):31, 1980
3. China Exchange Newsletter 7(2):April 1979
4. Walter C: Studying economics at Beijing University: A first-hand report. China Exchange Newsletter 7(5):2-3, 1979
5. Davis-Friedmann D: Field research report: The urban elderly in China. China Exchange Newsletter 7(6):2-4, 1979
6. Evernden JF: Crust and upper mantle studies. China Exchange Newsletter 8(1):9, 1980
7. Hsiung GD, Morris J, Starr JB: Yale-China exchange programs in medical sciences: Past, present, and future. Yale J Bio Med 54:1–9, 1981
8. Whyte MK, Parish WL: City and Family in Contemporary China. Chicago, University of Chicago Press, in preparation
9. Rifkin SB: Health care for rural areas. In Medicine and Public Health in the People's Republic of China. Edited by JR Quinn. Bethesda. John E Fogarty International Center, 1973, p 147
10. Mandell GL, Gouglas RG, Bennett JE: Principles and practice of infectious disease. New York, John Wiley and Sons, 1979
11. Lee HW, Lee PW, Johnson KM: Isolation of the etiologic agent of Korean hemorrhagic fever. J Inf Dis 137:298–308, 1978
12. Sheedy JA, Froeb HF, Batson HA, et al: The clinical course of epidemic hemorrhagic fever. Am J Med 16:619–628, 1954
13. Oliver J, MacDowell M: The renal lesion in epidemic hemorrhagic fever. J Clin Invest 36:99–133, 1957
14. Cohen MS, Cassals J, Hsiung GD, et al: Epidemic hemorrhagic fever in Hubei Province, The Peoples Republic of China: A clinical and serological study. Yale J Biol Med 54(1), 1981
15. Cohen MS, Kwei HS, Chin CC, et al: The central nervous system manifestations of epidemic hemorrhagic fever. Manuscript in preparation