



RESEARCH ARTICLE

Global Engagement of Health Professions Education Programs in China: Trends over a Five Year Period

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ABSTRACT

Background: An important component of global engagement in health professions education is facilitating students having international experiences. Although cross-border visits have existed at some of China's academic medical centers (AMCs) for more than 30 years, there are few quantitative studies on its overall development and variations between different types of AMCs.

Aims: We aim to provide an overall description and measure trends of global engagement of Chinese health professions education programs by comparing inbound and outbound visits of health professions students over a five year interval.

Methods: In 2019, Chinese AMCs whose undergraduate medical education programs were eligible for accreditation by the Ministry of Education were invited to complete a web-based questionnaire. Data were analyzed using descriptive analyses, t tests, and Fisher exact tests.

Results: A total of 93 AMCs (57.8%) responded to the survey. The number of outbound visits increased by more than three times and the number of inbound visits increased by almost two times between the 2013-14 and 2018-19 academic years. Both the mean and median of outbound visits in 2018-19 academic year were higher than those in 2013-14 academic year (mean 23 vs. 72, $p=0.0016$; median 4 vs. 22, $p=0.000$). The mean of inbound visits in 2018-19 academic year was also higher than that in 2013-14 academic year (37 vs. 20, $p=0.032$). The mean and median of outbound and inbound visits for central government affiliated AMCs were significantly higher than those for other AMCs in these two academic years.

Conclusion: Comparison between 2013 and 2018 demonstrated an increased frequency of inbound and outbound visits, indicating a significant expansion of global engagement at China's AMCs. Measures may be needed to incentivize global engagement at AMCs that are not affiliated with the central government. Trends in the exchanges of students may be related to historical, geographical, and political issues. The findings related to China may be useful to other low- and middle-income countries as they manage global health student exchanges.

Key Words: Cross-border visits, global engagement, health science faculty, health professions student, China.

1 Introduction

With the acceleration of globalization, health issues across borders are increasingly common and complicated challenges, highlighting the importance of health professionals being equipped with a global perspective that places a priority on improving health and achieving equity in health for all people worldwide¹. Worldwide, health professions students' interest and opportunities have increased in both high-income countries (HICs) and low- and middle- income countries (LMICs)²⁻¹⁰, which is reflected by the growth of students traveling to complete a global health experience in a different country or a region within their own country with different health resources¹¹.

Accompanying its rapid socioeconomic developments, China has increasingly engaged with the international community since 1978. The *Outline of the National Medium and Long Term Education Reform and Development Plan for Year 2010 to 2020* stated that the Chinese government would encourage student exchanges between Chinese universities and overseas universities, support Chinese students to study abroad, and further increase the number of international students and amount of governmental scholarships¹². In 2016, China's Ministry of Education (MOE) issued a policy, *Promoting the Co-construction of Educational Actions in Belt and Road Initiative (BRI) Countries*, aiming to build China into a destination country that welcomes students from BRI countries, and to encourage and support universities in BRI countries to jointly train students, including health professions students, with Chinese universities¹³. China became the biggest exporter of students training in international settings in 2011 and the number of international students it accepted ranked third in the world in 2016¹⁴.

Since the 1980s, Chinese AMCs have established collaborations with overseas universities to operate joint-degree or short-term exchange programs¹⁵. For example, in 1985, Peking Union Medical College began operating exchange programs in

which medical students were sent to the United States, Australia, and Hong Kong¹⁶. Additionally, at Peking University Health Science Center, the number of short-term exchange programs increased from one in 2000 to 30 in 2018. About one third of medical students participated in these programs which included clinical observership /clerkship, study of foreign languages, and cultural exposure¹⁷. By the end of 2018, China's AMCs had 14 joint-degree medical programs, which were operated together with universities in the United States, Canada, Russia, the United Kingdom, Italy, Sweden, and South Korea¹⁸.

During this time, an increasing number of international students began to study in China and approximately one quarter of these international students were health professions students¹⁹. Among all disciplines, medicine ranked first in terms of the number of international students studying for an educational degree in China¹⁴. Further evidence of the globalization of Chinese AMCs is evidenced by a decision to admit international students to study for a Bachelor of Medicine and Bachelor of Surgery (MBBS) degree in 2004. As a result, the number of these students increased from 9,600 in 2005 to 39,000 in 2015²⁰. By the end of 2015, international students enrolled in bachelor medical programs accounted for 31.1% of international students studying for a bachelor degree, ranking first in all bachelor programs²¹. According to the MOE statistics for year 2016, medicine (inclusion of traditional Chinese medicine) was one of the most popular majors for international students, second only to the study of Chinese language. In the 2019-2020 academic year, the MOE granted 45 medical schools permission to admit 3370 international MBBS students²⁰. Many Chinese AMCs in border provinces took advantage of their geographic locations to accept health professions students from neighboring countries, especially those in South or Southeast Asia²²⁻²³. The number of source countries totaled 32 and the top three countries in terms of number of students were South Korea, India, and Pakistan, respectively.

These outbound and inbound visits generated valuable opportunities for both Chinese and overseas students to communicate with and learn from their counterparts and faculties of hosting institutions. There are consistent results that Chinese health professions students benefited in many aspects through visiting other countries or regions, such as developing an international vision and humanistic skills, understanding geographic and social determinants of diseases, critically thinking about differences in health system and health professions education home and abroad^{24,26}. Meanwhile, overseas students studying in China could enjoy educational services which are of low cost, perceive Chinese culture, and be exposed to patients and clinical settings that may be quite different from those in their home country or region¹⁴. Although cross-border visits by health professions students have existed at some of China's AMCs for more than 30 years, there are few quantitative studies on their overall development and variations among AMCs. Existing descriptions tend to be of single-institutions or provide only a brief description of the situation in the whole country^{16,17,24,25}. To address this research gap, we aim to provide an overall description of cross-border visits by health professions students at China's AMCs through analyzing data collected in a nationwide questionnaire survey. Furthermore, we sought to make comparisons of visits over a five-year period (2013- 2018) and among AMCs having affiliations with different governmental entities.

2 Materials and methods

2.1 PARTICIPATING INSTITUTIONS AND QUESTIONNAIRE

The data used in this study were collected in a nationwide web-based survey of AMCs organized by the National Center for Health Professions Education Development (NCHPED) at Peking University between June and September 2019. A link to the online questionnaire was sent to 161 AMCs whose undergraduate medical programs were eligible for MOE accreditation.

The questionnaire was developed by a team at the NCHPED and contained questions in twelve domains, one of which was international collaboration. Questions about inbound and outbound visits of health professions students included the number of visits, length of stay, purpose of visit, destination, and school of origin for the 2013-14 and 2018-19 academic years. Health professions students refer to those majoring in health sciences, including medicine, nursing, public health, dentistry, and pharmacy. A representative of the office of international cooperation and communication, which is usually in charge of student exchange programs and management of overseas students, was responsible for completing the questions regarding international collaboration.

2.2 ANALYSIS

We used descriptive statistics to summarize participating AMCs' characteristics and responses. T tests and Fisher exact tests were used to compare the number of visits between 2013-14 and 2018-19 academic years, and between AMCs affiliated with the central government and other types of AMCs. All analyses were conducted using Stata SE 14.2 for Mac (Stata Corp, College Station, Texas). Significance was set at 5% and all tests were single-sided.

3 Results

3.1 DESCRIPTIVE STATISTICS

A total of 93 AMCs (57.8%) responded to the survey. A majority of respondents (81.7%) were affiliated with provincial or prefecture governments; central-government owned or private AMCs accounted for 15.1% and 3.2%, respectively.

As shown in Table 1, the number of outbound visits increased by more than three times, from 2173 in 2013-14 academic year to 6708 in 2018-19 academic year. The duration of the visit was less than one month for nearly half of outbound visits in 2013-14 and increased to nearly 60% in 2018-19. In the same period, the percentage of outbound visits for conference or academic communication rose from 53.9% to 61.8%. Outbound visits for

clinical experiences accounted for nearly 20% for both academic years. The top three destination regions for outbound visits in 2013-14 were North America (31.2%), Asia (26.8%), and Hong Kong, Macau, and Taiwan (HMT) (21.2%), respectively; and in 2018-19 they were North America (30.5%), Asia (25.1%), and Europe (21.9%), respectively.

The number of inbound visits nearly doubled during the five-year period, increasing from 1825 to 3485. For both academic years, a majority of inbound visits (80.7%) lasted less than one month;

the top three purposes for inbound visits were conference/academic communication, clinical experiences, and participating in a course. The top three source regions of inbound visits in 2013-14 academic year were Asia (35.2%), North America (22.0%), and Europe (20.0%); and in 2018-19 academic year they were Asia (35.9%), HMT (23.9%), and Europe (20.6%).

Table 1. Summary statistics for outbound and inbound visits at 93 Chinese AMCs

	Outbound		Inbound	
	2013-14	2018-19	2013-14	2018-19
Total visits	2173	6708	1825	3485
Length of stay (%)				
<1 month	49.0	59.7	80.7	80.7
1~3 months	15.9	22.4	14.4	14.7
>3 months	35.1	17.9	4.9	4.6
Purpose of visit (%)				
Studying course (e.g. summer school)	17.6	14.8	21.9	22.3
Conference/academic communication	53.9	61.8	40.9	41.3
Clinical experiences (observership /clerkship)	19.5	19.3	37.0	35.7
Studying for a degree (retaining status as a student at home institution)	9.0	4.2	0.3	0.7
Destination / source (%)				
North America	31.2	30.5	22.0	14.4
Asia	26.8	25.1	35.2	35.9
Hong Kong, Macao, Taiwan (HMT)	21.2	16.3	19.8	23.9
Europe	16.7	21.9	20.0	20.6
Oceania	3.7	5.8	2.3	2.8
Africa	0.3	0.2	0.6	0.9
South America	0.2	0.3	0.1	1.5

The number of outbound visits was larger than the number of inbound visits in both academic years. In 2013-14 academic year, outbound visits were about 1.2 times larger than inbound visits and this gap increased to 1.9 times larger five years later, indicating a widening gap between the number of Chinese students having experiences in international settings and the number of international students coming to China.

3.2 INFERENTIAL STATISTICS

Both the mean number of outbound visits in the 2018-19 academic year was significantly higher than those in the 2013-14 academic year (mean 23 vs. 72, $p=0.0016$; median 4 vs. 22, $p=0.000$). The mean number of inbound visits in 2018-19 academic year was also significantly higher than that in 2013-14 academic year (37 vs. 20, $p=0.032$) (Table 2).

Table 2. Comparison of visits by academic years of 93 Chinese AMCs

	Outbound		p value	Inbound		p value
	2013-14	2018-19		2013-14	2018-19	
Mean (SD)	23(47.4)	72(150.7)	0.0016	20(54.0)	37(74.7)	0.032
Median	4	22	0.000	0	0	0.092

In this five year interval, outbound visits for both central government affiliated AMCs and those AMCs affiliated with other governmental entities increased by more than three times. Inbound visits for central government affiliated AMCs increased by less than 50% during these 5 years, while inbound visits for AMCs affiliated with other governmental entities nearly doubled. While the

number of visits increased, the percentages of outbound visits for central government affiliated AMCs remained almost unchanged. Furthermore, the percentages of inbound visits for central government affiliated AMCs dropped from 55.1% in the 2013-14 academic year to 41.8% in the 2018-19 academic year (Table 3).

Table 3. Comparison of visits by governmental affiliations of 93 Chinese AMCs

	Outbound		Inbound	
	2013-14	2018-19	2013-14	2018-19
Total visits (%)				
Central government	870(40.0)	2753(41.0)	1007(55.1)	1457(41.8)
Other	1303(60.0)	3955(59.0)	818(44.8)	2028(58.2)
Mean (SD)				
Central government	62.1(56.2)	196.6(194.4)	71.9(116.1)	104.1(131.2)
Other	16.5(42.5)	50.1(131.1)	10.4(24.7)	25.7(52.6)
p value	0.0007	0.0006	0.000	0.0002
Median				
Central government	37.5	126.0	40.0	60.0
Other	2.0	18.0	0.0	0.0
p value	0.003	0.004	0.015	0.004

For both academic years, the mean and median of outbound and inbound visits for central government affiliated AMCs were significantly higher than those for AMCs affiliated with other governmental entities.

4 Discussion

In a nationwide survey of China's AMCs, we found that both inbound and outbound visits of health professions students increased significantly between 2013-14 and 2018-19 academic years. This is in accord with China's policies to promote international collaboration in the field of education. While it is likely that this trend will continue due to the acceleration of globalization and China's determination to further promote educational

collaborations with other countries and regions, further research is needed to determine how the Covid pandemic and political tensions will affect student exchange programs.

Central-government affiliated AMCs are generally better funded, have more opportunities to develop collaboration agreements, and have a more global outlook than AMCs affiliated with provincial or local government entities. Given these advantages, it was not surprising that while central government affiliated AMCs accounted for 15.1% of students, their students were over-represented in both inbound and outbound visits, representing over 40% of students in both categories. Interestingly, AMCs not affiliated with the central government

have begun to assume an increasingly important role in hosting overseas students, increasing from 44.8% to 58.2% in five years. One reason for this may be that AMCs in border provinces, which tend to have a closer ties with universities in neighboring countries, are generally not affiliated with the central government. Challenges for AMCs not affiliated with the central government include language barriers and differing educational standards between China and other countries^{27,28}.

Our data suggest that history, geographic proximity and political tensions can significantly affect student exchanges. Historically, China's AMCs have had more ties with universities in HICs or neighboring countries and regions. These factors may explain why AMCs in Africa and South America accounted for a very small percentage of exchanges in both academic years. There are clearly opportunities to deepen health educational collaborations between China and other LMICs, particularly in Africa and South America. As many LMICs are also BRI countries, the implementation of BRI could contribute to achieving this goal²⁹.

Political tensions may explain why exchanges of health professions students to or from North America decreased over this five-year interval. According to an alert issued by the Chinese MOE in June 2019, visa applications for Chinese students hoping to study in the United States experienced extended review process, shortened period of permitted stay, and increased rejection rate³⁰. As a result, Chinese students appear to have chosen to study in other countries or regions, with the percentages of outbound visits to both Europe and Oceania increasing. The change of inbound visits from North America was due to a 15% decrease in the numbers of students visiting China from the United States³¹⁻³². This diminishing engagement is particularly discouraging as Chinese and US health professions students could be collaborating on addressing healthcare challenges both countries have in common, like addressing the health concerns of an increasingly elderly population.

The study had a few limitations. First, only AMCs whose undergraduate medical programs were eligible for MOE accreditation were included in the study. Generally, an undergraduate medical program is regarded as one of the hardest programs for an AMC to operate because it requires more educational resources and administrative experiences, and stricter educational standards. Therefore, AMCs included in the study might not be a representative sample of all medical training programs in China. Second, the number of inbound visits might be underestimated as they did not include those made by an overseas student who studied for a degree as a full-time student at China's AMCs.

5 Conclusions

The increase of inbound and outbound visits indicated significant expansion of global engagement at China's AMCs. Measures may be needed to address the variation of global engagement among different type of AMCs in the country. Trends in the exchanges of students may be related to historical, geographical, and political issues. The findings related to China may be useful to other LMIC countries as they manage global health student exchanges.

Conflict of Interest Statement:

The authors have no conflicts of interest to declare.

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