

# Profiles of General Practice in a China's General Hospital

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## Abstract

Rationale aims and objectives: The study about disease profile in primary care are increasing, the evidence in China's general medicine ward is insufficient. This study was analyzed characteristics among patients visited in general practice, to explore its influence to China's medical transform. Method: we conducted a study about profile of general practice from Jan,2014 to Dec,2019 in The Second Affiliated hospital of Zhejiang Chinese Medical University, and records general practitioners' routine work,including outpatient care,inpatient care and residency training. Results: In outpatient care,101689 patients consulted in GP's clinic,these patients cover all age groups. Age group of 61-75 years reach the peak of consultations. Common chronic diseases are main causes of patients admitted in general practice,the top five causes of admissions are COPD, pneumonia, cerebrovascular disease, diabetes and complications, hypertension and complications. General practice in hospital also provides students residency training, 25undergraduates and a student with junior college degree passed the Practicing Physician Qualification Examination from 2015-2019. Conclusions: general practice in hospital alleviate some pressure of medical workforce,it has positive impact on China's medical transform. KEYWORDS: general practice, general hospital,health transform

## Introduction

With the booming economy, the population health has transformed. Stroke, ischaemic heart disease and other chronic disease have become the head causes of death in the study about systematic analysis for disease burden<sup>1</sup>.Health care targeting primary services should be considered as normal work.General practice(GP) is a discipline dedicated to provide a continuous,comprehensive health care. It focuses not only diseases but human itself<sup>2</sup>,and general practice or primary care is gatekeeper for health promotion that provides the first-contact health care<sup>3</sup>. Strengthening primary care plays an important role in improving overall health outcomes<sup>4</sup>.In many European countries<sup>5</sup>, strengthening primary care is considered as a key element in health promotion,and most reforms focus on creating an accessible, comprehensive, continuous, and coordinated health-care system<sup>6</sup>.

General practice is introduced to China since 1989. The first General Practice Training Center in China was established by Capital Medical University <sup>7</sup>. In the past 40 years, China has made great progress in medical system strengthening, improving hierarchy of primary care institution, financial policies, social health insurance. However, the population of China is about 1.4 billion, there has great demand for health care<sup>8</sup>,the substantial gaps exist in the reality with demand.

The structure of primary health-care system is looked by three ares: work force,IT services,incentives for performance improvement. Since the China's nationwide reform in 2011, the number of general practitioners has increased to 308740, the number of assistant general practitioners is 3.6 million<sup>9</sup>,but the number of licensed general practitioners or assistant general practitioners is 2.22 per 10000 population in 2018. IT service includes the percentage of electronic medical records using, the possibility of reminder sending, the percentage of alerts providing<sup>10</sup>. In China, system of IT service between clinical care and basic public health care is still separated, almost half of health centers have not electronic medical records<sup>11</sup>. Though

subsidies the government paid to primary health-care institutions has increased from \$2.8 billion(2008) to \$20.3 billion(2015), incentives from Chinese government still can not reward a high-quality primary health-care system.

Therefore, Chinese government published policies to encourage general hospitals establish the department of general practice for promoting the hierarchical medical system and alleviating the pressure of medical resources. Since the policies has been released, 68.3% of general hospitals had the department of general practice<sup>12</sup>. 73.2% of general practices had the medical wards. There is little evidence about the development of general practice department in Chinese public hospital, And this study we conducted to analyze the profiles of general practice department in a Chinese general hospital.

## Method

We did a retrospective analysis of the general practitioners' workload in The Second Affiliated hospital of Zhejiang Chinese Medical University that is a general hospital established the department of general practice in 2012. we linked the data from Clinical Information System, which contains the electronic medical record of outpatient and inpatient between Jan,2014 and Dec,2019<sup>13</sup>. We also observed the routine work of general practitioners(GPs) in general hospital to conduct standardized residency training.

Frequencies and percentages of patients' characteristic in general practice were calculated in this study. We listed the typical work of general practitioners' residency training in working days, and did a comprehensive research on GPs' workload in hospital ,did a analysis with Microsoft Excel 2019 and SPSS(version 25).

## Result

Department of GP in The Second Affiliated hospital of Zhejiang Chinese Medical University provided outpatient care(100 thousand visits from 2014 to 2019), inpatient care(2 thousand admissions from 2018 to2019) and general practitioners training.

### Outpatient care

We analyzed 101689 patients of 6 years visited in GP's clinic,with mean number of visitors per year more than 16 thousand and 46 consultations per day (table 1). Consultations were 19 thousand that reached a peak in 2015, and decreased slightly from 2014 to 2019. 2017 had the lowest consultations above 14 thousand. The latest number of patients visited in GP's clinic decreased 19.66% compare with 2015.

All age-specific consultations in clinic had a bell-liked curve in 2014-2019(figure1), with the highest consultations in the elder age group, and it slopes downward from the age group of 61-75 years.At the age group of 1-15 years decreased to the lowest levels.

Age group of 1-15 years, male patients visits rates were slightly higher in 2015-2018. from 2014 to 2019 consultations in GP's clinic were significantly higher in woman than man at the age 16-75years.

### Inpatient care

In our study, general practice' s wards were established in 2018, the number of beds for inpatient care was 35 in 2018 and 50 in 2019 ,the number of admissions was 2173 from 2018 -2019. Most admissions were in the elderly aged 76-90 years(41.5%). Percentages for the leading cause of admission are shown in table 2, Chronic obstructive pulmonary disease(COPD),pneumonia,cerebrovascular disease,diabetes and complications,hypertension and complications was the top 5 causes of admission in GP .COPD was the top percentage of diagnosis reached 12.29%,and 10.77% of pneumonia ,10.12% of cerebrovascular disease, 6.17% of diabetes and complications, 5.38% of hypertension and complications. In terms of crude admission numbers, almost half number of admissions were patients with chronic diseases, a quarter were patients with respiratory diseases.

### General practitioners' training

General practitioners training is a basic work for general practitioners in tertiary hospital. GPs in tertiary hospital have responsibility to help them achieve the course including theoretical studies and clinical training.

In total, 26 students were accepted to general practitioners training from 2015-2019, one of them has junior college degree, 25 are undergraduates with bachelor of science degree in medicine. An assistant doctor can get the privilege to prescribe medications in rural settings by completing 24 months residency training and passing the the Practicing Physician Assistant Qualification Examination. The curriculum of residency requires 1 month theoretical learning, 4 months practice in community health care and 19 months practice of specialties in physician, surgery, obstetrics and gynecology, pediatrics, emergency medicine, etc.

Undergraduates with bachelor of science degree in medicine work 36 months in residency training institution and pass the Practicing Physician Qualification Examination to become a general practitioner<sup>14</sup>. This pathway called “5+3” residency training including 23 months practice in specialties, 7 months practice in community health care and 3 months practice in general practice<sup>15</sup>.

Competency oriented the curriculum of residency training, ward rounds and clinic consultations (figure 2, 3), transferred the BS to become a general practitioner who can assess and manage of acute medical issues, chronic disease in all ages, common mental health problem, end-of-life care and preventive health care by themselves<sup>16</sup>.

## Discussion

Primary care is believed to have an indispensable role in health promotion and prevention. The UK has public health-care system that means most health-care services are free<sup>17</sup>, and the data of full-time equivalent general practitioners is about 6<sup>18</sup>. Although the majority of GPs are working in some small-scale practice, all primary care is provided by them. The health-care system of Netherlands is semi-public, they have 100% registers in general practitioners<sup>19, 20</sup>. All these countries had at least 80% of electronic medical record using, and Dutch is known for good accessibility in primary care<sup>21</sup>. General practice has recently begun to develop in China, there has some challenges in increasing the expectancy of lifespan and public health.

Since general practice stepped into China, general hospital established the department of general practice that is a new approach to reforms the primary health-care. These are the first comprehensive data for the general practice department in a general hospital, conducting both clinical consultations, admissions and residency training. This study show general practice provided comprehensive care to patients, that consultations in general practice have closely frequency in gender and consultations cover all age groups. The aged of 16-75 years was the majority of consulted in general practice's clinic, this phenomenon is associated with China's population distribution that the ratio of 16-59 years old is up to 64.3% in 2019 China health statistics. In our study, common chronic disease has become the main causes of patients admitted in general practice, the burden of communicable, nutritional condition has decreased. Patients visited in the general practice in hospital are also the main population consulted in community health centers. Outpatient care and inpatient care provided by general practice in hospital is the essence support of residency training<sup>22</sup>. Primary care teaching in general practice had a positive impact on students in clinical reasoning and decision analysis, also increasing students' Coordinate with different health-care professionals<sup>23</sup>. Residency training helps undergraduate or students with junior college degree to become a general practitioner or assistant GP who can handle basic clinical skill<sup>24</sup>.

Establishing the general practice in hospital alleviates some pressure of medical workforce and increases the coordination between community health centers and hospital<sup>25</sup>, there are challenges in electronic medical records building, basic medical insurance coverage, public health services equipping for health transform.

## Strengths and limitations

The strength of this study is the first description of general practice in hospital, we linked 101689 consultations, 2173 admissions, and 2 pathway of residency training covering the timeframe of 6 years. Such a long follow-up identified the influence of general practice to China's transform. The limitations of this study must be noted that using one hospital's data as the sample may lead to selection bias<sup>26</sup>.

## Conclusions

In this study, we conclude general practice in hospital has a positive effect on China's health transform. General practice provides the continuous and sustainable health care covered all age group, general practitioners deal with the common chronic diseases well that support the students' high quality residency training. General practice in hospital increases the coordination between specialists and general practitioners, hospital and community, completing the medical hierarchy.

## Conflict of interest statement

The authors declare that there are no conflicts of interest.

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## References

1. Zhou M, Wang H, Zeng X, et al. Mortality, morbidity, and risk factors in China and its provinces, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet* . Sep 28 2019;394(10204):1145-1158. doi:10.1016/s0140-6736(19)30427-1
2. Cubaka VK, Dyck C, Dawe R, et al. A global picture of family medicine: the view from a WONCA Storybooth. *Bmc Family Practice* . Sep 12 2019;20(1)129. doi:10.1186/s12875-019-1017-5
3. Li X, Lu J, Hu S, et al. The primary health-care system in China. *Lancet* . Dec 9 2017;390(10112):2584-2594.
4. Chung C, Maisonneuve H, Pfarrwaller E, et al. Impact of the primary care curriculum and its teaching formats on medical students' perception of primary care: a cross-sectional study. *Bmc Family Practice* . Sep 15 2016;17135. doi:10.1186/s12875-016-0532-x
5. Gyawali B, Khanal P, Mishra SR, van Teijlingen E, Wolf Meyrowitsch D. Building Strong Primary Health Care to Tackle the Growing Burden of Non-Communicable Diseases in Nepal. *Global health action* . 2020-Dec-31 2020;13(1):1788262-1788262. doi:10.1080/16549716.2020.1788262
6. Peckham S, Hann A, Kendall S, Gillam S. Health promotion and disease prevention in general practice and primary care: a scoping study. *Primary Health Care Research and Development* . Nov 2017;18(6):529-540. doi:10.1017/s1463423617000494
7. Li D. Training doctors for primary care in China: Transformation of general practice education. *Journal of family medicine and primary care* . 2016 2016;5(1):1-2. doi:10.4103/2249-4863.184614
8. Cheng J-M, Yuan Y-X, Lu W, Yang L. Primary health care in China: is China's health reform reform for the whole nation? *Primary Health Care Research and Development* . Jul 2017;18(4):398-403. doi:10.1017/s1463423617000111
9. National Health Commission of the People's Republic of China. China health statistical yearbook 2019. *Beijing: Peking union medical college publishing house* . 2019;
10. van Loenen T, van den Berg MJ, Heinemann S, Baker R, Faber MJ, Westert GP. Trends towards stronger primary care in three western European countries; 2006-2012. *Bmc Family Practice* . May 28 2016;1759. doi:10.1186/s12875-016-0458-3
11. T O. Research on the sharing of medical information resource on the basis of bidirectional referral medical care in community health service and tertiary hospital. *Master's thesis Hefei Industry University* . 2010;
12. Yan Q YL, Wen R. . Establishment of general practice department in general hospitals:a survey. *Chinese General Practice* . 2020;23(3):272-275(chinese).

13. Barker I, Steventon A, Deeny SR. Association between continuity of care in general practice and hospital admissions for ambulatory care sensitive conditions: cross sectional study of routinely collected, person level data. *Bmj-British Medical Journal* . Feb 1 2017;356:j84. doi:10.1136/bmj.j84
14. Lian S, Chen Q, Yao M, Chi C, Feters MD. Training Pathways to Working as a General Practitioner in China. *Family Medicine* . Mar 2019;51(3):262-270. doi:10.22454/FamMed.2019.329090
15. Grover AK, Honavar SG, Azad R, Verma L. A national curriculum for ophthalmology residency training. *Indian Journal of Ophthalmology* . Jun 2018;66(6):752-783. Pmid 29785982. doi:10.4103/ijo.IJO\_327\_18
16. Chan M, van Manen MA. Exploring the transition into practice of general paediatricians from a Canadian residency program. *Paediatrics & Child Health* . Aug 2018;23(5):314-318. doi:10.1093/pch/pxx188
17. Croxson CHD, Ashdown HF, Hobbs FDR. GPs' perceptions of workload in England: a qualitative interview study. *British Journal of General Practice* . Feb 2017;67(655):E138-E147. doi:10.3399/bjgp17X688849
18. Steel D, Cylus J. United Kingdom (Scotland): Health system review. *Health Systems in Transition* . 2012;14(9):1-150.
19. Schäfer W, Kroneman M, Boerma W, et al. The Netherlands: health system review. *health syst transit* . 2009;12(1):v.
20. Erler A, Bodenheimer T, Baker R, et al. Preparing primary care for the future – perspectives from the Netherlands, England, and USA. *Zeitschrift für Evidenz, Fortbildung und Qualität im Gesundheitswesen* . 2011;
21. Van Weel C, Schers H, Timmermans A. Health care in the Netherlands. *J Am Board Fam Med* . 2012;25(Suppl 1):S12-7.
22. Li X, Krumholz HM, Yip W, et al. Quality of primary health care in China: challenges and recommendations. *Lancet* . Jun 6 2020;395(10239):1802-1812.
23. Nasca TJ, M. ACP, Philibert I, Ph. D, M. BA. The Next GME Accreditation System — Rationale and Benefits. *New England Journal of Medicine* . 2012;366(11):1051-1056.
24. People's Republic Ministry of Education. *Professional Catalogue of Secondary Vocational Schools Revised in 2010(Chinese)* . doi:[http://old.moe.gov.cn//publicfiles/business/htmlfiles/moe/moe\\_722/201005/xxgk-87384.html](http://old.moe.gov.cn//publicfiles/business/htmlfiles/moe/moe_722/201005/xxgk-87384.html) . Accessed July 19, 2018.
25. Liu GG, Vortherms SA, Hong X. China's Health Reform Update. In: Fielding JE, ed. *Annual Review of Public Health, Vol 38* . 2017:431-448. *Annual Review of Public Health* .
26. Wright M, Hall J, van Gool K, Haas M. How common is multiple general practice attendance in Australia? *Australian Journal of General Practice* . May 2018;47(5):289-296. doi:10.31128/ajgp-11-17-4413

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TABLE1: consultation rates in general practice from 2014 to 2019, adjusted by age, sex

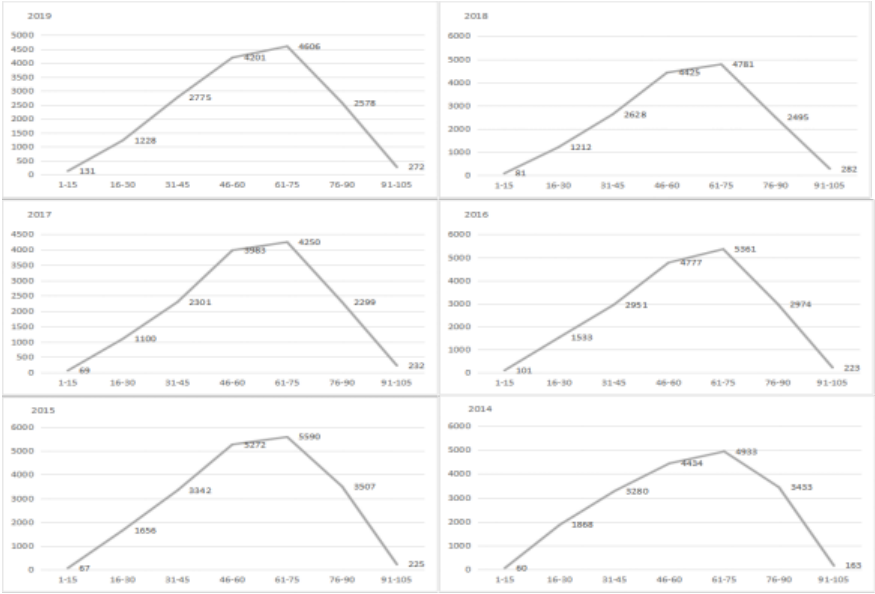


FIGURE1:consultation rates in general practice from 2014 to 2019, adjusted by age

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TABLE 2: frequency and percentage of diseases admitted in general practice

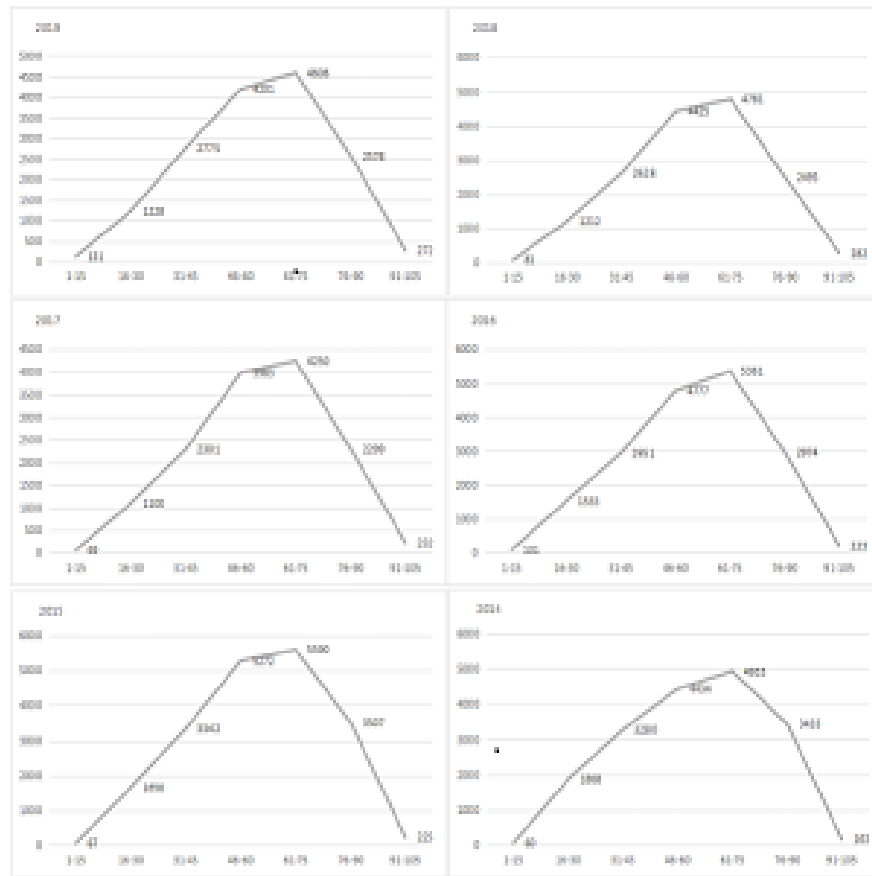




FIGURE 2,3: residency training, the left picture is a undergraduate do some physical examinations and the right is clinical practice supervised by GPs

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