Mutual referral: a survey of GPs in Beijing

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Background. China has been engaged in the process of reforming its health care system recently. The government has attempted to rebuild the referral system to lower cost and enhance equity of the medical services.

Objective. This study was undertaken to evaluate the current status of mutual referral pilot programme, perceived factors that affect referral behaviour and changes that would improve the current referral process in Beijing.

Methods. Using a cross-sectional study design, we sent a postal questionnaire to 138 urban district community health service (CHS) centres in Beijing. Questions were chosen from a formal consensus process based on a nominal group technique.

Results. One hundred twenty-five of 138 (90.6%) CHS centres responded to the survey. Seventy-six (61.8%) CHS centres reported that the mutual referral system was feasible. Twenty-six (21.1%) CHS centres reported that the mutual referral programme was running smoothly. Uncertainties of diagnosis/management and access to particular medical specialty interest or skills were the two most common factors that were suggested as affecting referral behaviour. The presence of a dedicated department to accept referrals in hospitals and the use of referral guidelines were the most preferred choices as likely to improve the current referral process.

Conclusions. Since a system of gatekeeper role by GPs at CHS organizations has not been established in Beijing, most CHS doctors agree that to ensure the smooth operation of referrals, a dedicated department should be assigned by hospitals to receive referred patients. Official guidelines on referral should be developed, and health authorities should strengthen their supervision of referrals.

Keywords. Beijing, clinical guidelines, primary care physicians, referrals, specialists.

Introduction

In response to failure of market-driven health care reforms, the Chinese government released a new reform plan to further develop urban community health services (CHS) in 2006. In the new reform plan, use of mutual, two-way referral procedures, between large hospitals and community health sectors, was proposed by the State Council.\textsuperscript{1} It was hoped that this measure would address issues of inequality of access to services. Similarly, it was believed that this would have a restraining effect on the burgeoning cost of health care. To better understand the context of the mutual referral between hospitals and primary cares, it is important to review the context of China’s health care delivery system in urban areas.

Since the founding of the People’s Republic of China in 1949, urban health service delivery has been organized based on a three-tier public network. The first-tier network consists of government- or state enterprise-owned hospitals with fewer than 100 beds. These hospitals offer prevention, sanitation, health education and treatment services for specific communities. The second-tier network includes district-wide hospitals with 100–500 beds. They provide complete medical services to a fixed population of several communities and accept referrals from primary sectors. The third-tier network is composed of province-wide or city-wide hospitals with at least 500 beds. These hospitals treat critically ill patients and accept referrals from secondary hospitals.\textsuperscript{2} During 1949–1979, the period of the planned economy, all third-tier hospitals
were supported by public administration and public finance. The Chinese government emphasized the guarantee of basic health services and use of cost-effective preventive approaches to deliver care to the population. During this period, China’s average life expectancy increased from 35 to 68 years and infant mortality fell from 200 to 38 deaths per 1000 births. However, by the early 1980s, the economic and administrative reforms had a profound impact on service delivery. The government reduced its subsidy to the hospitals, which were forced to become more self-reliant. State-owned enterprises withdrew from providing public health and primary health care services because of insufficient revenue. To make up the revenue shortfall from low prices for basic services, regulated prices were set at a higher rate for technology-intensive procedures and diagnostic tests, and a margin was added to drug sales (15% for Western medicine and 25% for Chinese medicine). The distortion of administered prices away from costs, which had little impact on incentives when government subsidies filled the financing gap, then gave providers strong incentives to favour the profitable high-tech diagnostics and skimp on unprofitable basic services. A number of first-tier hospitals went bankrupt and those that survived turned to profitable medical services rather than primary care and prevention. The referral system broke down, with patients self-referring to any providers they could afford. During the period from 1980 to 2005, China’s health care delivery systems were dominated by second- and third-tier hospitals. This was ineffective and inefficient and reduced the affordability of care for many people. Between 1998 and 2003, National Health Service surveys showed the proportion of patients not seeking care for financial reasons increased in both urban and rural areas.

A well-functioning referral system can lower cost and enhance equity. In an attempt to redirect urban patients towards primary care, China initiated its CHS programme in 1997 but the programme progressed slowly until 2006. In February 2006, the State Council executive approved the plan to further develop urban CHS. The reform plan emphasized that CHS should be a public service and the local governments should be the main sources of funding. Additional funds would come from institutions such as trade unions and factories. CHS services are based around ‘centres’ and ‘stations’. These have similar functions but have different service populations. A centre is in charge of 3–6 stations for every 30 000–100 000 residents according to the size of a region, and each station provides services to about 10 000 residents. CHS centres are responsible for providing basic clinical services, prevention, health education, women and children’s care, elder care, immunizations and physical rehabilitation. Many CHS centres were converted from the former first-tier hospitals. Each centre was to be staffed with 2–3 GPs per 10 000 residents. Physicians at the CHS organizations began retraining to become GPs. At present, there are the two models currently being used to train GPs in China. The first model of education involves retraining the majority of the less-educated physicians currently working in local community health centres and transforming them into GPs. The second model is a 3-year general practice postgraduate residency training programme and it has just begun in some big cities such as Beijing, Shanghai and Shenzhen.

A new health care reform plan, enacted by State Council of China, was released to the public in April 2009. A central feature of the reform plan was a call for the development of CHS organizations and establishment of a stronger public health and primary care system. The renewed interest and government support for primary care appear to have had some effect. National data show that the number of visits at CHS organizations increased by 13.7% in 2008 compared with 2007 and visits increased by 46.8% in 2009 compared with 2008. Based on these changes, the central government plans to pilot a transition from the current ‘three-tiered’ hospital system to a ‘two-tiered’ community health centre system in selected cities. The new two-tiered system will consist of ambulatory care in community health centres and inpatient care in referral hospitals.

Beijing was one of the first cities to comprehensively implement the CHS reforms after 1997. In 2007, there were 1126 CHS centres and stations compared with 535 hospitals and there were 2432 physicians at the CHS organizations compared with 38 183 physicians in the hospitals in Beijing. The number of visits at the CHS organizations was about 8.06 million in 2007 compared with 2.2 million in 2006. CHS developed rapidly and patients were encouraged to visit a GP at the CHS as the first step in the process of seeking health care. The Beijing Municipal Health Bureau piloted the establishment of a mutual referral relationship between secondary/tertiary hospitals and CHS centres in eight urban districts in 2007. During this pilot programme, every secondary or tertiary hospital was instructed to establish referral relationships with two or three CHS centres in the same district. Every referral hospital was instructed to set up a special agency to accept referred patients from CHS centres and assign them to appropriate clinical departments. GPs in CHS centres were instructed to follow-up those patients referred to the hospitals and provide them with ongoing health care. This referral pilot programme in Beijing was concerned not only about the referral from the CHS organizations to the hospitals but also with the referral back from the hospitals, thus the term ‘mutual referral’. GPs at the CHS organization refer the patients to the designated referral hospital according to the patient’s condition. During the
referral process, GPs complete a referral form. This includes a summary of the patient’s condition, the reason for referral and identifies the medical specialty to which the patient is being referred. Thereafter, the patient attends an office (agent) in the receiving hospital. The patient is then assigned to the receiving medical specialty. The agent is also responsible for collecting the specialists’ suggestions and giving them to the GPs. Hospitals are asked to refer back the patients with stable conditions to the CHS centres. In the Beijing referral pilot programme, a GP referral does not mean that it is compulsory for the patient to see GP before visiting a specialist in the hospital. However, if patients are referred to the hospital by a GP from the community health organization, they can obtain priority treatment and a clinic fee reduction by the hospital. At the end of 2008, Beijing health statistics showed: the number of visits at the CHS organizations was about 21.28 million, the number of visits referred to the hospitals was about 102,000 and accounted for 0.48% of total number of visits at the CHS organizations and the number of visits referred back from hospitals to the CHS organizations was about 32,000 and accounted for 31.4% of the number of visits referred to hospitals. Currently, there are no previous studies regarding the status of the Beijing mutual referral pilot programme. To determine the status of, and barriers to, mutual referral in the Beijing urban districts, we surveyed the views of GPs on (i) problems with the mutual referral pilot programme; (ii) factors that they consider are important in affecting their referral behaviour and (iii) changes that would improve the current referral process.

Methods

We conducted a cross-sectional survey of directors of CHS centres in seven urban districts in October and November 2009. We excluded Dongcheng district as it does not possess a CHS centre. A questionnaire including items on physicians’ opinions about the mutual referral pilot programme, factors influencing their referral behaviour, and changes that would improve the current referral process were used. Ethics approval was obtained from the Medical Ethics Committee of Capital Medical University.

Survey instruments

There were three steps to developing the questionnaire. Initially, question lists were developed by collecting and extracting information from references. The questions were then evaluated by a formal consensus process based on a nominal group technique. Finally, the questionnaire was pilot tested on GPs at our institution.

The final questionnaire included a two-item question on what people thought about the mutual referral pilot programme: a six-item question on factors influencing their referral behaviour and a seven-item question on changes that would improve the current referral process. The respondents were asked to rate their agreement with statements on these topics by marking a five-point Likert scale from ‘strongly agree’ to ‘strongly disagree’ (from 1 = strongly disagree to 5 = strongly agree). Additional questionnaire data included the respondents’ location of practice. The respondents’ opinion about the main problems of the mutual referral pilot programme operating in Beijing, specifically relating to symptoms or diseases for which the introduction of referral indicators would be useful, was also included (see Appendix, available as supplementary data in Family Practice online).

Data collection

From October to November 2009, questionnaires were sent out to the directors of all 138 CHS centres in seven urban districts in Beijing. Each CHS director was asked to obtain a consensus response from the physicians at the next CHS centre meeting for the questions asked. A reminder telephonic call from an investigator (JD) was made after 2 weeks. Directors were informed of the option to indicate a refusal to participate in the study by checking the appropriate questionnaire box.

Data analysis

Descriptive statistical methods were used to analyse the data by using SAS, version 8.01 (SAS Institute Inc., Cary, NC).

Results

The response rate was 125 out of 138 CHS centres (90.6%). Of the 125 returned questionnaires, two were excluded because these two centres had not started the mutual referral and had completed less than one half of the items. Table 1 shows the response rates of the CHS centres. The responding CHS centres shared similar characteristics to the overall sample in

<table>
<thead>
<tr>
<th>Location</th>
<th>Responding CHS centres (% sample)</th>
<th>Overall samples (% sample)</th>
<th>Response rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xicheng district</td>
<td>7 (5.7)</td>
<td>7 (5.1)</td>
<td>100.0</td>
</tr>
<tr>
<td>Xuanwu district</td>
<td>8 (6.5)</td>
<td>8 (5.8)</td>
<td>100.0</td>
</tr>
<tr>
<td>Congwen district</td>
<td>5 (4.1)</td>
<td>5 (3.6)</td>
<td>100.0</td>
</tr>
<tr>
<td>Fengtai district</td>
<td>20 (16.3)</td>
<td>23 (16.7)</td>
<td>87.0</td>
</tr>
<tr>
<td>Haidian district</td>
<td>38 (30.8)</td>
<td>45 (32.6)</td>
<td>84.4</td>
</tr>
<tr>
<td>Chaoyang district</td>
<td>37 (30.1)</td>
<td>41 (29.7)</td>
<td>90.2</td>
</tr>
<tr>
<td>Shijingshan district</td>
<td>8 (6.5)</td>
<td>9 (6.5)</td>
<td>88.9</td>
</tr>
<tr>
<td>Total</td>
<td>123 (100.0)</td>
<td>138 (100.0)</td>
<td>89.1</td>
</tr>
</tbody>
</table>
location. No statistically significant differences were found between the two groups. A total of 56.1% of the returned questionnaires were received after the first mailing, and another 43.9% were received in response to a reminder telephone call and a second mailing.

What respondents thought about the mutual referral pilot programme
Seventy-six (61.8%) CHS centres agreed or strongly agreed that the mutual referral system was feasible. Twenty-six (21.1%) CHS centres agreed or strongly agreed that the mutual referral pilot programme was running smoothly. The main problems of the mutual referral pilot programme in Beijing from the CHS centre perspective are listed in Table 2.

Factors influencing referral behaviour
Table 3 shows the responses given to factors that were suggested as influencing referral behaviour by descending order of the mean of every item. Uncertainties of diagnosis/management and medical specialty interest or skills were the two most commonly agreed on factors.

Changes that would improve the current referral process
Table 4 shows the responses to changes that were suggested as improving the current referral process, by descending order of the mean of every item. A dedicated coordinator/departments to accept referrals in hospitals and use of clinical referral guidelines were the most popular changes CHS centres agreed with.

What respondents thought about the use of referral indicators
The respondents were asked to choose 10 symptoms or diseases where the use of referral indicators would be of benefit from 21 symptoms and 20 diseases that are common in primary care. Table 5 lists the top 10 symptoms or diseases that doctors in CHS centres thought of benefit.

Discussion
The system of gatekeeper role by GPs at CHS organizations has not been introduced in China and therefore health authorities’ supervision of referrals plays a crucial role in guaranteeing the smooth operation of mutual referral. Although the government encourages the implementation of mutual referral, no specific rewards have been identified for good participation in the scheme. Similarly, health authorities have not formulated any punitive measures against hospitals, which intentionally retain patients with stable conditions. Consequently, there is no incentive for hospitals to actively strengthen their coordination with CHS centres. They have no motivation to transfer patients back to CHS facilities for follow-up treatment. Accordingly, we suggest that a regional ‘referral coordination centre’ should be established to further promote the smooth mutual referral. The referral coordination centre should be established for a region consisting of one

**Table 2** The main problems of the mutual referral pilot programme operating in Beijing from the CHS centre perspective, in order of frequency

<table>
<thead>
<tr>
<th>Items</th>
<th>No. of respondents</th>
<th>% Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of incentives to promote referrals</td>
<td>91</td>
<td>74.0</td>
</tr>
<tr>
<td>Low quality of health service of CHS doctors from patient’s perspective</td>
<td>86</td>
<td>69.9</td>
</tr>
<tr>
<td>No special agency/coordinator to accept referrals in many hospitals</td>
<td>78</td>
<td>63.4</td>
</tr>
<tr>
<td>Lack of referral indicators of common diseases and symptoms</td>
<td>70</td>
<td>56.9</td>
</tr>
<tr>
<td>Poor information transferring between CHS centres and hospitals</td>
<td>61</td>
<td>49.6</td>
</tr>
</tbody>
</table>

**Table 3** Responses given for the effect of possible factors influencing referral behaviour (by descending order of mean)

<table>
<thead>
<tr>
<th>Reason</th>
<th>N</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>Mean*</th>
<th>SD*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>Uncertainty of diagnosis/management</td>
<td>123</td>
<td>42</td>
<td>34.1</td>
<td>76</td>
<td>61.8</td>
<td>4</td>
<td>3.3</td>
<td>1</td>
</tr>
<tr>
<td>Own medical specialty interest or skills</td>
<td>123</td>
<td>42</td>
<td>21.1</td>
<td>81</td>
<td>65.9</td>
<td>13</td>
<td>7.7</td>
<td>2</td>
</tr>
<tr>
<td>Use of resources (for the prescription of some drugs or for special tests/examinations)</td>
<td>123</td>
<td>34</td>
<td>27.9</td>
<td>66</td>
<td>54.1</td>
<td>15</td>
<td>12.3</td>
<td>6</td>
</tr>
<tr>
<td>Fear of litigation</td>
<td>123</td>
<td>22</td>
<td>17.9</td>
<td>70</td>
<td>56.9</td>
<td>26</td>
<td>21.1</td>
<td>3</td>
</tr>
<tr>
<td>Patient pressure</td>
<td>123</td>
<td>16</td>
<td>13.0</td>
<td>78</td>
<td>63.4</td>
<td>25</td>
<td>20.3</td>
<td>3</td>
</tr>
<tr>
<td>Accessibility of a hospital to the patient</td>
<td>123</td>
<td>15</td>
<td>12.3</td>
<td>77</td>
<td>63.1</td>
<td>23</td>
<td>18.9</td>
<td>7</td>
</tr>
</tbody>
</table>

*Mean and standard deviation (SD) of Likert scale scores, where 5 = strongly agree, 4 = agree, 3 = neither agree nor disagree, 2 = disagree, 1 = strongly disagree.
Mutual referral in China

Table 4  Responses to changes that were suggested as improving the current referral process (by descending order of mean)

<table>
<thead>
<tr>
<th>Reasons</th>
<th>N</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>Mean*</th>
<th>SD*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dedicated coordinator/department to accept referrals in hospitals</td>
<td>123</td>
<td>28</td>
<td>22.8</td>
<td>77</td>
<td>62.6</td>
<td>14</td>
<td>11.4</td>
<td>3</td>
</tr>
<tr>
<td>Use of clinical referral indicators</td>
<td>123</td>
<td>24</td>
<td>19.5</td>
<td>76</td>
<td>61.8</td>
<td>21</td>
<td>17.1</td>
<td>2</td>
</tr>
<tr>
<td>Supervision from health administrative departments for referral</td>
<td>122</td>
<td>20</td>
<td>16.4</td>
<td>77</td>
<td>63.1</td>
<td>19</td>
<td>15.6</td>
<td>5</td>
</tr>
<tr>
<td>More informative hospital letters about the investigation and management of patients referred</td>
<td>123</td>
<td>24</td>
<td>19.5</td>
<td>70</td>
<td>56.9</td>
<td>20</td>
<td>16.3</td>
<td>7</td>
</tr>
<tr>
<td>Better access (telephone, e-mail) to hospital consultants to discuss individual cases</td>
<td>122</td>
<td>21</td>
<td>17.2</td>
<td>68</td>
<td>55.7</td>
<td>26</td>
<td>21.3</td>
<td>5</td>
</tr>
<tr>
<td>Good cooperation between the CHS centres and the referral hospitals</td>
<td>121</td>
<td>16</td>
<td>13.2</td>
<td>78</td>
<td>64.5</td>
<td>18</td>
<td>14.9</td>
<td>6</td>
</tr>
<tr>
<td>Using EMR among the medical institution</td>
<td>123</td>
<td>20</td>
<td>16.3</td>
<td>66</td>
<td>53.7</td>
<td>29</td>
<td>23.6</td>
<td>6</td>
</tr>
</tbody>
</table>

*Mean and standard deviation (SD) of Likert scale scores, where 5 = strongly agree, 4 = agree, 3 = neither agree nor disagree, 2 = disagree, 1 = strongly disagree.

Table 5  The top 10 Symptoms or diseases where the use of referral indicators would be of benefit, in order of frequency

<table>
<thead>
<tr>
<th>Symptoms or diseases</th>
<th>No. of respondents</th>
<th>% Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest pain</td>
<td>110</td>
<td>89.4</td>
</tr>
<tr>
<td>Dyspnea</td>
<td>108</td>
<td>87.8</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>106</td>
<td>86.2</td>
</tr>
<tr>
<td>Asthma</td>
<td>98</td>
<td>79.7</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>96</td>
<td>78.0</td>
</tr>
<tr>
<td>Stroke</td>
<td>95</td>
<td>77.2</td>
</tr>
<tr>
<td>Fever</td>
<td>95</td>
<td>77.2</td>
</tr>
<tr>
<td>Vaginal bleeding</td>
<td>91</td>
<td>74.0</td>
</tr>
<tr>
<td>Back pain</td>
<td>90</td>
<td>73.2</td>
</tr>
<tr>
<td>Palpitations</td>
<td>86</td>
<td>70.0</td>
</tr>
</tbody>
</table>

tertiary hospital and several CHS facilities. This would allow for the development of systems and rules for mutual referral, coordinating the services provided by hospitals and community health care facilities, standardizing management and providing convenient and updated information for patient referral. The function of the coordination centre should be supported by a regional health information platform. Furthermore, the confidence of patients in CHS centre doctors and their health care services is a critical component of smooth operation of mutual referral. However, in China, only 25.2% physicians at the CHS organizations had a bachelor degree or above compared with 51.3% physicians in the second- and third-tier hospitals. In large hospitals, physicians receive higher salaries and enjoy a greater reputation and opportunities for career development. Generally, the only doctors willing to work at the CHS organizations are those with lower levels of education who cannot secure a position with a larger hospital. This pattern has undermined patients’ trust on these organizations and their physicians. However, the Chinese government implemented several programmes after year 2000 to improve the competency of the less-educated physicians at the CHS organizations. For instance, ‘on-the-job’ training programmes have been started, degree advancement education programmes implemented and practical skills training programmes for CHS physicians and nurses commenced. Therefore, capacity building has been strengthened for CHS centre doctors (especially GPs), which should assist the establishment of the gatekeeper role by GPs.

Referral behaviours are influenced by multiple factors. We found that the patients’ need for further diagnosis and treatment is the most important factor in making a referral decision by a CHS centre doctor, which is consistent with findings in other countries. Medical factors (e.g. the need for special tests and radiological examinations) were also common reasons of referral in our study. Another issue is the need to access overseas-manufactured drugs. Only pharmaceutical products appearing in the list of ‘National Essential Drugs’ are used in the community health care facilities. Other issues (e.g. pressure from patients, doctor–patient disputes and the distance from a patient’s residence to a hospital) may also affect the referral decisions. Notwithstanding these initiatives, patients can visit any doctors or hospitals freely without referral, so the impact of these factors, nationally, on referral is relatively small.

Currently, most CHS doctors believe that the most important initiative to improve referral in the Beijing pilot programme is to establish a special agency that arranges referral to a hospital. The special agency could communicate with the CHS centre when the patient’s condition is suitable for him/her to be referred back to the GP. Improved patient satisfaction is likely to result from this practice.
We know of no evidence that clinical guidelines change referral behaviour. However, when a CHS doctor assesses the appropriateness of a referral based on guidelines on referral, it is likely that he/she will make a competent decision.\textsuperscript{17} Chinese doctors greatly favour such guidelines.\textsuperscript{18} These should include reference to the principles of referral, indications for referral (the severity of disease and other accompanied clinical conditions) and timing of referral. According to our survey, such guidelines should focus on common symptoms (e.g. chest pain, dyspnea and abdominal pain) and common diseases (e.g. asthma, chronic obstructive pulmonary disease and stroke).

In our study, administrative supervision from health authorities is the third most important factor to improve the current referral process. Some other studies indicated that the health authorities’ supervision played a crucial role in referral pilot programme in the absence of a system of gatekeeper role by Chinese GPs at CHS organizations.\textsuperscript{19,20}

More informative letters and better telephone access and a good relationship between CHS and hospitals are important to improve the current referral process. These factors can increase the feedback rate of referral and promote referral behaviour.\textsuperscript{21} Some other factor, using electronic medical records (EMRs) among the medical institutions, can also change the CHS doctors’ referral behaviour. Use of an intranet referral system based on EMRs between secondary and primary care improves clinical effectiveness, lowers direct costs, increases productivity and is cost effective.\textsuperscript{22} China started to develop a health care information system at the beginning of 1990s. However, EMRs are very difficult to construct because many existing electronic data sources, e.g. laboratory systems, pharmacy systems and physician dictate systems, operate independently—as ‘stand-alone’ systems. But the electronic referral system based on intranet was piloted between one hospital and several CHS organizations in some cities (e.g. Beijing, Nanjing) and they all showed increasing productivity and patients’ satisfaction.\textsuperscript{16,23} In December 2009, the ministry of health released the standards of EMRs architecture and corresponding data standards. This will promote both the advancement of the EMR initiative and the mutual referral system.\textsuperscript{24}

In community health centres, referral behaviour is primarily influenced by consensus. For this reason, we decided to attempt to obtain a response from each practice rather than each individual doctor. This study has some limitations. First, although the questionnaire was designed to understand the consensus response about referral pilot programme from each CHS centre, it is possible that in some cases individual partners completed the questionnaire. If this occurred, then some of the responses may reflect their individual views rather than those of the whole practice. Second, factors that may affect referral behaviour were only based on the reports submitted by CHS doctors; therefore, they may not reflect the ‘real-world’ referral behaviour of GPs. Finally, this survey was only conducted in CHS centres in Beijing, and therefore, the specialists’ views regarding the mutual referral pilot programme were not to be obtained. Further efforts to understand the specialists’ perspective about the referral pilot programme are needed.

Conclusions

Since the system of gatekeeper role by GPs at CHS organizations has not been established in Beijing, most CHS centre doctors agree that, to ensure the smooth operation of referral, a dedicated coordinator/department should be assigned by hospitals to receive referred patients, official guidelines on referral should be developed and applied and the health authorities should strengthen their supervision on referral.

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Declarations


Conflict of interest: none.

References

7 Wang J, Kushner K, Frey JJ III, Du XP, Qian N. Primary care re-
form in the Peoples’ Republic of China: implications for train-
ning family physicians for the world’s largest country. Fam Med
8 China Ministry of Health. Yearbook of Chinese Health Statistics
cessed on 20 December 2011).
9 Beijing Municipal Health Bureau. Beijing Health Statistics 2002-
cessed on 20 December 2011).
10 Beijing Municipal Health Bureau, Beijing Municipal Human Re-
source and Social Security. The Suggestions for Standardize
the Mutual Referral Management of Community Health Service
812/fgdyna.prinfodetail.prStatuteDetailInfo.do (accessed on
20 December 2011).
11 Li WY, Xue L, Yuan H, Nie P, Huang JY. Establishing a new style
of management platform between general hospital and commu-
12 Gao ZS, Liu YF, Li Q. Construction of regional referral informa-
13 Forrest CB, Nutting PA, Schrader S, Rohde C, Starfield B. Primary
care physician specialty referral decision making: patient, phy-
sician, and health care system determinants. Med Decis Mak-
ing 2006; 26: 76–85.
14 Wright J, Wilkinson J. General practitioners’ attitudes to varia-
tions in referral rates and how these could be managed. Fam
15 Donohoe MD, Kravitz RK, Wheeler DW et al. Reasons for outpa-
tient referrals from generalists to specialists. J Gen Intern Med
16 Zhang YH, Liu F. New model of dual referral between community
and general hospitals basing on information technique [in
17 O’Donnell CA. Variation in GP referral rates: what can we learn
18 Cao XN, Zhao YL, Lv M et al. Assessment on present referral sit-
uation by trainees of training program for Beijing key general
practitioners and demands for referral criteria [in Chinese].
19 Ma X, Li NX, Ren XH, Gao B. Investigation on the KAP of med-
ical staff in community about two-way referral [in Chinese].
20 Ren JP, Guo Q, Xu W. A study on present situation of two-way re-
feral of community health service in Hangzhou City, Zhejiang
Province of China [in Chinese]. J Hangzhou Teach Coll (Med
21 Javalgi R, Joseph WB, Gombeski WR Jr, Lester JA. How physi-
22 Chan TC, Killean JP, Castillo EM et al. Impact of an internet-based
emergency department appointment system to access primary
54: 279–84.
23 Liu NF, Tang SZ, Wu BH. Study on two-way referral and informa-
tion sharing network systems [in Chinese]. Chinese J Gen Pract
24 China Ministry of Health. The Standards of Electronic Health Re-
http://www.moh.gov.cn/publicfiles/business/htmlfiles/mohbgt/
s6718/200912/45414.htm (accessed on 20 December 2011).