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## Provision and Usage of Medical Services by Community Pharmacy: A Comparative Study of New York, Macao and Zhuhai (China)

GE Shuai<sup>[a]</sup>; Kuan-long Cheong<sup>[a]</sup>; HU Hao<sup>[a]\*</sup>; WANG Yitao<sup>[a]</sup>

<sup>[a]</sup> State Key Laboratory of Quality Research in Chinese Medicine, Institute of Chinese Medical Sciences, University of Macau, Macao, China.

\* Corresponding author.

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### Abstract

Community pharmacies around the world are redefining their roles by experimenting to provide medical services directly to consumers. The aim of this study was to investigate the medical services provided by community pharmacies and consumers' usage of these medical services. This study was carried out through semi-structured interviews with both community pharmacists and their consumers in New York, Macao and Zhuhai. Community pharmacists reported information about provision of medical services, and consumers provided information about their usage of medical services at community pharmacies accordingly. Through analysis of interview materials it showed that community pharmacies mainly provided free medical examination, reference books and booklet of drug information. Some community pharmacies provided health care lecture and founded own website for medicine information. But touch-screen computer querying system and telephone health care service had not been provided. Additionally the consumers' usage of medical services at community pharmacy is obviously lower than provision by community pharmacy. The provision level of medical services by community pharmacy was relatively low and the types of medical services were relatively narrow. There was an obvious gap between provision of medical services by community pharmacies and usage of such services by consumers. The position of community pharmacy in national health system and capability of community pharmacy have impact on the medical services of community pharmacies.

**Key words:** Community pharmacy; Medical services; Comparative study; New York; Macao; Zhuhai (China)

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### INTRODUCTION

With the rapid change of health and economy environment around the world, community pharmacies are facing with multiple pressures. The policy and regulation changes from government push community pharmacies to take more health responsibilities (Lluch & Kanavos, 2010; Noyce, 2007). Consumers with more diversified background increase the difficulties of deciding service portfolio and ensuring service quality (Larson & MacKeigan, 1994; Panvelkar, Saini, & Armour, 2009; Tinelli, Blenkinsopp, & Bond, 2011). Besides community pharmacy in every region is facing extreme pressures of fierce competition due to entry of new competitors (Brooks, Klepser, Urmie, Farris, & Doucette, 2007). Just selling medicine is far from enough and the past simple role of drug dispenser is unsustainable any more. Community pharmacies have to try to offer more kinds of service. According to the service content, community pharmacy services can be categorized into three parts: basic services, pharmaceutical services and medical services. Traditionally community pharmacies take most attention to basic service and pharmaceutical service. By facing with various pressures community pharmacies also take efforts to provide more medical services.

There has been an increasing international trend toward the delivery of medical services by community pharmacy (Homburg, Hoyer, & Fassnacht, 2002; Roberts *et al.*, 2005; White & Klinner, 2012). By providing knowledge

and information of health care, community pharmacy can increase consumers' patronage and loyalty (Alter, 2002; Whitehead, Atkin, Krass, & Benrimoj, 1999). Therefore community pharmacy can take medical services as a break through and improve its competitiveness by optimizing service types and service quality (Blake, Madhavan, Scott, & Meredith Elswick, 2009; CancrinusMatthijsse, Lindenberg, Bakker, & Groenewegen, 1996; Herna'ndez *et al.*, 2000).

Although generally acknowledging the importance and benefits of providing medical services by community pharmacy, there are still many inconsistencies about the ingredients of medical services that could be appropriate for community pharmacy to provide (Hennigen, Fischer, Camargo, & Heineck, 2009). How to conduct medical services by community pharmacies to attract consumers to improve their health status is still full of debates (Petronijevic *et al.*, 2012).

Currently the studies about community pharmacy are increasing very fast (Kamei, Teshima, & Nakamura, 2000; Tam & Lim, 1997; Villako & Raal, 2007). But most of the studies lay particular emphasis on pharmaceutical services instead of medical services (Larson, Rovers, & MacKeigan, 2002; Schommer & Kucukarslan, 1997). Particularly many studies focus on consumer satisfaction with pharmacy services in general (Holdford & Schulz, 1999; Horvat & Kos, 2011; MacKeigan & Larson, 1989). There are few researches concentrating on medical services of community pharmacy. The provision and usage of medical services at community pharmacies remain unclear for practitioners and researchers. Then the aim of this study was to investigate the medical services provided by community pharmacies and consumers' usage of these medical services.

**Table 1**  
**Interviewees in the Three Cities**

Location	Pharmacy	Pharmacist	Consumer	Period
New York	10	10	30	20/11/2011--27/12/2011
Macao	10	10	20	26/01/1012--07/02/2012
Zhuhai	10	10	20	14/02/2012--29/02/2012

## 1.2 Main Measurement

This study was carried out with a semi-structured questionnaire. The questionnaire was based on literature analysis of medical service by community pharmacy and pilot study at community pharmacies of three cities in June 2010. For both pharmacists and consumer the questionnaire focuses on whether community pharmacy provided (or consumer used) the following medical services: (1) Free medical examination services, such as weighting-scale and blood pressure monitor; (2) reference books for consumers; (3) touch-screen computer search system for searching drug information; (4) health care lectures; (5) telephone health care services, for example, 24 hours medical information consulting; (6) booklet of drug information for consumers to read; (7) Internet

## 1. METHODOLOGY

### 1.1 Setting & Data-Collection

This study chose a comparative research design to explore the medical services of community pharmacy in different context through filed work in New York, Macao and Zhuhai (China). Far from Macao and Zhuhai, New York has its own social and economic environment that is completely different from the other two cities. Although Macao and Zhuhai are geographically linked, they have different health system and consumer composition. Such kind of comparative research design could help to not only understand the cognition difference between community pharmacies and its consumer in one area but also explore the potential convergence in completely distinguished environment, which could benefit to enrich the knowledge of emergent field of medical services by community pharmacy. The whole research design had been approved by the Research Committee of University of Macau.

Totally 30 community pharmacies were selected randomly in New York, Macao, and Zhuhai (see Table 1). In New York, the interviewed community pharmacies were located in Flushing and Chinatown; in Macao, the interviewed communities were spotted across the whole city, and in Zhuhai the interviewed community pharmacies were located in different areas of the city.

For consumers, the interviews in New York and Macao were both conducted in the coffee shops close to the interviewed pharmacies. In Zhuhai the interviews were implemented on the street near the pharmacies. A total of 70 consumers who had long-term consumption experience in the community pharmacy were chosen randomly for interview.

information announcement channels. Open questions about evaluation of these medical services were asked at the end of each interview.

## 2. RESULTS

### 2.1 Medical Services of Community Pharmacies in New York

From the interviews, it showed that the medical services of community pharmacies in New York were simple (see Table 2). Half of the interviewed community pharmacies offered free medical examination but with limited items. Most of the community pharmacies would give booklet of drug information, mainly provided by pharmaceutical manufacturers. Very few of them would supply reference

books to the consumers. None of them had any touch-screen computer querying system and telephone health care service. Only small part of the community pharmacies would hold health care lectures and provide medical and pharmaceutical information through website.

From the interviews with consumers in New York, it showed that consumers had less experience of using medical services from community pharmacies (see Table 2). While most of the community pharmacies provided free medical examination the customers seldom made use of it

because they would prefer to get medical examination from their family doctors. Most consumers had not used reference books or got booklet of drug information at community pharmacy. The consumers interviewed thought that only the big community pharmacy would hold health care lectures with cooperation of insurance companies or doctors and did not have much interest to attend. Few consumers had visited the website of community pharmacies to obtain medical or pharmaceutical information.

**Table 2**  
**Medical Services of Community Pharmacies in New York**

Medical services	Free medical examination	Reference books	Touch-screen computer querying system	Health care lecture	Telephone health care	Booklet of drug information	Website information announcement
Provision by pharmacies	50%	20%	0%	30%	0%	70%	30%
Usage by consumers	36.67%	13.33%	0%	16.67%	0%	36.67%	6.67%

**2.2 Medical Service of Community Pharmacy in Macao**

The interviews with community pharmacies in Macao showed that the community pharmacies' medical services were also very limited (see Table 3). Few of them offered free medical examination and the items were quite narrowed. Most of the community pharmacies would give booklet of drug information, which were mainly provided by pharmaceutical companies. All of them would give reference books to the consumers, such as pharmacological book and pharmacopoeia for consulting. No touch-screen computer querying system and telephone health care service were given, as well as health care

lectures and website information announcement.

The interviews with consumers indicated that most consumers had not utilized free medical examination and reference books provided by community pharmacy. They had not listened to health care lectures and got no telephone health care service from community pharmacies either. Most consumers did not think community pharmacy would provide medical or pharmaceutical information on website. The only exception was that consumers had got booklet of drug information from community pharmacies. The consumer usage of medical services by community pharmacies in Macao generally stayed at a very low level (see Table 3).

**Table 3**  
**Medical Services of Community Pharmacies in Macao**

Medical services	Free medical examination	Reference books	Touch-screen computer querying system	Health care lecture	Telephone health care	Booklet of drug information	Website information announcement
Provision by pharmacies	20%	100%	0%	0%	0%	70%	0%
Usage by consumers	0%	0%	0%	0%	0%	33.33%	0%

**2.3 Medical Services of Community Pharmacies in Zhuhai**

From the interviews with community pharmacies in Zhuhai, it seemed that community pharmacy's medical services were relatively more complicated (see Table 4). All the interviewed community pharmacies prepared reference books for consumer consulting. Half of the interviewed community pharmacies offered free medical examination with various items. Some community pharmacies would give booklet of drug information. No one had touch-screen computer querying system. Few of them provided telephone health care service. Some community pharmacies held health care lectures such

as medicine usage and health care. Some community pharmacies had established own website to provide information such as pharmacy information and drug price.

The consumers in Zhuhai widely made use of free medical examination provided by community pharmacy (see Table 4). While many community pharmacies had provided reference books none interviewed consumers had used the reference books. But they collected booklet of drug information at community pharmacies to get more detailed information. Very few of the consumers had used the telephone health care service except for instructions of medicine. They seldom attended the health lectures organized by community pharmacies and visited the website of community pharmacies.

**Table 4**  
**Medical Services of Community Pharmacies in Zhuhai**

Medical services	Free medical examination	Reference books	Touch-screen computer querying system	Health care lecture	Telephone health care	Booklet of drug information	Website information announcement
Provision by pharmacies	70%	100%	0%	30%	10%	50%	30%
Usage by consumers	60%	0%	0%	5%	10%	50%	10%

### 3. DISCUSSION

Based on interviews with community pharmacists and consumers in New York, Macao and Zhuhai, it

demonstrated that community pharmacies had begun to experiment provisions of medical services but with many limits, and consumers' usage and evaluation of these medical services remained low accordingly (see Table 5).

**Table 5**  
**Comparative Summary of Medical Services in New York, Macao and Zhuhai**

Medical services	Pharmacist			Consumers		
	New York	Macao	Zhuhai	New York	Macao	Zhuhai
Free medical examination	50%	20%	70%	36.67%	0%	60%
Reference books	20%	100%	100%	13.33%	0%	0%
Touch-screen computer querying system	0%	0%	0%	0%	0%	0%
Health care lecture	30%	0%	30%	16.67%	0%	5%
Telephone health care	0%	0%	10%	0%	0%	10%
Booklet of drug information	70%	70%	50%	36.67%	33.33%	50%
Website information announcement	30%	0%	30%	6.67%	0%	10%

Firstly, it is of note that many community pharmacies had provided free medical examination as one kind of means to attract consumers. Free medical examination provides an alternative for visiting doctors or hospitals and is supposed to be more convenient and cost-saving for consumers (Mangum, Kraenow, & Narducci, 2003). But the usage of such kind of medical service is much lower compared with provision. It implies that the content of such kind of medical services is very monotonous and difficult to meet the systematic demand of consumers. Moreover, consumers may suspect the quality of medical examination in small community pharmacy and have more confidence in experienced doctors and advanced medical machines at hospitals. Consequently consumers did not utilize such kind of service frequently though they have realized the provision of free medical examination at community pharmacy.

Secondly, it is worthy of note that paradox of provision and usage of reference books. All the community pharmacies in Macao and Zhuhai had prepared reference books in their places. Nevertheless none consumers had experiences of reading or consulting these reference books. Such kind of dramatic difference implies that on the one hand the provision of reference books is limited in quantity or therapeutic areas. On the other hand it means that ordinary consumers do not have capability to understand and apply the knowledge in the professional medical and pharmaceutical books. The complicated medical science and technology always results in a expertise gap for consumers (Or & Karsh, 2009). Such kind of expertise gap hinders usage of reference books by consumers at community pharmacy.

Thirdly, booklet of drug information is mostly

provided by community pharmacy and more accepted and used by consumers. Generally the community pharmacies did not design booklet by themselves but cooperated with pharmaceutical manufacturers to prepare all kinds of booklets. The pharmaceutical companies want to extend their branding impact and persuade consumers through providing booklet at community pharmacies, and transfer drug information to consumers directly (Adeoye & Bozic, 2007). Such kind of cooperation will not increase cost for community pharmacy but help to increase its professionalism image to consumers. For consumers booklet of drug information contains not only just information of specific medicine but also medical information about cause and prevention of specific disease. The small booklet is also easy for consumer to pick up and read which leads to more preferable attitude from consumers.

Fourthly, some of the community pharmacies in New York and Zhuhai provided health care lecture to consumers. Medical education and community pharmacy is regarded as one kind of mechanism to increase community health (Witmer, Seifer, Finocchio, Leslie, & Oneil, 1995). Constrained by own resources and capabilities, single community pharmacy often finds it difficult to organize such kind of medical activities. But with support with local hospitals, insurance companies or doctors, community pharmacies still have opportunities to provide small and specific lectures to consumers. On the contrary this study found that consumers had fewer motives to attend such kind of lectures at community pharmacy. The interviewed consumers complained that the lecture topics were not interested or timing arrangement was not feasible for them to attend. It implies

that how to decide the appropriate lecture topics and time is challenging for community pharmacies to conduct such kind of activities.

Fifthly, establishing website for information announcement was experimented by community pharmacies in New York and Zhuhai. With the development of information technology, Internet has become more and more convenient for publicizing and acquiring medical information (Diaz *et al.*, 2002; Orizio, Merla, Schulz, & Gelatti, 2011). Even single community pharmacy has possibility to found its own website to share and update medical and pharmaceutical information. 30% studied community pharmacies in New York and Zhuhai had established website. Nevertheless the frequency of consumers visiting these websites was very low. Consumers were unsatisfied with the content of information provided on the website and the slow speed of updating new medicine products, which led to extremely low visiting rate.

Finally it must notice that none of studied community pharmacies provides touch-screen computer querying system and telephone health care service. According to the interview of community pharmacies the cost of these two services was very high and with great technical difficulties, which makes them unaffordable for community pharmacies. Besides, community pharmacies were suspicious whether consumers had interest and capability to use touch-screen computer querying system. For telephone health care service community pharmacy needs specific human resource that holds expertise in medicine. The rising competition among community pharmacy is weakening community pharmacy's financial status, which makes it difficult to afford to recruit such kind of expertise (Doucette *et al.*, 2012).

Moreover, some differences among the three cities though this study should be further discussed here. Particularly for free medical examination it was more provided and used in Zhuhai compared with other two cities. Because there are more advanced health systems and more sufficient medical resources in New York and Macao, consumers there would prefer more to take systematic medical examination in hospitals rather than community pharmacies. Comparatively consumers in Zhuhai enjoyed less medical resources. Therefore they have more motives to accept free medical examination as one kind of medical benefit provided by community pharmacy. Similarly, booklet of drug information provided at community pharmacy in Zhuhai was more taken by consumers because they have less access to professional medical services and had to turn to other medical information resources. These small but meaningful differences highlighted the impact of national health system and other institutions on provision and usage of medical services of community pharmacies.

Research limitations in this study also have to be recognized and analyzed here. This study applied a

qualitative design by interviewing community pharmacists and their consumers. While it provides direct means to collect two-side information to measure provision and usage of medical services the limits of research sources and time constrained the quantity of community pharmacies and consumers accessed. Based on research findings from this study written questionnaire should be able to be developed and used to carry out larger sample survey in the future, which could generate more complete information about perceptions about medical services of community pharmacies, especially from more diversified consumers.

The internal differences of medical services provision among community pharmacies in one area also needs further attention. Although this study aims to investigate the general trend of medical services at community pharmacies, it also found that different community pharmacies have varied practices of medical services. Single community pharmacy may design and implement its own strategy of medical services according its own evaluation of resources and capabilities, its specific consumer environment, and its own entrepreneurship choice. The internal linkages between medical services of community pharmacy and its determinants require exploratory investigation in the future study.

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## CONCLUSION

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In general the medical services provided by community pharmacy remain low-level. The results of this study indicate that the main medical services provided by community pharmacy are free medical examination, reference books and booklet of drug information. Some community pharmacies provide health care lecture and found Website for information service. But none of them provides touch-screen computer querying system and telephone health care service. Besides, the results demonstrate that there is an obvious gap between provision and usage of medical services at community pharmacy. The percentage of consumer usage is lower than the percentage of community pharmacy provision, implying the difficulty and challenges of conducting medical services by community pharmacy.

To promote the provision and usage of medical services at community pharmacy it is necessary to increase the linkages between community pharmacy and other medical actors, especially hospitals. The collaborative work between hospital practitioners and community pharmacy staffs will increase the interactions between each other, which could make up the shortage of medical expertise at community pharmacy and improve consumer's trust and confidence about community pharmacy as provider of medical services. Moreover, more specific provision of medical services at community pharmacy may be recommended to satisfy the demands of consumers and facilitate the redefinition of roles of community pharmacy.

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