ORIGINAL ARTICLE

Herbal Use Amongst Multiethnic Medical Patients in Penang Hospital: Pattern and Perceptions

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Summary

A cross sectional survey on pattern and perception of herbal use among medical patients in Penang Hospital was conducted. Among 250 patients surveyed, 67.9% were using herbal medicine and conventional medicine concomitantly. A majority of the patients used herbs for health maintenance (51.3%) purpose. More than 90% of herbal users did not disclose herbal use to their physician and "Doctor never asked" was the major reason given (54.2%). The Chinese reported the highest rate of herbal use but was least likely to disclose. These findings are important for health professionals to ensure medication safety and recognise potential drug herb interaction.

Key Words: Herbal medicine, Secondary care, Pattern and perceptions, Disclosure

Introduction

The utilization of Traditional and Complementary Medicine (T/CM) is prevalent and increasing worldwide. Herbal use, in particular has grown considerably during the last decade and is a thriving industry in many countries[1-3] including Malaysia[4]. In Malaysia, the demand for herbs and plant based medicines grew 450% to RM 4.5 billion in 2001 from RM1 billion in 1998[4]. National survey in United States revealed more than six fold increase in the use of herbal medicine from 2.5% in 1990 to 18.3% in 2002[5], indicating a growing demand for natural healthcare. The 1999 Health Focus Trend Report also showed that more than one third (35%) of USA adults used herbal medicine[6].

Herbal medicine continues to be accepted and supported by the local community for maintenance of health and treatment of diseases. Traditional herbal therapy including Indian Ayuverdic, traditional Malay (Jamu) medicine and Chinese traditional medicine are widely practised by both rural and urban population. Therefore, it is common for patients attending a medical care setting to use herbal medicine concomitantly with allopathic medicine as shown by various studies[7,8]. A recent survey conducted in United States showed that 48% of patients used combined herbs and supplement whereas 26% of patients consumed herbal medicine only[5]. Similar percentage of herbal use has also been reported among primary and secondary care patients, which is around 30-40%[9,10].

Dramatic increases in herbal use prompt the Ministry of Health Malaysia to implement registration for traditional medicines in January 1992 under the Control of Drugs and Cosmetics regulations 1984. The goal is to ensure safe, quality traditional medicines are made available to the public. The quality and safety requirements subjected include limits for heavy metals (Poison Act 1952, Revised 1989), limits for microbial contamination, absence of steroids and other adulterants (Poison Act 1952), limits of disintegration time (Pharmacopoeia Standards), claimed indications (Medicines Act –

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Advertisement and Sale 1956), prohibition of herbs with known adverse effects, and compliance to Good Manufacturing Practice (GMP) (http://www.bpfk.gov.my/newst.htm).

Despite the fact that herbal use is common among medical patients, numerous surveys have found relatively low patient disclosure rate (30%) of herbal use to their health care professionals[11-13]. This highlights that patient may not be aware of the potential dangers of drug- herb interaction and this makes it very difficult for health care professionals to counsel patients appropriately about concurrent use of herbal medicine and conventional medications. On the other hand, most of the herbal users reported "improved effect"[7]. These perceived benefits were considered as one of the major influential factors for future herbal use[13].

As herbal use may relate to one's sociocultural background and traditional beliefs, a survey is needed to understand the spectrum of herbal utilisation in the culturally diversified Malaysia population. In addition, in order to maximise the therapeutic outcome and provide quality medical care, a better understanding of the variations of herbal use pattern is warranted.

Objective of the study

The primary objective of this study was to assess the pattern and perception of herbal use among medical patients with different ethnic and socioeconomic background in Penang Hospital. The secondary objective is to design a structured documentation of herbal use for medical patients.

Materials and Methods

A cross sectional survey was carried out in Penang Hospital. The study population consists of medical patients from cardiology, neurology, infectious and nephrology wards. Convenience sampling was used. Data were collected by conducting a structured interview using a questionnaire from March to May 2005. All eligible patients were included for participation. Patients were excluded if they were below 18 years, pregnant, or unable to give verbal and written consent for any reason, including neurological disability or language barrier. Concurrently, patients' medical record was reviewed for demographic information, diagnoses and medications.

A questionnaire was developed (see Appendix 1). The demographic and socioeconomic data of the patients were recorded. Information of herbal medicine was elicited, specifying the name, types, registration, duration, source and reason for its use. Patients' perception on herbal use including perceived effect of herbs, disclosure to physician and reason for non-disclosure were also documented. The study adopted the definition of herbal medicines as stipulated in WHO guidelines for the appropriate use of herbal medicines 1998. According to this definition, herbal medicines refer to plant derived materials or products with therapeutic or other human health benefits, which contain either raw or processed ingredients from one or more plants[14]. Under this definition, there are three kinds of herbal medicines: raw, processed plant materials, and medicinal herbal products. Raw ingredients refer to fresh or dried plant materials which are presented whole or simply cut into small pieces for consumption. Processed plant materials are treated according to traditional procedures to improve their safety and efficacy, to facilitate their clinical use, or to make medicinal preparations. Medicinal herbal products are finished, labelled pharmaceutical products in dosage forms that contain one or more of powdered plant materials; extracts; or partially purified active substances isolated from plant materials[14]. Herbs taken by patients without supporting evidence (such as leaflets or sample herbal products) were categorised under unknown herbs. The questionnaires were pilot tested on nine medical ward patients with three patients from Malay, Chinese and Indian respectively. Data collected were analysed using SPSS version 12.0.

Results

A total of 250 medical patients were recruited and analysed. The demographic and socioeconomic characteristics of the subjects are summarized in Table I. In general, 42.4% of study sample (n=106) reported using herbs. The proportion of ethnic groups that used herbs were consistent with the ethnic distribution in Pulau Pinang: 47.1% Chinese, 45.3% Malay and 32.1% Indian. Male patients were more likely to consume herbal medicine (47.2%). The top five herbs used were unknown herbs (34.9%), followed by ginseng (Panax ginseng) (12.3%), American ginseng (Panax quinquefolium) and Makjun (9.4% respectively), garlic (Allium sativum) and ginkgo (Ginkgo biloba) (7.6% respectively); and Tongkat Ali (Eurycoma longifolia) (6.6%).

The specific herbs used by the medical patients covered a wide spectrum and differ across ethnic group

as illustrated in Figure 1. Apart from unknown herbs which formed the largest group in the three ethnic groups, Makjun, Tongkat Ali and ginseng were commonly used in Malay patients whereas American ginseng, ginseng and Dong Quai (Angelica sinensis) constituted three other favourite herbs among Chinese patients. Medicinal herbal product was the most common type of herbs consumed (63.5%), with 26.6% of the medicinal form reported not registered with Drug Control Authority (DCA).

67.9% of respondents were taking herbal medicine and conventional medications concomitantly. The main reason of herbal use was for "health maintenance" (51.3%), followed by "chronic illness" (42.1%). In contrast, "believe herbal medicine to be ineffective or inferior" (31.3%) and "worry of side effects" (22.9%) were the two major reasons given by non-users. About 73% of herbal users agreed that they experienced improved effects in terms of sign and symptoms and only 3.8% indicated worsening effect with herbal medicine use.

More than ninety percent of patients who took herbal medicine did not disclose this information to their physicians. The Chinese reported the highest rate of non-disclosure (92.5%). Of those citing a specific reason for non-disclosure, the most popular response was that "doctor never asked" (54.2%) and "it was not important for doctor to know" (36.5%) (Figure 2). The major source of influence for herbal use comes from friends (48.1%) and family members (33%). The pattern and perception of herbal use of surveyed patients are presented in Table II.

Discussion

Herbal use in this survey sample was high and is similar to the findings in previous study[5]. In contrast to prior studies conducted in the USA[15,16], our study showed that male patients were the predominant user of herbal medicine. The possible explanation for this difference could lie in the definition of herbal medicine adopted from the WHO guideline. Most of the studies classify herbs under "dietary supplement" in accordance with Dietary Supplement Health and Education Act 1994. Unlike herbal medicine that refers to purely plant-derived materials, the term "dietary supplement" encompasses vitamin, mineral, herbs and functional food. As most of the slimming products, women health supplement are categorised under this definition, this could in turn account for lower rate of herbal use by females in this study.

Chinese patients were most likely to use herbal medicines compared to non-Chinese patients. This could be due to easy access to unregulated traditional herbal medicine either through prohibited advertisement (Advertisement Act 1956) or recommendation by friends or family members. At the same time, most of the traditional Chinese medicines such as Dong Quai, Danshen (salvia miliorrhiza) and even ginseng have been consumed regularly. For example, ginseng has been used for consumption in China for thousands of years and perhaps should not be considered as a medicine as it is not aimed to treat any particular disease. It is rather as it is claimed aimed at counteracting weakness, fatigue and enhancing convalescence[17].

Despite the fact that registration of herbal medicine is mandatory for pharmaceutical dosage forms in compliance with Control of Drugs & Cosmetic Regulation 1984, less than one third of herbal medicine in medicinal form was registered. This finding highlights two issues. Firstly, patient may not realise the importance of registration which serves as an advanced safety checkpoint to ensure the safety, quality and efficacy of herbal products. Secondly, periodic post marketing surveillance on unregistered traditional medicine in the market is necessary to safeguard public safety. In Malaysia, possession of unregistered manufactured products under the DCA regulation 1984 makes an individual liable for a fine of up to RM25,000 (USD 6,500) or three years jail in default, or both. However, companies could be fined up to RM50,000 (USD 13,000).[18]

This study showed that most patients use herbs for "health maintenance purposes", followed by reason of chronic illness. This supports the perceived complementary role of unorthodox medical therapies in health promotion and disease treatment among Malaysian adults. The non-users "believe herbs to be ineffective or inferior" and gave this reason for not using them. There was also a non significant trend towards herbal non-users being more likely to say they had insufficient knowledge about herbal medicine.

Another important finding of the study is that despite the herbal use being prevalent among the patients, the disclosure rate to health professionals was relatively low. "Doctor never asked" constitutes the key reason

Table I: Socio-demographic characteristics of the study population

Variable	No of patient (%)	User (%)	Non-user (%)
Gender			
Male	123 (49.2)	58 (47.2)	65 (52.8)
Female	127 (50.8)	48 (37.8)	79 (62.2)
Age (years)			
18-34	32 (12.8)	12 (37.5)	20 (62.5)
35-59	132 (52.8)	62 (47.0)	70 (53.0)
60-88	86 (34.4)	32 (37.2)	54 (62.8)
Ethnicity/race			
Malay	106 (42.4)	48 (45.3)	58 (54.7)
Chinese	85 (34.0)	40 (47.1)	45 (52.9)
Indian	56 (22.4)	18 (32.1)	38 (67.9)
Others	3 (1.2)	0 (0)	3(100)
Religion			
Islam	107 (42.8)	49 (45.8)	58 (54.2)
Buddhist	83 (33.2)	39 (47.0)	44 (53.0)
Hinduism	56 (22.4)	18 (32.1)	38 (67.9)
Christianity	1 (0.4)	0 (0)	1(100)
Others	3 (1.2)	0 (0)	3(100)
Marital status			
Single	32 (12.8)	11 (34.4)	21 (65.6)
Married	215 (86.0)	93 (43.3)	122 (56.7)
Divorced	3 (1.2)	2 (66.7)	1 (33.3)
Working status			
Working	79 (31.6)	35 (44.3)	44 (55.7)
Not working	145 (58.0)	55 (37.9)	90 (62.1)
Retired	26 (10.4)	16 (61.5)	10 (38.5)
Employment			
Private	50 (62.5)	21 (42.0)	29 (58.0)
Self-employed	8 (10.0)	5 (62.5)	3 (37.5)
Government	22 (27.5)	10 (45.5)	12 (54.5)
Income (monthly)			
<RM 1000	154 (61.6)	56 (36.4)	98 (63.6)
RM 1000-3000	85 (34.0)	42 (49.4)	43 (50.6)
RM 3000-5000	9 (3.6)	7 (77.8)	2 (22.2)
>RM 5000	2 (0.8)	1 (50.0)	1 (50.0)
Education level			
None	29 (11.6)	7 (24.1)	22 (75.9)
Primary	93 (37.2)	30 (32.3)	63 (67.7)
Secondary	104 (41.6)	56 (53.8)	48 (46.2)
Tertiary	24 (9.6)	13 (54.2)	11(45.8)
Perceived Health			
Very poor	4 (1.6)	3 (75.0)	1 (25.0)
Poor	186 (74.4)	82 (44.1)	104 (55.9)
Fair	51 (20.4)	18 (35.3)	33 (64.7)
Good	9 (3.6)	3 (33.3)	6 (66.7)

Table II: Pattern and perceptions of herbal use

Variables n (%)	Total N (%)	Malay n (%)	Chinese n (%)	Indian n (%)	Others
Herbal Use	106 (42.4)	48 (45.3)	40 (47.1)	18 (32.1)	0 (0)
Reason taking herb (current)					
Acute illness	5 (6.6)	2 (5.7)	2 (6.3)	1 (11.1)	
Chronic illness	32 (42.1)	12 (34.3)	14 (43.8)	6 (66.7)	
Health maintenance	39 (51.3)	21 (60.0)	16 (50.0)	2 (22.2)	
Reason for not taking herb					
Expensive	22 (15.3)	5 (8.6)	11 (24.4)	5 (13.2)	1 (33.3)
Believe herbal ineffective/inferior	45 (31.3)	21 (36.2)	8 (17.8)	15 (39.5)	1 (33.3)
Worry of side effects	33 (22.9)	18 (31.0)	11 (24.4)	4 (10.5)	0 (0)
Lack of exposure/knowledge	19 (13.2)	7 (12.1)	4 (8.9)	8 (21.1)	0 (0)
Not necessary	26 (17.4)	7 (12.1)	11 (24.4)	6 (15.8)	1 (33.3)
Take herbs & prescription medicine	72 (67.9)	33 (68.8)	30 (75.0)	9 (50.0)	
Influenced by					
Friends	51 (48.1)	25 (52.1)	16 (40.0)	10 (55.6)	
Family members	35 (33)	13 (27.1)	17 (42.5)	5 (27.8)	
Advertisement	6 (5.7)	2 (4.2)	1 (2.5)	3 (16.7)	
Health professional	9 (8.5)	5 (10.4)	4 (10.0)	0 (0)	
Others	5 (5)	3 (6.3)	2 (5.0)	0 (0)	
Disclosure of use					
Yes	10 (9.4)	4 (8.3)	3 (7.5)	3 (16.7)	
No	96 (90.6)	44 (91.7)	37 (92.5)	15 (83.3)	
Reason for non disclosure					
Not important	35 (36.5)	17 (38.6)	13 (35.1)	5 (33.3)	
Doctor never asked	52 (54.2)	21 (47.7)	22 (59.5)	9 (60.0)	
Doctor would disapprove	5 (5.2)	4 (9.1)	1 (2.7)	0 (0)	
Others	4 (4.2)	2 (4.5)	1 (2.7)	1 (6.7)	

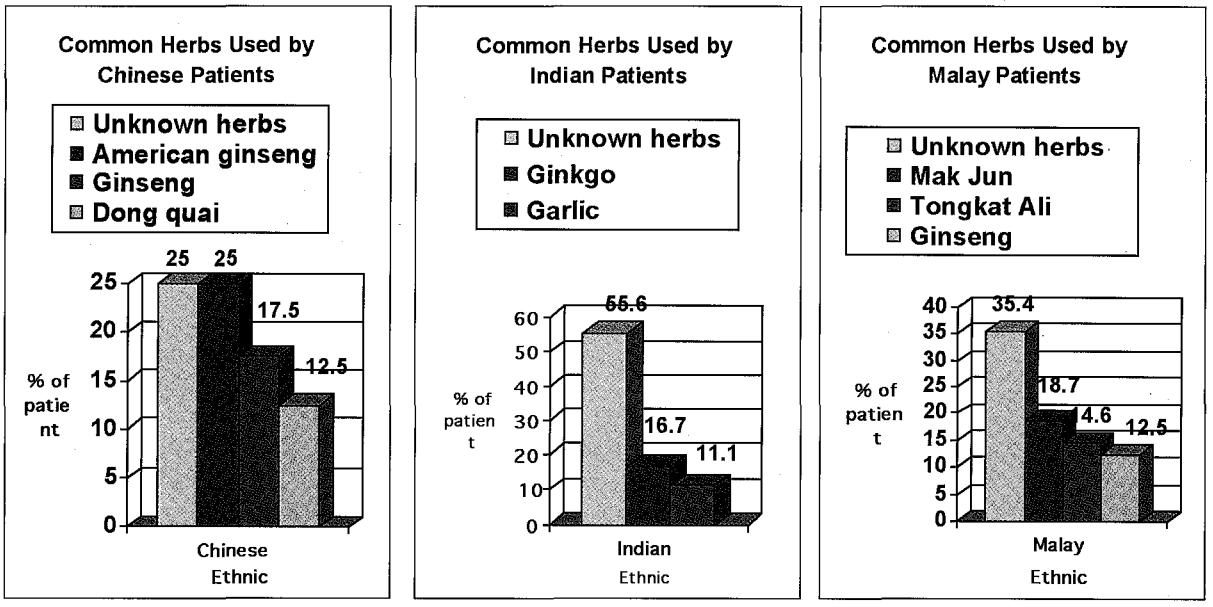

Fig. 1: Common herbs used by different ethnic group

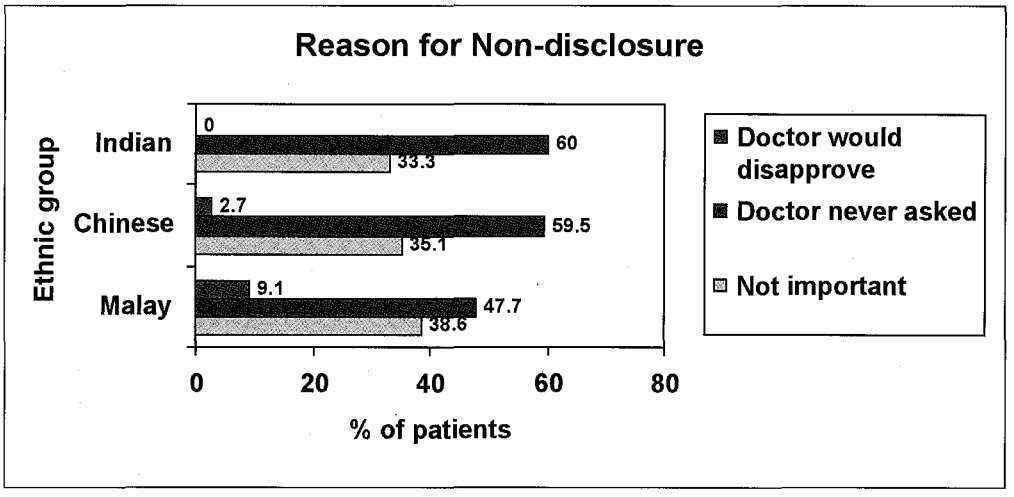

Fig. 2: Reason for non-disclosure

for non-disclosure. This finding is similar to previous studies[12]. This indicates that the majority of doctors overlook the significance of herbal intake as part of the clinical history. Alternatively it may be that clinicians generally do not believe in the efficacy of herbal medicine[13]. This may be attributed to the exclusion of unconventional therapies as part of the medical curriculum and that clinical efficacy of herbal medicine is less established.

Based on the findings of this study, a structured documentation of herbal use among medical patients is proposed (see Appendix II). This could serve as a tool to improve doctor-patient communication and elicit information about herbal use. Patient disclosure of herbal use provides an opportunity for the clinicians to advise the appropriate use of herbal remedies against conventional treatment in accordance with the severity of the conditions.

Conclusion

The study validates the high prevalence of herbal use among medical patients in a sample representative of patient population in Malaysia. However, there is a need to promote a conducive environment for patient to disclose herbal use. This will allow monitoring of adverse reaction of herbal medicine and avoid unintended medication errors. The increasing use of herbal medicine mandates attention by clinicians and other health care professionals. Future studies might include a wider sampling of diverse cultures and to include a clearer definition of herbal medicine so as to decrease differences in patients' interpretation of the term.

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Appendix I

Survey on Herbal Use Among Medical Patients - Brief Questionnaire

1. **Name (optional):** **Patient ID:**
   Age groups: **Age :**
   18-34 ☐ 35-59 ☐ 60-88 ☐
2. **Gender:**
   Male ☐ Female ☐
3. **Marital status:**
   Married ☐ Single ☐ Divorced ☐
4. **Ethnic:**
   Malay ☐ Chinese ☐ Indian ☐ Others ☐
5. **Religion:**
   Islam ☐ Buddhism ☐ Hinduism ☐ Christianity ☐
   Others ☐
6. **Working status** Working ☐ Unemployed ☐ Retired ☐
7. Employment If yes, Private ☐ Self-employed ☐ Government ☐

Socioeconomic factors

8. **Household income per month**
   < RM 1000 ☐ RM 1000-3000 ☐ RM 3000-5000 ☐ > RM 5000 ☐
9. **Education level**
   None ☐ Primary ☐ Secondary ☐ Tertiary ☐
10. **Lifestyle / Habits**
    Smoking Never ☐ Former ☐ Current ☐
    Alcohol Never ☐ Former ☐ Current ☐

Medical/Clinical Variables

11. **Perceived health compared to normal :**
    Very poor ☐ Poor ☐ Fair ☐ Good ☐ Very good ☐
12. **Current illness:** Yes ☐ No ☐
13. **Type of current illness:**

Disease	✓	Duration	Disease	✓	Duration
Hypertension			Cancer		
Cardiovascular			Skin		
Diabetes			Gastrointestinal		
Kidney problem			Neurological		
Asthma			Thyroid problem		
Chronic lung disease			Arthritis		
Infection			Systemic lupus erythematous		

14. Current Drug Treatment/Regimen

INDICATION	DRUG	DOSAGE	DATE START	DATE STOP

15. **Family History:** Yes ☐ No ☐ Unknown ☐
16. **Past medical History** Yes ☐ No ☐
17. **History of Allergies:** Yes ☐ No known allergies ☐

If yes, Please list the medications and type of allergic reaction experienced:

Herbal Medicine Use

18. **Are you currently taking any herbal medicine? (past 12 months)**
Yes ☐ No ☐ If yes, please specify_____
19. **Have you taken any herbal medicine before? (beyond past 12 months/ever)**
Yes ☐ No ☐ If yes, please specify_____
20. **Type of herbs use:**
Raw ☐ Processed ☐ Medicinal form ☐
21. **Is it registered with drug control authority (DCA)?** Yes ☐ No ☐
22. **Taking herbs with medication?** Yes ☐ No ☐

Reasons for Taking Herbal Medicine:
Acute illness ☐, if yes, please specify_____
Chronic illness ☐ if yes, please specify_____
Health maintenance ☐ Remarks:_____

23. **How do you describe the effect of the herbal medicine on your illness?**

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Worse than before	☐	☐	☐	☐	☐
No changes	☐	☐	☐	☐	☐
Improved than before	☐	☐	☐	☐	☐
Improved but develop Unwanted effects	☐	☐	☐	☐	☐

24. **Unwanted Effects after taking Herbal Medicine:** Yes ☐ No ☐

If yes, please list adverse effects experienced_____

25. **Source of influence :-**
25a. Influenced by friends ☐
25b. Influenced by family members ☐
25c. Influenced by advertisement ☐
25d. Influenced by health professionals ☐
25e. Others

26. **Disclosure of Use of herbal medicine**
Have you ever told your doctor about the use of herbal medicine?
Yes ☐ No ☐

27. **If no, the reasons for non disclosure:-**
27a. It wasn't important for your doctor to know ☐
27b. Your doctor never asked ☐
27c. Your doctor would disapprove ☐
27d. Other reasons ☐

Appendix II Documentation of Herbal Use

1. Name :		**Patient R/ N:**		**Age :**
2. Gender:	Male ☐	Female ☐		
3. Marital status:	Married ☐	Single ☐	Divorced ☐	
4. Ethnic:	Malay ☐	Chinese ☐	Indian ☐	Others ☐
5. Education	None ☐	Primary ☐	Secondary ☐	Tertiary ☐
6. Occupation:	Unemployed ☐	Working ☐	Retired ☐	
7. Smoking	Yes ☐	No ☐		
8. Alcohol	Yes ☐	No ☐		

Medical/Clinical Variables

9. **Diagnosis :**		
10. **Past Medical History**	: Yes, _____	No ☐
11. **Family History**	: Yes, _____	No ☐
12. **Drug Allergy**	: Yes, _____	No ☐

13. Current Drug Treatment/Regimen

INDICATION	DRUG	DOSAGE	DATE START	DATE STOP

Herbal Medicine Use

14. **Herbs used past 12 months?**	Yes ☐	No ☐		
15. If yes, please specify_____	Duration:_____			
16. **Type of herbs use:**	Raw ☐	Processed ☐	Dosage form ☐	
17. **Is it registered with drug control authority (DCA)?**			Yes ☐	No ☐
18. **Reason of taking herbs**		Acute ☐	Chronic ☐	Health ☐
19. **Unwanted side effects**	If Yes, _____			
20. **Potential drug herb Ix**	If Yes, _____			
21. **Patient counseling/ Remarks :**				