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**Costs, availability and affordability of diabetes care
in the Philippines**

Michiyo Higuchi

FASiD

Foundation for Advanced Studies on International Development

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Costs, availability and affordability of diabetes care in the Philippines

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Executive summary

Chronic diseases are rapidly becoming greater disease burdens in the world as a consequence of epidemiological transformation. Developing countries are no exception. Among these chronic diseases, diabetes is particularly recognized by both the United Nations (UN) and the World Health Organization (WHO) to be in need of more attention. On December 20 2006, the General Assembly of the UN adopted a resolution on diabetes mellitus.

In the Philippines, which has a population of 88.6 million and is categorized as a lower-middle-income country by the World Bank, diabetes is becoming a major public health issue. The WHO projects the number of diabetic patients in 2030 will be 7.8 million representing an increase from 2.8 million in 2000. The public health insurance company (PhilHealth) paid out 265 million PHP (approximately 3.4 million USD) for diabetes-related admissions in 2006. It has been reported that the Philippines has one of the highest prices for medicines in the Asian countries in spite of a series of policy interventions such as the "Generics Act of 1988", "Pharma 50 project" to lower the price of medicines by 50%, parallel importation of medicines, community drugstores (Botika ng Barangays and Botika ng Bayans), and so on. The "Universally Accessible Cheaper and Quality Medicines Act of 2008" has officially taken effect recently. However, a report on prices and availability of medicines in general in the Philippines shows high price ratios to international reference prices, especially in the private sector and for originator brand medicines. The study also showed limited availability of medicines in the public sector in the Philippines. These facts are critical for people with life-long diseases, including diabetes.

Based on the global and Philippine context, the research aims to assess costs, availability and affordability of diabetes care in the Philippines. The objectives of the research are: to identify possible barriers to diabetes care in the Philippines, in terms of costs, availability, affordability and other issues, and to assess situations of diabetes care from the patient's perspective in the Philippines.

This study employed mixed methods research, consisting of qualitative and quantitative methodology. Five areas in the Philippines were visited for data collection. A three stage sampling was applied; areas, hospitals and respondents. However, purposively sampled respondents outside target hospitals were also included for practical reasons. Three hundred fifty-nine multilevel interviews asked mainly open-ended questions using multiple semi-structured questionnaires to identify possible barriers to diabetes care, and 160 patient interviews asked close-ended questions using a structured questionnaire to assess situations of diabetes care. The major part of the analysis for the multilevel interviews used the

framework approach. Patient interviews were described quantitatively.

Semi-structured multilevel interviews described the local healthcare system and identified barriers to diabetes care. Patient financial constraints were emphasized by all stakeholders. Not only patients but also healthcare providers, administrators and health officers repeatedly indicated that many patients stopped and re-started medication by of their accord, weighing up household budgets and subjective symptoms. Patients prioritized items of diabetes care within their funds, and so doctors' consultation and laboratory tests were more likely to be dropped than medication. However, even for people who kept away from regular care, it was difficult to avoid urgent hospitalization when necessary. Hospitalization brought the risk of making the family impoverished, sometimes resulting in debt. A variety of de-motivating factors were also located in healthcare system, healthcare facilities and external environment. Some of the most serious issues were unstable medicines procurement and supply system in the public sector; unmet needs for the PhilHealth benefits and administrative inconvenience to enroll and utilize the insurance; and difficulty in using diabetes care at primary care level in terms of material and human resource allocation.

Quantitative data revealed that less than 70% of all respondents attended outpatient consultations regularly. The number of patients who went for regular laboratory tests was much fewer than the number for outpatient consultations. More than 70% of patients purchased regular medicines at a private pharmacy outside the hospital even though some of them had doctor consultations at public facilities. The median prices that respondents actually paid demonstrated that frequently used diabetes medicines were much more expensive than international reference prices. At the same time, the wide range of medicine prices, which was not much discussed in the qualitative interviews, were presented. The median monthly costs for the medicines were 750 PHP (16.3 USD) and out-of-pocket expenditure for one hospitalization was 8,580 PHP (186.7 USD). The quantitative patient data also indicated low utilization of PhilHealth. Nearly three fourths of the respondents answered that they had given up an item of diabetes care because of financial difficulties at some point in the past, which also supported the qualitative findings.

Integrating findings from multilevel interviews and patient interviews, it was observed that there were very few sustainable measures for maintenance of regular medication. Because of difficulty in obtaining regular medication, which was mainly but not exclusively caused by financial constraints, many patients took their medication, by their own decision, on an on-and-off basis. This could lead to complications and hospital admissions and would cost more. Where medicines were not available to cover all prescriptions at the public facilities, irregular care could occur. Many public facility users believed that they needed to buy

expensive medicines at private pharmacies. A number of possible reasons for this low availability in the health system have emerged. Both types of interviews suggested low utilization of PhilHealth and some possible reasons for this. With the current situation, in terms of material and human resource allocation, maintaining diabetes at primary care level seemed to be difficult, which was also a barrier to regular care for people in remote areas.

The findings in this study suggest strategies that could improve access to regular diabetes care, in terms of costs, availability and affordability in the Philippines. Firstly, the importance of regular check-ups and regular medication should be promoted for tertiary prevention, which will hopefully reduce the total expenditure on the whole course of the disease, for both individual patients and society. To make regular care available and affordable, several policy options are required: medicines procurement and supply systems in the public sector should be more stable and efficient so that all public health facility users can buy medicines in the public sector; access to and quality of low cost medicines should be improved and existing programs strengthened, as well as convincing physicians, patients and the general public of the benefits of low-cost medicines; PhilHealth programs should be reinforced to expand benefits while increasing enrolment; and there should be standard treatment guidelines for general practitioners at primary level and minimum equipment so that physicians can adhere to the guidelines. Further intervention research to investigate these possible policy options is required. Methods used for this study can be applied in another country.

CHAPTER 1 Introduction

Although acute communicable diseases have been a major concern in many developing countries for years, countries are experiencing epidemiological transformation. As a consequence, chronic diseases are rapidly becoming greater disease burdens in developing countries. The World Health Assembly report in 2000 indicated that low- and middle-income countries suffer the greatest impact from non-communicable diseases; nearly 80% of non-communicable diseases occurred in developing countries. [1] In addition to promotion and prevention, health systems to provide available and affordable essential medicines for people with chronic diseases are urgently required. The need for management of non-communicable diseases at the Primary Health Care is becoming recognized. [2] Among these chronic diseases, diabetes is particularly recognized by both the United Nations (UN) and the World Health Organization (WHO) to be in need for more attention. On December 20 2006, the General Assembly of the UN adopted a resolution on diabetes mellitus. [3]

In the Consultative Meeting on Diabetes Treatment Costs and Availability that was held in Geneva on February 19-20 2008, issues around diabetes in low- and middle-income countries based on available data were discussed.¹ The meeting identified problems to be solved. Firstly, it was commonly observed that possible barriers to access to diabetes medicines depended on a country's urban-rural divide and rich-poor divide. Secondly, there were remarkable differences in the costs of diabetes medicines, both insulin and oral hypoglycaemic agents, within and across countries. High mark-ups on generic medicines in the public sector were found in some countries, and even the cheapest generic form of a hypoglycaemic agent was not affordable for people on minimum wages. Thirdly, consumptions of both oral hypoglycaemic agent and insulin were substantially increasing. There remains a need for an in-depth study to characterize both the direct and indirect costs of diabetes care in a country.

¹ See the report prepared by Ms. Birgit Volman (Available at <http://www.haiweb.org/medicineprices/news/index.html>)

CHAPTER 2 Literature review

2.1 Diabetes Mellitus²

Diabetes mellitus is a chronic disorder characterized by hyperglycaemia with a disturbance of carbohydrate, fat and protein metabolism resulting from a deficiency in the activity of insulin and/or in the secretion of insulin. Diabetes mellitus can lead to dysfunction, failure and damage in multiple organs. [4] Hyperglycaemia is the basis for the diagnosis of diabetes. The diagnosis should ideally be made with both the two hour and fasting plasma methods. [4]

Type 1 and type 2 diabetes are the most common forms of diabetes. Type 1 diabetes is characterized by the autoimmune destruction of the pancreatic β -cells that result in an absolute deficiency of insulin. This type of diabetes mellitus is usually defined by islet cells or insulin antibodies. Several genes are known to be associated with the destruction of the islet β -cells. Environmental factors can promote and trigger the disease in different development stages. [5] Hyperglycaemia in type 2 diabetes results from a disorder in insulin secretion and/or insulin actions. People with type 2 diabetes often develop insulin resistance. The uptake of glucose by body tissue cells is therefore more difficult. Type 2 diabetes is not associated with a dramatic loss of islet β -cells or severe insulin deficiency. Ninety percent of people with diabetes have type 2 diabetes. [4]

Chronic hyperglycaemia is associated with an increased risk of micro- and macrovascular complications and premature mortality. Complications are often a result of poor blood glucose monitoring. Many complications are caused by the dysfunction of vascular endothelium resulting in macrovascular and microvascular diseases. [6]

The 15th Model Essential Medicines List published in 2007 includes different forms and doses of three diabetes medicines; metformin, glibenclamide and insulin. [7] Glibenclamide is an oral hypoglycaemic agent, classified as a sulfonylurea. Sulfonylureas act mainly by augmenting insulin secretion and consequently, are effective only when some residual pancreatic beta-cell activity is present. [8] Metformin is also an oral hypoglycaemic agent classified as a biguanide. Metformin has a different mode of action from sulfonylureas. It exerts its effects mainly by decreasing gluconeogenesis and by increasing peripheral utilization of glucose. [8] Insulin is necessary for the survival of people with type 1 diabetes and is also used in the treatment of type 2 diabetes. [9, 10]

² This section is contributed by Ms. Birgit Volman with her report on 'Direct costs and availability of diabetes medicines in low- and middle income countries'. (Available at <http://www.haiweb.org/medicineprices/news/index.html>)

2.2 World situations of chronic diseases and diabetes

Chronic diseases are becoming the leading cause of mortality. It is estimated that chronic diseases accounted for 60 percent of all deaths or 35 millions deaths in 2005. Eighty percent of deaths caused by chronic diseases occur in low- or middle-income countries. Chronic diseases are considered as major costs and have economic impacts through impaired quality of life, premature deaths and other adverse effects. [11] The prevalence of diabetes, which is one of the most significant chronic diseases, is rising everywhere in the world. It is estimated that the prevalence of diabetes in 2025 will be 1.5 times as high as in 2007. Almost 80 percent of diabetes deaths occur in low- and middle-income countries. [12] The International Diabetes Foundation estimates global health expenditures to treat and prevent diabetes and its complications is 232 billion USD in 2007. [13]

2.3 Existing tools to study medicines situations

Several methods exist to assess a country's medicines situation. In this section, three existing methods are reviewed in terms of objectives, data collection techniques, and data analysis. A summary and comparison of these three methods is in Appendix I.

2.3.1 WHO/HAI medicine prices survey

In 2001, WHO and Health Action International (HAI) developed a standard methodology for surveying prices and availability of medicines. The objectives of this method are to obtain information on the prices of selected medicines, the price components, the availability of the medicines, and the affordability of the medicines. The results can be compared between brands and generics, and by sectors (e.g. public vs. private). The survey also measures the mark-ups and other charges applied as a medicine moves through the supply chain. It can also be used to investigate variations between different geographical areas in a country, and to make cross-country comparison. [14, 15]

In the survey, data are collected on the availability and price of a selection of important medicines from a sample of medicine outlets in the public, private and "other sectors" (e.g. nongovernmental organizations (NGOs)). Apart from data collection for procurement prices, which is generally conducted at the central level, data is collected from six (previously four) geographic or administrative areas: the major urban center plus five additional areas selected at random. Then, in each area, five public facilities, including the main hospital in the area, are selected to form the public sector sample. For each public facility, the nearest private pharmacy is chosen as a paired sample. Therefore, in total 30 public health facilities and 30 private pharmacies are investigated. In addition, five "other sector" medicine outlets, for example mission hospitals or dispensing doctors, are sampled in each area if these represent a significant medicine distribution point in the country. [15]

Data are collected using structured 'medicine price data collection forms', and entered into an Excel workbook, which is pre-programmed to consolidate and summarize results.³ Median medicine prices found during the survey are expressed as ratios relative to a standard set of international reference prices (median price ratio or MPR). Most commonly used are international reference prices from Management Sciences for Health, which provide the median prices of high quality multi-source medicines, offered to developing and middle-income countries by different suppliers. Availability is reported as the percentage of medicine outlets in which a medicine was found on the day of data collection. Affordability is expressed as the number of days' wages the lowest-paid government worker would need to purchase a standard course of treatment for an episode of illness (e.g. monthly treatment cost for diabetes). Variations across outlets are analyzed, and results are compared across products types (originator brand vs. lowest-priced generic) and sectors. Mark-ups and price composition are also recorded.[15]

A summary report of the results from 30 surveys (24 countries) on medicines for five chronic diseases was published in 2005. [16] Analyses of findings in 11 sub-Saharan African countries, and a comparative study on availability and affordability of 32 chronic diseases medicines in six low- and middle-income countries were published in 2007. [17, 18] Comprehensive analysis of the data from 36 countries was reported in 2008. [19] The results of over 50 surveys are currently available on the database, along with survey reports and other information. The manual was recently updated.⁴ [14]

2.3.2 Rapid assessment protocol for insulin access (RAPIA)

RAPIA has been developed by the International Insulin Foundation (IIF) since 2002. The method is based on the main principles of the rapid assessment protocols such as pragmatism, speed, use of multiple data sources and cost-effectiveness. RAPIA aims to identify the possible barriers to access to diabetes care, and can be used not only for insulin but also for oral diabetes medicines. The data collection process provides a situation analysis of the supply of medicines and diabetes care, which highlights the strengths and weaknesses of the health system and proposes concrete actions. [20-23]

RAPIA gathers information at different levels of the health system through different questionnaires, discussions, site visits, and document reviews. It is divided into three components; Macro-level, Meso-level, and Micro-level. This ensures that an issue is observed from different viewpoints. For Meso- and Micro-level data collection, three sites are

³ Both of data collection forms and computerized workbook are available at <http://www.haiweb.org/medicineprices/>

⁴ Previous reports, data and the recent manual are available at <http://www.haiweb.org/medicineprices/>

purposively selected: the capital city, one urban area and one rural area. Selection of facilities at Meso-level (e.g. hospitals, laboratories, pharmacies) does not rely on random sampling but uses a convenience sample. Sampling facilities include both public and private sectors. Micro-level sampling is also purposive, and usually uses 'snowball' sampling. Sample size is not fixed and recruiting samples stops at 'theoretical saturation'⁵. [20-23]

Fifteen kinds of semi-structured, open-ended questionnaires are used to target interviewees at these three levels as shown in Table 2-1.

Table 2-1 Questionnaires that make up RAPIA

Macro level	Ministry of Finance Ministry of Trade Ministry of Health Private sector Diabetes organization Central medical store Educators
Meso level	Regional health office Regional central medical stores Hospitals, clinics, health centers, etc. Laboratories Pharmacies
Micro level	Health workers Traditional healers Patients

Collected data are qualitatively analyzed using the framework. The categories of information analyzed are: health service structure and functioning; diabetes policies; practice for diabetes management; availability and price of care; distribution network; knowledge and attitudes. [20-23]

The method was implemented for the first time in 2003, and it has been implemented so far in four countries; Mali, Mozambique, Zambia and Nicaragua. [24-28] Reports are available on IIF website⁶.

2.3.3 Indicators for 'country pharmaceutical situations'

WHO have been developing a system of indicators to assess and monitor 'country pharmaceutical situations' since 2002. The system consists of three levels: core structure and process indicators (Level I), core outcome/impact indicators (level II) and indicators for specific components (Level III). Level I indicators are based on key informant questionnaires sent to countries. Data for Level II indicators are collected by systematic surveys in health facilities and households, which measure access, product quality and rational use. Level III

⁵ Sampling method for Micro-level is obtained from personal communication with Mr. David Beran (International Insulin Foundation).

⁶ http://www.access2insulin.org/html/iif_reports.html

indicators are for in-depth assessment of specific components and areas, such as pricing, drug supply management, regulatory capacity, intellectual property, and so on. [29, 30]

Five sites are selected for data collection for Level II indicators; capital city, the most rural or lowest income area, and three other randomly sampled regions. Then, six public facilities are selected in each site; one main public hospital, one lowest level public facility, and four randomly sampled middle level facilities. For each public facility, the nearest private pharmacy is chosen as a paired sample. Therefore, in total, 30 public facilities and 30 private pharmacies are sampled for medicine outlets. Sampling for household survey uses every selected public facility as a base. Six clusters are decided based on the distance from the public facility; two clusters within a five kilometer radius, two clusters within five to ten kilometers, and two clusters located more than ten kilometers from the facility. In every cluster, five households are visited; therefore, 30 households are sampled from one base facility, and 900 households for the survey as a whole. [29, 30]

Field data are collected by structured 'survey forms' and entered into computer software (Epi-Data). Indicator values are computed as a percentage or as a central tendency (mean or median) within the range. For facility surveys, variations across facilities are analyzed. The results can be compared within a survey, over time, or with other surveys. [29, 30]

Results of Level I (from 140 countries) and part of Level II (from 22 countries) indicators were published in 2006. Level II indicators included in this report are based only on facility surveys [31]. To measure access from the patient perspective, a household survey is now being piloted. It will provide population-based information about how pharmaceutical policies affect individuals. [32] The household survey has already been implemented in Nigeria and Gambia and is planned in the Philippines.

The 'pharmaceutical situations' household survey is a routine operational activity, which will be conducted by WHO Geneva, the WHO country office in Manila and the Department of Health in the Philippines.

CHAPTER 3 The Philippines

3.1 Summary of the chapter

In the Philippines, which has a population of 88.6 million and is categorized as a lower-middle-income country by the World Bank, diabetes is becoming a major public health issue. The WHO projects the number of diabetic patients in 2030 will be 7.8 million increasing from 2.8 million in 2000. The public health insurance company (PhilHealth) paid out 265 million PHP (approximately 3.4 million USD) for diabetes-related admissions in 2006. It has been reported that the Philippines has one of the highest prices for medicines in the Asian countries in spite of a series of policy interventions such as the "Generics Act of 1988", "Pharma 50" to lower the price of medicines by 50%, parallel importation of medicines, community drugstores (Botika ng Barangays and Botika ng Bayans), and so on. The "Universally Accessible Cheaper and Quality Medicines Act of 2008" has officially taken effect recently. A report on prices and availability of medicines in general in the Philippines shows high price ratios to international reference prices, especially in the private sector and for originator brand medicines. The study also showed limited availability of medicines in the public sector in the Philippines. These facts are critical for people with life-long diseases, including diabetes.

3.2 General information

The Republic of the Philippines (hereafter the Philippines) is an archipelago of 7,107 islands in Southeast Asia. It had a population of 88.6 million in 2007 [33] and a land area of 299,764 km², which is divided into 17 regions. The government is decentralized: 81 provinces, 136 cities (32 highly urbanized, four independent component, and 100 component cities⁷) 1,494 municipalities and 41,995 barangays (the smallest political unit into which cities and municipalities are divided). [34]

The country is categorized as a lower-middle-income country by the World Bank. [35] The Human Development Report (2005) indicates high adult literacy rate (93% of the population aged 15 or older) and high enrolment ratio for education (94% for primary education and 61% for secondary education). The report also shows economic disparity among people: the richest 20% people share half of the country's wealth; 32 % of the population lives on less than 1 USD per day; and the total unemployment rate is 7.4% of the labor force. [36]

3.3 Core health indicators

According to a recent country health information profile, life expectancy at birth is 70 years

⁷ Highly urbanized and independent component cities are independent of province.

(2005) [37], the maternal mortality ratio per 100,000 live births is 162 (2005) [38], the infant mortality rate per 1,000 live births is 25 (2005), and the under-five mortality rate per 1,000 live births is 33 (2005). [39] Most of the leading causes of morbidity are communicable diseases. Deaths, on the other hand, are mainly due to non-communicable diseases. [38]

3.4 Healthcare facilities and devolution of public health services

The health care system in the Philippines has a devolved public sector, an active private sector, a rapidly growing insurance system and an active civil society.

Following the introduction of the Local Government Code of 1991, public services were devolved to local government units (LGUs) from central departments, including the Department of Health (DoH). Except for some "DoH-retained" hospitals, public hospitals are autonomous from the DoH and are operated by a province or a city (highly urbanized city or independent component city). Besides hospitals, city governments operate city health centers, and municipalities operate rural health units, which are primary care facilities. [38, 40-42] At the barangay level, frontline basic health services are delivered at barangay health stations, which are staffed by midwives with some support from barangay health workers. [43]

In the Philippines, the private sector is an important element of the health system; the private sector provides nearly half of the country's hospital beds [40] (public : private = 36396 : 36519, in 2005) . In terms of numbers, there are more private hospitals than the public ones. Table 3-1 shows the number of governmental and private hospitals. [44, 45]

Table 3-1 Number of governmental and private hospitals by region

Region	No of province	No of city*	Government				Private			
			Pri mary	Second ary	Terti ary	Total	Pri mary	Second ary	Terti ary	Total
I	4	0	15	1	6	22	28	6	5	39
II	5	1	17	0	2	19	10	3	0	13
III	7	2	38	1	6	45	77	16	6	99
IV-A	5	1	31	3	2	36	83	23	9	115
IV-B	5	1	13	0	0	13	6	0	0	6
V	6	1	16	2	4	22	18	10	2	30
VI	6	2	29	2	3	34	7	3	8	18
VII	4	3	24	0	4	28	14	8	9	31
VIII	6	1	15	1	1	17	10	1	1	12
IX	3	1	7	0	1	8	13	4	1	18
X	5	2	12	3	2	17	21	9	5	35
XI	4	1	5	2	2	9	17	6	4	27
XII	4	2	7	0	3	10	22	6	3	31
NCR	0	16	18	8	24	50	58	15	32	105
CAR	6	1	11	0	1	12	9	0	0	9
ARMM	6	0	6	0	0	6	1	0	0	1
Caraga	5	1	8	3	0	11	3	3	0	6
Total	81	36	272	26	61	359	397	113	85	595

*only independent component cities and highly urbanized cities that manage city hospitals

3.5 Health insurance

The Philippine Health Insurance Corporation (PhilHealth) was formed under the National Health Insurance Act of 1995. [46] PhilHealth is a government corporation to ensure social health insurance for health care for all Filipinos. The Philippines initiated a social health insurance system in 1969, and implemented a 'Medicare' program. The PhilHealth insurance program succeeded Medicare and plans to achieve universal coverage by 2010, not only including the formal sector employees but also indigents (sponsored program), retirees, and an individually paying program. [47-49] So far, PhilHealth benefits mainly cover the cost of hospitalization in accredited hospitals under some conditions (e.g. ceiling price for each item) and outpatient benefits are limited to special packages (day surgeries, dialysis, cancer chemotherapy and radiotherapy, direct observation for tuberculosis treatment, maternity care, and newborn care). [50] As of the end of 2008, the membership coverage is estimated to be 69 million beneficiaries or 76 percent of the projected population, 1,531 hospitals and 2,148 outpatient facilities are accredited, and the number of accredited health professionals is 21,143. In 2008, the premium collection reached 25.6 billion PHP, (approximately 574 million USD) and the total amount of benefit payments was 18.2 billion PHP (approximately 408 million USD)⁸. [51]

3.6 Medicine price situations

It has been reported by the government, academics and media that the Philippines has one of the highest prices for medicines in the Asian countries. [49, 52, 53]^{9 10} A recent government report presents higher prices of branded generic medicines than the same ones in India and Pakistan, as shown in Table 3-2. [54]

Table 3-2 Comparison of prices of selected branded generic medicines in USD (2005)*

brand named medicine	generic name	price in USD		
		Philippine	India	Pakistan
Ponstan 500mg tab	mefenamic acid	0.40	0.05	0.03
Lopid 300mg cap	gemfibrozil	0.66	0.22	0.04
Buscopan 10mg tab	hyoscine-N-butylbromide	0.17	0.04	0.01
Bactrim 400/80mg tab	co-trimoxazole	0.28	0.01	0.02
Adalat Retard 20mg tab	nefedipine	0.68	0.03	0.07
Lacix 40mg tab	furosemide	0.16	0.01	0.02
Plendil ER 5mg tab	felodipine	0.65	0.08	0.14
Diamicron 80mg tab	gliclazide	0.21	0.13	0.09
Ventolin 100mcg inh	sulbutamol	5.73	2.24	1.13

⁸ The average exchange rate in 2007 was 1 USD = 46 PHP.

⁹ These documents cite WHO project by Lim, J in 1997 titled "Issues concerning high drug prices in the Philippines" and/or DoH-DTI study in 1999 titled "Comparative study of drug price in the Philippines and ASEAN countries". Although original articles are not found, tables from these sources are available at <http://www.pcij.org/i-report/2006/generics.html>

¹⁰ Recent news articles also report that "the most expensive medicines in Asia, next only to Japan" without indicating a source, e.g. Inquirer on June 13, 2007 ("We are still not independent of foreign drug firms"), The Manila Times on February 2008 ("Special report: Generic medicines"), Philippine News Agency on April 29, 2008 ("House ratifies cheaper medicines act"), and UP Newsletter on November 1, 2008 ("Romualdez bares great inequity in the country's state of health").

Voltaren	50mg tab	diclofenac Na	0.33	0.02	0.07
Isordil SL	50mg tab	isosorbide dinitrate	0.19	<0.01	<0.01
Imodium	2mg cap	loperamide HCL	0.19	0.06	0.03
Fortum	1g inj	ceftadizime	17.82	7.09	5.53

* The average exchange rate in 2005 was 1 USD = 55 PHP

The WHO/HAI report on the international comparison of chronic disease medicines, which is described in 2.3.1 also confirms the high price of medicines in the Philippines compared with other surveyed low- and middle-income countries. [16] The Philippine government has introduced reforms that aim to lower the price of medicines.

3.6.1 "Generics Act of 1988"

The Generics Act (Republic Act No. 6675) was signed in September 1988 aiming "to promote, encourage and require the use of generic terminology in the importation, manufacture, distribution, marketing advertising and promotion, prescription and dispensing of drugs". [55] It also intended to improve medicines supply, including costs and availability and to promote rational use, information for the public, awareness of health professionals, and quality assurance. [56] Following the ratification of the Act, Administrative Orders were promulgated to regulate implementation of the Act relating to prescribing and dispensing practice as well as guidelines on advertisement and promotions. [57-60] Exclusive use of generic names in prescriptions was reinforced in 2000 and in 2004, targeting government physicians and DoH facilities. [61, 62]

However, there was opposition to the policy. [56] Preliminary evaluation, which was published two years after the ratification, shows that 70% of physicians are opposed to the act. [63] Its weak enforcement was affected by several factors including consumer brand loyalty, physicians' prescribing patterns, intensive marketing strategies on the part of pharmaceutical companies, and limitation of the consumer power of choice. [49] Citing a statement of the president of the Philippine International Trading Corporation (PITC, see 3.6.3), a newspaper article in 2008 reports that the utilization of generic medicines in the Philippines is much lower than in European and North American countries¹¹, and accounts for only 10-20% of the total sales of medicines. [64]

3.6.2 Pharma 50

The National Drug Policy-Pharmaceutical Management Unit (NDP-PMU 50) or Pharma 50 is an "ad-hoc" unit, which was established by the DoH to operate and manage the implementation of the first State of the Nation Address pledged by President Arroyo in 2001 that the government would make a commitment to lower the price of medicines by 50%. [65]

¹¹ The article suggests "a 2003 survey" indicating proportions of the utilization of generic medicines in five countries; however, the source is not indicated.

Involving other sections in the public sector and related private associations, the Pharma 50 goal is pursued through projects such as parallel importation (see 3.6.3), Botika ng Barangay (see 3.6.4), the Pharmaceutical Distribution Network (a non-profit, non-stock, non-governmental organization as a medicine distributor or supplier for Botika ng Barangay), drug consignments, essential drug price monitoring, the Philippine National Drug Formulary, generic campaigns, and other projects. [65, 66]

3.6.3 Parallel importation

Since 2000, the DoH and Department of Trade and Industry (DTI) have sold low-price medicines imported from a third country where these are priced lower than those in the Philippines. This is a parallel drug importation project, which aims to solve the problem that good quality medicines in the Philippines are priced beyond the paying capacity of patients. [53, 67, 68] These branded medicines are imported by the Philippine International Trading Corporation (PITC), an attached agency of the DTI, which is the sole government-owned and controlled corporation for international trading. The medicines are sold to public hospitals and drug outlets (see 3.6.4) at generally lower prices. [69, 70] Parallel drug importation is one of the major projects that the NDP-PMU 50 in the DoH uses to achieve its purposes (see 3.6.2). [65] Parallel drug importation was recently legislated (see 3.6.5).

3.6.4 Botika ng Barangay and Botika ng Bayan

The Botika ng Barangay refers to a medicine outlet managed by a legitimate community organization and/or the local government unit, with a trained operator and a supervising pharmacist. [71] The program guidelines were outlined in 1996, aiming to ensure the availability and accessibility of essential medicines to all, "with priority of marginalized, underserved, critical and hard to reach areas". [72] The Botika ng Barangay manages over-the-counter and selected prescription medicines at low prices.¹² [73] Botika ng Barangays are initially identified by DoH's regional offices (Center for Health Development (CHD) offices), approved by the DoH and licensed by the Bureau of Food and Drugs (BFAD). The NDP-PMU 50 in the DoH is committed to the establishment and management of Botika ng Barangays, providing capacity building assistance, information and educational materials, initial medicines as seed capital and so on. Each Botika ng Barangay earns income as a result of the DoH-established mark-ups to procure additional medicines from PITC or through CHD's bidding process [66], but the majority of them, procure and replenish their stocks on their own.

The Botika ng Bayan is a similar medicine outlet, which dispenses low price medicines

¹² In the first list, only amoxicillin and co-trimoxazole were listed in the prescription medicines for Botika ng Barangay. In 2008, metformin, glibenclamide, metoprolol, captopril and sulbtamol were added.

supplied by PITC at no more than the established maximum retail prices. Botika ng Bayans are, however, privately owned and initiated by the minimum revolving capital of at least 300,000-500,000 PHP. [74]

3.6.5 "Universally Accessible Cheaper and Quality Medicines Act of 2008"

The Republic Act No. 9502, which is known as the "Universally Accessible Cheaper and Quality Medicines Act of 2008", was passed on April 29 2008. The act amends "the Intellectual Property Code" (Republic Act No. 8293), "the Generic Act of 1988" (Republic Act No. 6675) and the "Pharmacy Law" (Republic Act No. 5921). [75]

Amending the intellectual property code, the law incorporated from the Trade-Related Aspects of Intellectual Property Rights (TRIPS) flexibilities, such as parallel importation, compulsory licensing and the early-working provision for generic counterparts, the law aims to improve competition as the primary mechanism of bringing down prices. The Act grants the government power to regulate medicine prices and seeks to ensure the quality of medicines by strengthening the Bureau of Food and Drugs (BFAD) in the DoH.

In terms of the "generic only" provision, the Act encourages medical professionals to "write prescriptions using the generic name of the drug or medicines only". However, the statement in the provision of the House-approved version (House Bill No. 2844 on December 18 2007), "its brand name shall not appear on any part of the prescriptions" was deleted from the final version. The joint administrative order signed by the DoH, DTI, Intellectual Property Office and BFAD in November 2008 has provided that government paid physicians are bound to follow the "generic only" provision. [76]

3.6.6 P100 program

The DoH runs a project that tries to ensure access to medicines that are packaged within an affordability of 100 PHP or lower. The project aims to increase patients' access to low-cost quality medicines, taking into consideration rational medicine use, economies of scale in procurement and a unified pricing scheme. [77] Recently, the initial batch of stocks for the P100 program was distributed to 29 hospitals, with initial packages amounting to 2,000,000 PHP per hospital. Currently, there are 23 essential medicines under the program, which include anti-diabetes medicines such as metformin and anti-hypertensive medicines such as, amlodipine and metoprolol.

3.7 Medicine procurement in the public sector

The Philippines has a law on the Government Procurement Reform Act (Republic Act No. 9184), which covers the procurement of medicines at all levels. Public bidding is the default

mode of procurement in all hospitals at all levels. When there is a failure of bidding and when some conditions are met, however, the act allows other modes of procurement such as 1) limited source bidding (selective bidding from a set of pre-selected suppliers), 2) direct contracting (single source procurement, 3) repeat order (procurement under a contract previously awarded through bidding), 4) shopping (procurement from suppliers of known qualification on case-by-case basis for urgent items), and 5) negotiated procurement (procurement under the extraordinary circumstances). [78]

DoH-retained hospitals have their own bidding and award committee and conduct public bidding by themselves. This is also true for local government units, which procure medicines at the provincial or municipal level for the supply of all facilities under their jurisdiction.

3.8 Diabetes situations

Diabetes is becoming one of the major public health issues in the Philippines. According to the DoH's 2003 report, diabetes mellitus was the ninth leading cause of mortality in the Philippines and accounted for 14,196 deaths. [38] WHO projects the number of diabetic patients in 2030 will be 7.8 million increasing from 2.8 million in 2000. [79] Using the population of the 2000 National Census (76.5 million people), the calculated diabetes prevalence in 2000 was 3.6%. The estimated diabetes prevalence in 2007 reported in Diabetes Atlas was 6.5%. [12]¹³ PhilHealth collected 26,234 diabetes admission claims in 2006, and paid out 265 million PHP for diabetes-related admissions (approximately 5.2 million USD). [80]¹⁴

3.8.1 Price and availability of diabetes treatment

Using the WHO/HAI pricing survey method, data on medicines for a range of acute and chronic diseases was collected in the Philippines in 2005 at 77 outlets (26 public and 51 private) at four sites (the City of Manila and other three highly urbanized cities from three geographical regions). [81]¹⁵ In this survey, two oral hypoglycaemic agents were included. No insulin data was collected. As shown in Table 3-3, both originator brands and the lowest-priced generics cost several times more than the international reference prices, particularly for glibenclamide. Lower median price ratios (MPRs) of both originator brands and lowest price generics were observed in the public sector compared with the private sector; however, public sector prices were still substantially higher than international

¹³ Reported diabetes prevalence varies. For example, a descriptive community-based survey in 2007 shows 11% among 1,386 people tested are impaired fasting glucose (>125mg/dl). (PhilCOS-DM study).

¹⁴ The average exchange rate in 2006 was 1 USD = 51 PHP.

¹⁵ A similar survey using the same method was also conducted in 2002, and a brief summary is available in the 2005 report. The data is available at <http://www.haiweb.org/GlobalDatabase/Main.htm> and the report is available at <http://www.haiweb.org/medicineprices/surveys.php>.

reference prices. In both sectors the cost of originator brands was about twice that of the lowest price generics. These prices were high when compared with surveys undertaken in other countries. [82] For example, extracting data for glibenclamide 5mg from the HAI database, the Philippines MPRs both for originator brand medicines and lowest price generic medicines at both public outlets and private outlets are higher than in the majority of surveyed countries, in particular, at public outlets. Of the surveyed countries, only originator brands in Ghanaian public outlets and lowest price generics in Peruvian and Nigerian public outlets show higher MPRs than those in the Philippines. In the private sector in Asian countries, only originator brand glibenclamide in Indonesia has a higher MPR than in the Philippines. (see also HAI website indicated in footnote)

As presented in Table 3-4, availability was low, particularly in the public sector, and in the private sector originator brands were more widely available than generics. In terms of affordability (Table 3-5), monthly treatment costs with branded metformin in the private sector equated to 3.5 day wages of the lowest paid Philippine government employee. Even the lowest price generic product in the public sector, if available, costs more than one day's wages.

Table 3-3 Median price ratio (MPR)* of oral hypoglycaemic agents in 4 urban cities, the Philippines (2005)

	glibenclamide 5mg				metformin 500mg			
	Public outlets		Private outlets		Public outlets		Private outlets	
	OB	LPG	OB	LPG	OB	LPG	OB	LPG
MPR	27.9	13.6	44.6	22.3	n.a.	3.6	10.1	5.6

*Ratio of median unit price to MSH international reference price
OB = originator brand, LPG = lowest price generic

Table 3-4 Percentage availability of oral hypoglycaemic agents 4 urban cities, the Philippines (2005)

	glibenclamide 5mg				metformin 500mg			
	Public outlets		Private outlets		Public outlets		Private outlets	
	OB	LPG	OB	LPG	OB	LPG	OB	LPG
availability (%)	19	23	61	39	4	32	65	45

OB = originator brand, LPG = lowest price generic

Table 3-5 Affordability* of oral hypoglycaemic agents 4 urban cities, the Philippines (2005)

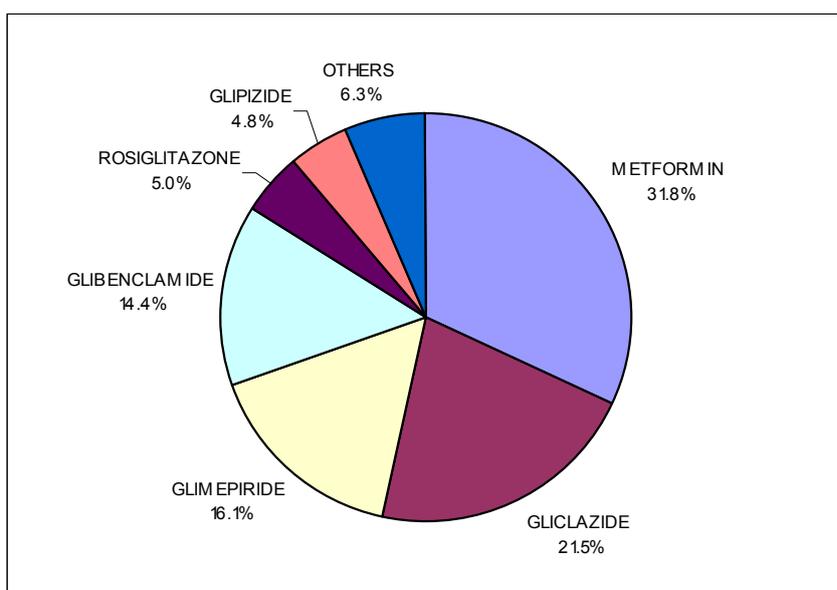
	glibenclamide 5mg				metformin 500mg			
	Public outlets		Private outlets		Public outlets		Private outlets	
	OB	LPG	OB	LPG	OB	LPG	OB	LPG
affordability (days wages)	1.5	0.7	2.4	1.2	n.a.	1.2	3.5	1.9

*Cost of monthly treatment compared with the salary of the lowest paid Philippine government employee (254.1 PHP = 4.6 USD in 2005)
OB = originator brand, LPG = lowest price generic

3.8.2 Diabetes medicines consumption

Data obtained from IMS Health, which were collected in the retail sector, indicates recent consumption of diabetes medicines.¹⁶ The total consumption of oral hypoglycaemic agents in the Philippines in 2007 was 114 million defined daily doses (DDDs)¹⁷, which was double the total consumed in 2000 (50 millions DDDs).

Figure 3-1 Oral hypoglycaemic agent consumption in 2007 in DDD



The consumption of metformin has grown since 2000 and accounts for nearly a third of the total consumption in 2007 as shown in Figure 3-2. The share of four major medicines (metformin, glimepiride, glipizide, and glibenclamide) was 84%. Insulin consumption is also increasing, from five million DDDs in 2000 to 12 million DDDs in 2007.

¹⁶ Coverage of the whole retail sector was not available. Data is available from IMS Health on request.

¹⁷ The Defined Daily Dose (DDD) is a technical unit of measurement to be used in drug utilization studies. It allows comparisons of consumption by volume using a common unit. Details are available at WHO collaborating Centre for Drug Statistics Methodology (<http://www.whocc.no/atcddd/>).

Figure 3-2 Trend of oral hypoglycaemic consumption

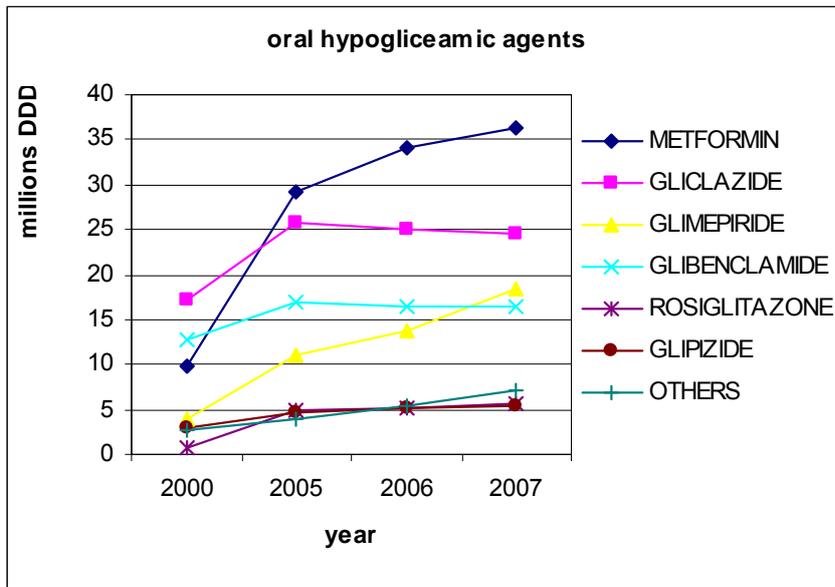
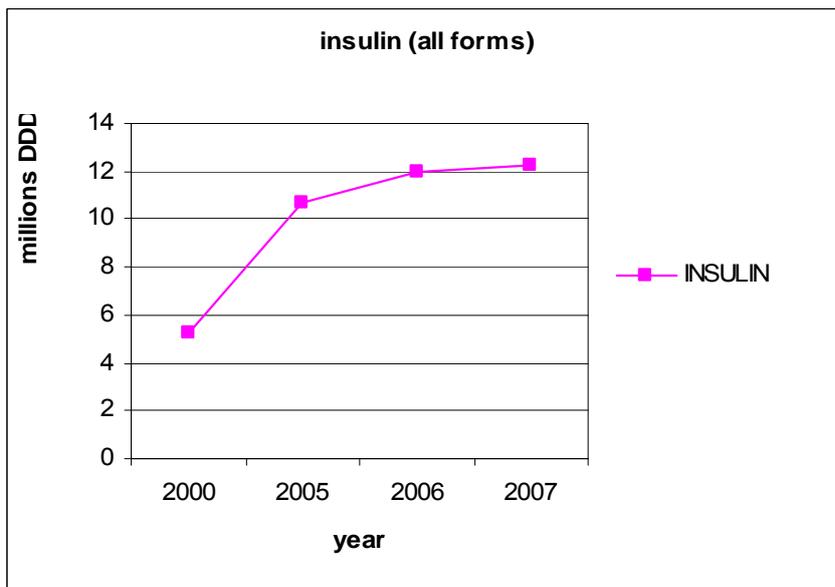


Figure 3-3 Trend of insulin consumption



CHAPTER 4 Aims & objectives

A study in the Philippines on diabetes care was undertaken to gain understanding of issues identified in the previous report on chronic diseases [16] and in the consultative meeting on diabetes treatment¹⁸ so that people with diabetes will be able to access appropriate care. This study is applicable not only for people in the Philippines, but the methods used can also be applied to other countries.

The research aims to assess costs, availability and affordability of diabetes care in the Philippines.

The objectives of the research are:

1. To identify possible barriers to diabetes care in the Philippines, in terms of costs, availability, affordability and other issues, and
2. To assess the diabetes care situation in the Philippines from a patient's perspective.

¹⁸ The report on 'the Consultative Meeting on Diabetes Treatment Costs and Availability' will be published soon.

CHAPTER 5 Methods

5.1 Summary of the chapter

This study employed mixed methods research that consisted of qualitative and quantitative methodologies. A three stage sampling was applied; areas, hospitals and respondents. However, purposively sampled respondents outside target hospitals were also included for practical reasons. Multilevel interviews asked mainly open-ended questions using multiple semi-structured questionnaires to identify possible barriers to diabetes care, and patient interviews asked close-ended questions using a structured questionnaire to assess situations of diabetes care. The major part of the analysis for the multilevel interviews used the framework approach. Patient interviews were described quantitatively.

5.2 Study methods

The study used mixed methods and comprised of two parts; 1) multilevel interviews with semi-structured questionnaires, and 2) patient interviews with a structured questionnaire.

Questionnaires for the multilevel interviews were modified from the Rapid Assessment Protocol for Insulin Access (RAPIA) originally developed by the International Insulin Foundation (IIF) (see 2.3.2), and mainly asked about healthcare systems and possible barriers to healthcare. Both open-ended and closed-ended questions were included in each questionnaire of this part.

The structured patient questionnaire asked about their diabetes care and healthcare costs. Some previous studies on healthcare costs [83-89] as well as close-ended questions in the RAPIA patient questionnaire were included in the structured patient interview.

5.3 Sampling method

Data collection was conducted from July 10 to October 17 2007. Qualitative and quantitative data were collected simultaneously by using a stratified sampling method to obtain respondents.

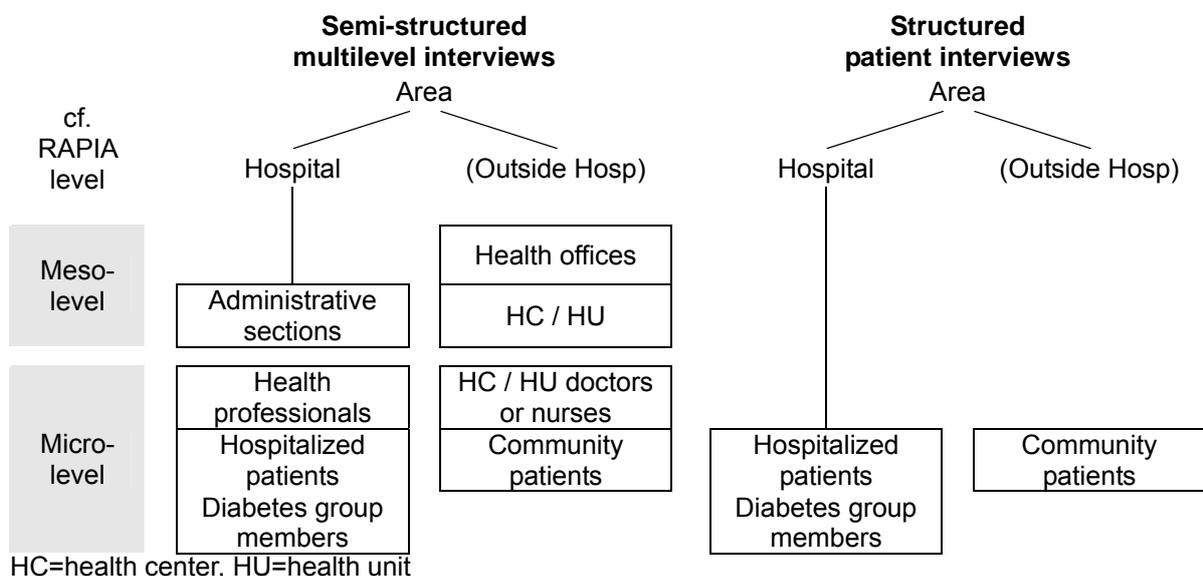
5.3.1 Sampling scheme

A three stage stratified sampling method was used both for qualitative part and quantitative part of this study; areas, hospitals and respondents. Target areas and hospitals were sampled by the Department of Health (DoH) for the “pharmaceutical situation survey”¹⁹ In addition to this, some respondents were identified outside hospital. Figure 5-1 shows the sampling

19 The “pharmaceutical situations survey” by DoH, is currently being conducted.

scheme.

Figure 5-1 Sampling scheme



"Macro-level" respondents for multilevel interviews were people in national level offices or organizations. Therefore, they were outside the abovementioned sampling scheme and were identified in the National Capital Region (NCR).

5.3.2 Areas

Six areas from Luzon and Visaya were selected by the DoH for the pharmaceutical situations survey and five areas of them were used for this research.²⁰

Area A is one of six health districts in a city in the NCR. Area D is one city and one municipality in a province. Except Area A and D, one "area" is one province, including a city (or cities) inside. The table below shows profile of selected areas.

Table 5-1 Selected areas²¹

	city where Area A is located	Area B	Area C	province where Area D is located	Area E
Island group	Luzon	Luzon	Luzon	Luzon*	Visaya
Region	NCR	III	I	IV	VI
No. of cities	1*	2*	1	1*	1
No. of municipalities	NA	20	19	23	16
Population (people) ^{***}	1,660,714	2,226,444	720,972	890,660	701,664
Area size (km ²)	39	2,181	1,493	14,896	2,633
No. of public general hospitals	7	12	6	10	5
No. of private general hospitals	19	33	4	8	3

²⁰ One area in Mindanao selected for the "pharmaceutical situations survey" could not be included in this research because of a UN security regulation during the data collection period.

²¹ Detailed information for selected areas is explained in 6.3.1.

* The province is located outside the Luzon Island and is sometimes categorized in Visaya.
 ** Three cities from Area A, B and D are “highly urbanized cities”. Population and area size are included these from highly urbanized cities.
 *** 2007 census

5.3.3 Hospitals

Six hospitals in each area were sampled by the DoH for the pharmaceutical situations survey.

Sampling criteria were:

- The main (biggest) hospital in the area
- 3 secondary level public hospitals
- 1 primary level public hospital
- 1 private hospital

Hospital sampling was modified based on local situations, according to suggestions by regional and provincial health offices. For example, Area A is one of the health districts in a city in the NCR, and its area size is small. Two governmental general hospitals in the area are tertiary and little variation was expected among these hospitals. Therefore, only one was selected in Area A for the pharmaceutical situations survey. In area C, all public hospitals were visited based on strong suggestions by the regional and provincial offices. As Area D is the largest province in the country and access to remote municipalities is geographically difficult,²² the regional office selected hospitals only from the main city and one neighboring municipality.²³

Selected facilities and total hospitals in each area are listed as below:

Table 5-2 Number of hospitals sampled

category in sampling criteria		Area A	Area B	Area C	Area D	Area E	Total
Public	Main	1	1	1	1	1	5
	Secondary level		4	4		4	12
	Primary level			1	1		2
Private			1	1	3	1	6
Others				1*	1**		2
Total		1	6	8	6	6	27

* This tertiary hospital is public-private mixed type, but officially categorized as a governmental hospital.

** military hospital

5.3.4 Respondents

5.3.4.1 Semi-structured multilevel interviews

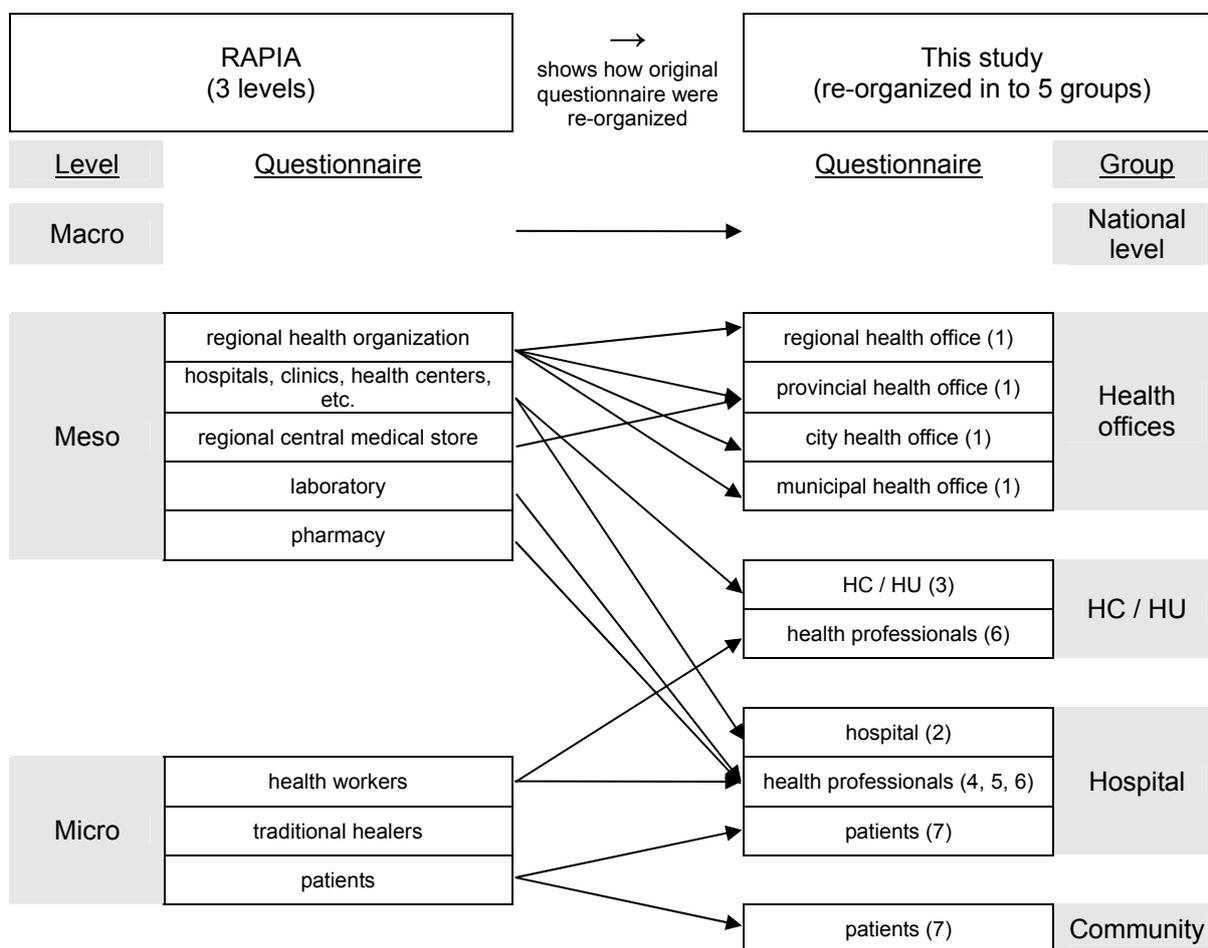
As mentioned before, respondents were identified both from selected hospitals and outside sampled hospitals.

²² For example, the municipality that we visited is located next to the city, but the distance of both centers is 142 Km.

²³ This was the reason this province included one military hospital, which was supposed to be excluded, and three private hospitals, which were more than criteria.

The Meso- and Micro-level of RAPIA were adjusted to the local situations in the Philippines, and re-organized for this research. Comparison of RAPIA and multilevel interviews of this research are shown in Figure 5-2.

Figure 5-2 Comparison of RAPIA and multilevel interviews of this study



* Numbers in the parentheses indicate questionnaire numbers (see 5.4.1).

National level

The following sections at the central level were visited and interviewed; 1) Ministry of Health (sections related to national drug policy, health information, bidding and award, procurement, and degenerative diseases), 2) Philippine International Trading Corporation (PITC) Pharma, 3) Philippine Health Insurance Corporation (PhilHealth), and 4) two diabetes-related professional organizations.²⁴ In addition, two annual conventions of diabetes-related professional associations were attended.²⁵ Although they were not formally interviewed, some medical representatives at the association's convention were asked informal questions

²⁴ Institute for Studies on Diabetes Foundation (ISDFI) and the Philippine Association of Diabetes Educators (PADE) & the Association of Diabetes Nurse Educators of the Philippines (ADNEP)

²⁵ Joint PADE - ADNEP annual convention and Philippine Diabetes Association (PDA) annual convention

about patient support activities from companies.

Different level health offices

In each area, health offices were visited to interview relevant people; DoH's regional office, which is called the Center for Health Development (CHD), a provincial health office, city health office(s) and at least one municipal health office which were purposively selected.

In two areas, there are public laboratories, which are separately located from a hospital, operated by the health office. These laboratories were also visited and staff were interviewed.

Health centers / health units

Usually a health center or health unit, which serves primary health care, is located in the same place as the city health office or municipal health office. Questions were also asked at the health center/health unit at the same time. Selected health professionals in these health centers / units were also interviewed using health professional questionnaire.

Hospitals

In each hospital, the following people were interviewed; 1) non-medical staff in administrative sections, 2) health professionals, and 3) diabetes patients (inpatient if anyone was hospitalized on our visit day and diabetes group members if a group existed)

People who were interviewed in administrative sections were:

- administrative officer (+ chief of the hospital if available)
- supply officer
- social worker
- medical record / statistics officer

Targeted health professionals were;

- doctor
- nurse
- pharmacist
- medical technologist (laboratory personnel)
- dietitian or nutritionist

For hospitalized patients, interviews were conducted individually. If a patient was ill, a companion, usually a family member, was interviewed. For diabetes group members, focus group discussion was conducted as much as possible, using the same semi-structured questionnaire.

Community patients

Aside from patients sampled in hospitals, some patients in the community were interviewed to include the voices of people who were diagnosed as diabetic but might visit health facilities less frequently compared with patients who were found in hospital (inpatients or diabetes group members). Interviews were conducted individually or by group.

Others

A diabetes group organized in a rural health unit was interviewed in Area A and D. In areas where no diabetes group was organized in the selected hospitals, “lay group” members of the Philippine Diabetes Association were also approached for the interview. Endocrinologists or diabetologists usually run their own private clinics, and are not staff members of selected hospitals. We tried to contact at least one in each area, through introductions by a hospital or provincial health office.

Table 5-3 Summary of samples of multilevel interviews in each area

	Area A	Area B	Area C	Area D	Area E	Total
DoH's Regional Office	1	1	1	1	1	5
Provincial Health Office	NA	1	1	1	1	4
City Health Office	1	2	1	0	1	5
Municipal Health Office	NA	1	2	0	1	4
Public health laboratory	1	0	0	1	0	2
Health center / Health unit	5	2	3	1	2	13
Hospital	1	6	8	6	6	27
Health professional	14	29	29	30	30	132
Hospitalized patient	10	9	8	5	8	40
Diabetes group member	6	12	12	0	0	30
Community patient*	18	24	8	11	14	75
Diabetes group member outside hospital	6	0	6	2	1	15
Endocrinologist / diabetologist (private clinic physician)	2	1	1	2	1	7

* In Areas A and B, community patients were randomly sampled in collaboration with DoH's “pharmaceutical situations survey”. In other three areas, patients were purposively sampled (see 5.3.4.2).

5.3.4.2 Structured patient interviews

Diabetes patients were identified from three different channels; 1) inpatient wards, 2) diabetes groups (diabetes clubs), and 3) communities. These patients were the same as the respondents to the semi-structured interviews. All interviews for this part were conducted individually while some of semi-structured interviews were conducted by group.

Table 5-4 Summary of samples of patient interviews

	Area A	Area B	Area C	Area D	Area E	Total
Hospitalized patients	10	9	8	5	8	40
Diabetes club members	12*	12	18*	2**	1**	45
Community patients	18	24	8	11	14	70
Total	40	45	34	18	23	160

*One group (6 patients) in each area was identified in a rural health unit.

** As there was no diabetes club in the selected hospitals, these respondents were obtained outside targeted hospitals.

In Area A and B, community patients were identified by the pharmaceutical situations survey team. Anyone who answered “I have diabetes” in the questionnaire of their household survey was invited to this diabetes study. In July 2008, part of the household survey was conducted in Area A and Area B by the "pharmaceutical situations survey" team in the DoH. Out of 180 households to be visited in each area, 120 households in Area A and 102 households in Area B had been completed. During household visits for the pharmaceutical situations survey, 56 people were invited to this diabetes survey. Among them, 42 people were interviewed for this study (face-to-face interviews at the nearest health facility for two people, at home for 22 respondents, and telephone interviews for 18 people). However, as the pharmaceutical situations survey was suspended from August 2008, we could not obtain diabetes patient lists from the household surveys in other areas. Therefore, community patients in Area C, D and E were purposively sampled in collaboration with local health personnel. In each area, one cluster of patients from the main city and another cluster of patients from one municipality were obtained.

Each hospitalized patient was asked for a contact number at the initial interview so that some questions, which could not be answered until discharged, could be collected later over the phone.

5.4 Questionnaires

5.4.1 Semi-structured multilevel interviews

The semi-structured questionnaires were modified from RAPIA. The modification was based on two principles: to adjust to Philippine local situations and to focus more on costs, availability and affordability issues.

5.4.1.1 Questionnaires at national level

This part corresponds to Macro-level of the RAPIA. Questions that were applicable for Philippine situations were referred whilst more open-ended interviews were conducted. The main purpose of this part was to obtain background information for further data collection and analysis.

5.4.1.2 Questionnaires in areas

Interviews in areas were corresponded to the Meso- and Micro-levels of RAIPA, and re-organized to fit Philippine situations. Questionnaires used for the interviews in areas were as below:

Table 5-5 Contents of questionnaires

Type of questionnaire	Profile	Administrative information	Respondent's experience and perceptions
(1) Health office	√	√	
(2) Hospital	√	√	
(3) Health center / unit	√	√	
(4) Pharmacist	√	√*	√
(5) Laboratory	√	√*	√
(6) Doctor, nurse and dietitian	√		√
(7) Patient	√**		√

* for hospital information

** linked to the structured patient interview

Information on administrative issues, which were related to the healthcare system, was obtained from health offices, hospitals (including pharmacies and laboratories), health centers / units. Objective information such as annual reports was gained as far as available.

Administrative questions included items below:

- General information
- Infrastructure
- Disease information (statistics)
- Medicine procurement/supply
- Prices and availability of medicines
- Prices and availability of laboratory tests
- Diabetes-related services and activities
- Payment, health insurance and social welfare
- Referral

Health professionals (including pharmacy personnel and laboratory personnel) and patients were interviewed about their personal experiences and subjective ideas regarding barriers to diabetes care as well as patient difficulties living with diabetes and / or health professional's difficulties in caring for diabetes patients. How the respondent thought the disease impacted patient and family members was also asked. Topics provided in the questionnaires were:

- Regular outpatient consultation
- Regular medication
- Regular laboratory tests
- Self-monitoring

- Acute care and hospitalization
- Hardest part of living with diabetes
- Disease impact
- Hardest part of caring for diabetes (health professionals only)

5.4.2 Structured patient interviews

The interviews involved systematic questions on the healthcare services that patients were receiving as well as the prices they paid, as below. Questions were binominal (yes / no), multiple choice or asked number (price and frequency).

Table 5-6 shows the structure of the patient questionnaire.

Table 5-6 Structure of the patient questionnaire

Category	Subcategory
General information	
Diabetes care	Outpatient consultation
	Medication
	Laboratory tests
	Self-monitoring
	Acute care
	Hospitalization
Price of medicines and diagnostics	Oral hypoglycemic agents
	Other oral medicines
	Insulin
	Insulin-related materials
	Diagnostics
Healthcare expenditure for the last time	Outpatient consultation
	Hospitalization
Insurance	
Household finance	

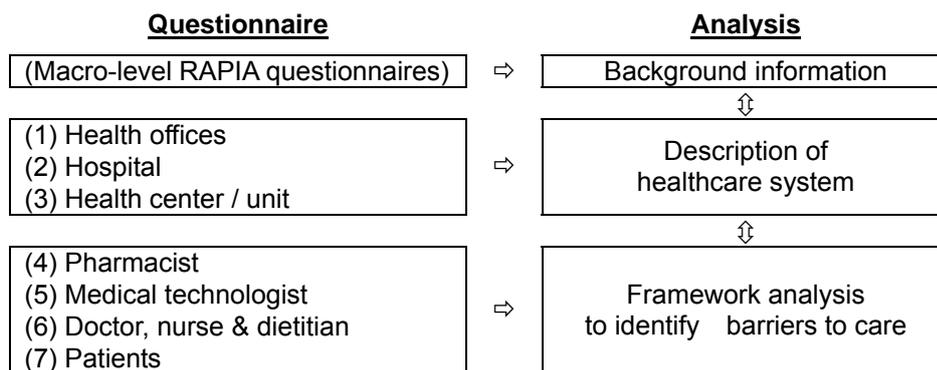
5.5 Analysis methods

Data for both parts were separately analyzed and findings were presented in different chapters (chapter 6 and chapter 7). Findings were then integrated in chapter 8 in order to make recommendations.

5.5.1 Semi-structured multilevel interviews

The analysis of data obtained by semi-structured multilevel interviews was divided into three units as shown in Figure 5-3:

Figure 5-3 Units of analysis and corresponded questionnaires



Information obtained at the national level was used as background information for further data collection and analysis.

Data obtained from administrative sections by using questionnaires (1) to (3) were used to describe the healthcare systems in the areas. A description of each province was presented according to the items below:

- Profiles of surveyed areas
- Health facilities
- Disease information
- Medicine procurement
- Prices and availability of medicines
- Availability of laboratory tests
- Diabetes-related activities
- Standard treatment guidelines
- PhilHealth coverage
- Social welfare

Items for the description corresponded almost entirely with the topics in the questionnaires. The purpose of this unit was to understand the local health system and to describe similarities and differences between areas.

Open-ended answers to questionnaires (4) to (7), in which health professionals and patients stated their personal experience and perceptions regarding barriers to care, were qualitatively analyzed according to the thematic framework identified. Themes for the framework were as shown in Table 5-7. For each theme, subthemes were also identified (see Appendix 3). Text data, regardless of the question, were indexed by theme or subtheme. And then all data were sorted by indexed theme or subtheme to be analyzed, tabulated by interview topic or respondent's attribute if necessary and informative. National and provincial level descriptions, mentioned above, were integrated into the framework analysis.

Table 5-7 Themes for framework analysis

category	Theme
Health system factors	Medicine supply
	Resource allocation
	Health insurance
	Social welfare
Facility factors	Management
	Services
	Support group
Patient factors	Household finance
	Social welfare
	Family support
	Patient knowledge
	Patient attitudes
	Experiences
	Disease impact
Others / external factors	Price
	Information
	Accessibility

5.5.2 Structured patient interviews

Answers were counted and calculated according to the structure of the questionnaire.

Data on purchase prices of medicines were presented in two different ways. Firstly, for frequently used medicines, the median price of each medicine and the range of prices of the same medicine among the users were calculated. Secondly, for each patient, daily cost was summarized based on the unit cost and daily amount of each medicine that was reported by a patient. From this data, the median daily cost and its range were computed.

Out-of pocket expenditures for the last outpatient consultation and hospitalization were summarized. They consisted of hospital fees, expenses outside the consultation facility (mainly expenses at a private pharmacy and / or private laboratory), and transportation fees of each patient. The median expenditure and a range were also computed.

CHAPTER 6

Findings I (Semi-structured multilevel interviews)

6.1 Summary of the chapter

Semi-structured multilevel interviews described the local healthcare system and identified barriers to diabetes care. Patient financial constraints were emphasized by all stakeholders. Not only patients but also healthcare providers, administrators and health officers repeatedly indicated that many patients stopped and re-started medication of their own accord, weighing up household budgets and subjective symptoms. Patients prioritized items of diabetes care within their funds, and doctor consultation and laboratory tests were more likely to be dropped than medication. However, even for people who did not attend regular care, it was difficult to avoid urgent hospitalization when necessary. Hospitalized brought the risk of making family impoverished, sometimes resulting in debt. There were also a variety of de-motivating factors in the healthcare system, healthcare facilities and external environment. Some serious issues were; an unstable medicines procurement and supply system in the public sector, unmet needs for the PhilHealth benefits and administrative inconvenience to enroll and utilize the insurance and, difficulty in utilizing diabetes care at primary care level in terms of material and human resource allocation.

6.2 Findings at the national level

Interviews at relevant sections in the DoH, the Philippine Health Insurance Corporation (PhilHealth, see 3.5), the Philippine International Trade Corporation (PITC, see 3.6.3 and 3.6.4), and diabetes associations revealed baseline information for reference in further interviews. Interviews at the national level did not enquire about personal experiences or perceptions of the interviewees but focused only on describing the current system and ongoing programs.

6.2.1 Healthcare system structure

As a result of the decentralization under the Local Government Code in 1991, many functions in the health sector were devolved from the DoH to LGUs. Procurement of medicines, thus, was also decentralized to each level of local government and for each of the 80 "DoH-retained" hospitals. The Procurement Division in the DoH only manages the equipment and medicines for vertical programs.²⁶ Some other essential medicines are procured for special centrally-funded programs, but the Procurement Division does not supply medicines to health facilities, even to DoH-retained hospitals. The PITC, a government owned and controlled corporation, imports and distributes branded medicines. However, it is only one of

²⁶ Examples of medicines procurement from the Procurement Divisions are: PM50, infectious disease prevention programs, Health Emergency Management Staff program, Doctors for the Barriers program, etc. (by administrative assistant in the Procurement Division)

many possible distributors/suppliers for each LGU, facility and medicine outlet. PITC's share is not considered to account for a large proportion of the total market.

The DoH does not have easily accessible information on administrative issues at regional and more peripheral levels, e.g. budgeting, human resources, etc. The central office does not receive routine administrative reports. Although guidelines are issued by the DoH, every facility may develop its own standards and system. Therefore, there are a number of possible patterns of health service delivery, which are often decided and depend on the priorities of local political leaders.

Presently, the major functions of the DoH are to make and implement policies and to coordinate programs. Regulation is one of its major retained functions, and under the Local Government Code, it exercises supervisory power over all local government units in terms of health-related services. Diabetes-related activities are planned and managed by the Degenerative Disease Office (DDO), which is one of four offices under the National Center for Disease Prevention and Control. Programs for chronic diseases planned by the DDO focus on promotion and prevention and rarely support clinical activities. There is no budget or external financial support to subsidize medicines for chronic diseases at healthcare facilities. Diabetes is included in lifestyle-related conditions and managed within healthy lifestyle programs. Some local government units have established their own diabetes programs in their health facilities for poor patients.

In the Philippines, there is no mechanism or protocol currently in place for the development of standard treatment guidelines (STGs). Some are prepared by Philhealth (as a basis for reimbursement), some are developed by the DoH program sections (as a public health intervention, such as acute respiratory infections, acute gastroenteritis, rabies, etc), but most, especially for the non-communicable diseases, are carried out by specialist societies.

6.2.2 Diabetes-related associations

The directory of "Philippine Coalition for the Prevention & Control on Non-communicable Diseases (updated February 2008)", which was provided by the DDO in the DoH, listed the following diabetes-related organizations; the Association of Diabetes Nurse Educators of the Philippines (ADNEP), the Philippine Association of Diabetes Educators (PADE), the Philippine Diabetes Association (PDA), the Philippine Society of Endocrinology & Metabolism (PSEM), and the Diabetes Center Philippines (or Philippine Center for Diabetes Education Foundation = PCDEF). Physician members for PADE, PDA, PSEM and ISD graduates overlap each other.

The president of PADE and a diabetes educator nurse, who is a member of both ADNEP and PADE, were interviewed. The associations were founded in 1991 and 1992 respectively. They had worked together to provide both health professionals and lay members with biannual 12-day certificate training courses for diabetes educators. Health education by trained educators targets diabetes patients and their family members and the general public as well as colleagues of the health professional educators. The associations have around 400 general members; however, approximately 150 were active because many members are currently overseas. According to the interviewees, another organization, PCDEF, also trains diabetes educators although this foundation was not contacted.²⁷

The PADE and ADNEP organizations are affiliated with the Institute for Studies on Diabetes Foundation, Inc (ISDFI). The founder, an officer and a Masters student of the ISDFI were interviewed. The ISDFI is a non-stock, non-profit foundation which works on 1) health professional education 2) diabetes services for special needs, mainly for indigent people and children and 3) research, including clinical trials, collaborating with pharmaceutical companies. Concerning education, the institute has offered different courses for internists and general practitioners since 1989, including a two-year Masters course and a three-month training course for ambulatory care.²⁸

According to the president of PADE, diabetes treatment guidelines for general practitioners are currently being developed by five diabetes-related associations (ISD, PADE, PDA, PSEM, and Paediatric Society of Endocrinology and Metabolism), in collaboration with the DDO in the DoH, and they are expected to be published by June 2009.

6.2.3 Discount cards

Some medical representatives from pharmaceutical companies were informally interviewed about their discount cards during an association's congress.

A "discount card" is given to a patient for a specific oral medicine. Two interviewed insulin suppliers do not offer similar programs for insulin. The cards are distributed through physicians. Any patient is entitled to use a card and can be given a 25 or 30% discount²⁹ at a designated pharmacy if the medicine is prescribed by a physician. Each company's program was initially planned for a certain period but could be extended. One of interviewed

²⁷ According to Information from PCDEF website (at <http://www.diabetescenter.org.ph/index.php?fid=about>), the foundation collaborates with International Diabetes Foundation. It has certified diabetes educators since 2001 and offers a six-day training course.

²⁸ Training and education provided by the ISDFI is specifically for diabetology. Another sub-specialty related with diabetes is endocrinology, which covers broader areas. Both specialist trainings are open for internists.

²⁹ One of interviewed companies offers a 50% discount for hypertension medicines.

companies started this program five years ago, while others started it one to two years ago. The cards are applicable mainly at major chain pharmacies and selected independent pharmacies.

6.3 Description of healthcare system

Some aspects of the healthcare system were common among surveyed areas, while each area develops its own characteristics in the system, especially in Area A, which is part of one city from the NCR. This section outlines issues in the healthcare system and healthcare facilities in surveyed areas, mainly based on interviews with people in administrative sections in hospitals and different levels of health offices. A summary of area profiles is presented in Table 5-1.

6.3.1 Profiles of surveyed areas

A brief summary is presented in Table 5-1. This subsection explains more detailed profiles of the five selected areas.³⁰

Area A is one of six health districts from a city in the National Capital Region (NCR), but does not cover the whole city. The district is a poor area located in the center of the city. The surveyed hospital was one of two tertiary public hospitals in the district. The other was a university hospital. Both of them serve not only people in the district but also those across or beyond the NCR. "Community patients" in this area were identified during DoH's household survey in the district.

Area B is a province in the central Luzon region, whose capital city is located 45 minutes to 1.5 hours travel by express bus from the bus terminal in the city of Manila. In the province, there is one highly urbanized city, one component city (the capital city) and 20 municipalities, which are categorized as "urban" or "partially urban". Facility samples were selected across the province, including two cities. Community patients were identified during DoH's household survey in the capital city.

Area C is a province in northern Luzon region, whose capital city is located in a distance of six to eight hour travel by express bus from the bus terminal in Quezon City. In the province, there are one component city (the capital city) and 19 municipalities. All of LGUs in the province are categorized "partially urban". In this province, all public hospitals (one DoH-retained, and six province-owned) were visited, based on suggestions from the Center for Health Development (CHD = DoH's regional office) and the provincial health office.

³⁰ Classes and categories of LGUs are based on the Philippine Standard Geographic Code, which is available at <http://www.nscb.gov.ph/activestats/psgc/default.asp>.

Community patients were purposively recruited in the capital city and in one municipality.

Area D is one city (the capital city) and one neighboring municipality in a province of a remote island, but does not cover the whole province. The capital city is a 1.25 hour flight from the domestic airport in Pasay City in the NCR. It is the largest province and has the third lowest population density and so, access to municipalities is geographically difficult. Therefore, the CHD selected only two LGUs for the survey although there are 24 LGUs in the whole province. Even though the selected municipality is next to the capital city, the centers are located 142 km apart and it takes more than two hours by car. The class of the capital city is "highly urbanized" but it is categorized as a "partially urban" area. The selected municipality is a "partially urban" area. All hospitals in these two LGUs were included and community patients were purposively recruited in each LGU.

Area E is one of four provinces in an island in Western Visayas, whose capital city is a one hour flight from the domestic airport in Pasay City. In the province, there is one component city ("urban" area) and 19 municipalities (all "partially urban" areas). Facility samples were selected across the province. Community patients were purposively recruited in the capital city and in one municipality.

6.3.2 Health facilities

As mentioned in 3.4, public services were devolved to LGUs from central departments. The majority of public hospitals became autonomous from the DoH and are administered by LGUs while some hospitals are "retained" by the DoH. Other government hospitals are owned by a city or a province.³¹ The level of each hospital is licensed and categorized by the CHD based on criteria of human resources, facilities and output of operation and can be changed. Some hospitals still contain former "hospital type" in their names, like "provincial hospital", "district hospital", "medicare and community hospital", etc. However, these hospital names do not always reflect the current level of health care they provide.

In four areas we visited, the main hospital in the area was a DoH-retained hospital. One of the sampled hospitals was a city hospital and other public hospitals were owned by the provinces. Some province-owned hospitals³² establish "economic enterprises" authorized by the province. Those hospitals can expand business by generating their own revenue. As a result, patients are expected to pay for services as much as possible. While some respondents

³¹ Some government hospitals are owned by military or university. As military hospitals are not open to the general public, they are not counted in the "public hospitals" in this report. According to reports, municipal-owned hospitals exist although none of them were contacted for this study.

³² Due to the former naming pattern, "provincial hospital" implies the main public hospital in the province. Therefore, the term of "province-owned" is used for hospitals that are operated by a province.

implied financial support for indigent patients becomes limited due to these business reasons, some answered by suggesting surplus income generated by the business could be used for indigent patients.

A city or municipality operates city health centers or rural health units. If a city or municipality is large, more than two centers/units are allocated in the area (to comply with the standard for facility: population ratio). Each health center/unit is staffed by at least one physician and other health professionals like nurses, midwives, medical technologist(s). However, no pharmacist existed in the interviewed health centers/units. None of the facilities among the interviewed health centers/units are equipped for hospitalization, but some of them have an infirmary or delivery room with 24-hour staffing. The majority of interviewed health centers/units are accredited by PhilHealth for special outpatient packages.

6.3.3 Disease information

All of the surveyed hospitals have a medical records section, whether it is an independent section or not. In many hospitals, the tenth revision of the International Classification of Diseases (ICD-10) is used. Nevertheless, the number of diabetes patients who used the facility was difficult to obtain. In many hospitals, besides the total number, only ten leading causes of morbidity and mortality are recorded, and diabetes was rarely included, especially in the outpatient record (see Appendix 2). One possible reason for this is that diabetes patients are rare because the patients are referred to a specialist. Another possible reason is that diabetes as co-morbidity is underreported because only the principal diagnosis is applied for the morbidity ranking. In one DoH-retained tertiary hospital, where the annual visits to the outpatients department (OPD) and emergency room (ER) in 2007 were 50,191 and 25,279 respectively, OPD visits for diabetes and ER visit for diabetes were only recorded as 115 and 542. Considering the weekly diabetes clinic held by endocrinologists in the hospital, these numbers are small. No explanation for these small numbers was given in the statistics section. As observed in some private hospitals, OPD consultations by consultants might be recorded by each specialist and not aggregated into the hospital statistics. Patients' medical records are not linked to patient information from other sections, for example, the PhilHealth claim section, the social welfare section, and the finance section. Therefore, disease specific data on these issues could not be obtained. The percentage of PhilHealth coverage of the total number of inpatients, not limited to diabetes admissions, is presented in Appendix 2. Furthermore, definitions of the terms used for hospital statistics are not standardized³³ among provinces probably due to decentralization and autonomy.

³³ For example, some hospitals categorize "pay patients", "service patients" and "indigent patients", and categories for PhilHealth users are different. Definitions of OPD and ER were also different among hospitals.

It was also difficult to obtain general information in the area, including epidemiology, hospital profiles and utilization. Data from one health office covers only numbers from the facilities that the office is responsible for. Data from private hospitals are not included. If there is a city hospital and a DoH-retained hospital in a province, the data from these hospitals are not integrated into the annual provincial health report. Data from all public and private hospitals are submitted to the licensing division at each CHD. As hospital reports are a requirement for renewal of licenses. These are not, however, analyzed and their use is limited to compliance with licensing requirements.

6.3.4 Medicines procurement

While private hospitals procure medicines directly from suppliers as needed, the major part of medicines supplied to public facilities are procured through the public bidding process. According to the administrative officer in an interviewed DoH-retained hospital, while there is public bidding for the main procurement method of the majority of medicines, the hospital sometimes needed other methods such as, a direct contract for specially requested medicines by physicians, direct shopping on case-by-case basis for urgent items in limited quantities, and repeated orders with the same conditions when the stock becomes less than 25% of the originally contracted quantity, when some conditions are met (see 3.7).

The provincial capital purchases medicines for all province-owned hospitals. Each hospital submits the "annual procurement plan" as a basis for budgeting by the provincial government. To receive medicines, each hospital submits "purchase requests" to the provincial government. Each city or municipality also purchases medicines for health center(s)/unit(s) and a hospital, where present. Therefore, in a small municipality that operates only one health unit, the total amount of medicines procured by the municipal office is very limited. The budget for health and medicines sometimes competes with other services as local government units have to work within an expected annual budget.

Some variations were observed among the four provinces for the medicine procurement for province-owned hospitals.

In Area C, each province-owned hospital has a "regular pharmacy" and a "cash pharmacy", which are physically located in the same place and deal with the same medicines. Medicines in a regular pharmacy are mainly charged to PhilHealth for inpatient use. Its operation is financially regulated by the province although surplus income that exceeds the target income can be used for the hospital. Medicines in a cash pharmacy are dispensed to non-PhilHealth patients by cash. A cash pharmacy in each hospital was initiated in 2006 with seed money of 50,000 PHP. A trust fund financially operates each cash pharmacy and income can be used

for the hospital use, for example, charities for indigent patients, capital build-up, administrative and miscellaneous expenses, etc.

In Area D, only one province-owned hospital was visited. In this hospital, the supply of medicines to the hospital pharmacy is insufficient and limited mostly to emergency use and charity for indigent patients. Other patients, including inpatients, have to purchase medicines themselves. For their convenience, a "cooperative pharmacy" is located next to the hospital. Interested members of the hospital staff share the capital and operate the pharmacy by themselves, employing a pharmacy aid. The pharmacy started in 1995, suggested by an ex-chief of hospital. According to interviewed members, part of his initial motivation might have been to benefit his family supplier business. Although there was only one cooperative pharmacy in the province at the time of the interview, there are plans to establish more cooperative pharmacies in the province, according to the provincial health office.

In Area E, the provincial health office purchases medicines to distribute them to province-owned hospitals, which is called "pooled procurement system" or "bulk purchasing".³⁴ This program was started in 2001 with four medicines from the parallel importation project (see 3.6.3). At the time of the interview, 64 frequently used oral medicines were being purchased in bulk by the provincial health office using a revolving drug fund. In addition, 18 fluids and 10 medical supplies granted by the EU are also managed in the system. The provincial health office functions as a distributor, considering province-owned hospitals as clients. The provincial health office sells the medicines to hospitals with a 1% mark-up. Each hospital then dispenses them to patients with a 10 to 20% mark-up.³⁵ As the program has progressed, medicines are not always procured from the PITC, but the cheapest medicine is selected by public bidding process in the provincial capital.

6.3.5 Availability and prices of medicines

Availability and prices of major diabetes medicines were surveyed at each hospital pharmacy at the time of interview.³⁶ Since the numbers of surveyed hospitals were different between public and private, the results cannot be simply compared. Nevertheless, availability in the

³⁴ The provincial health office is now applying for a distributor license to extend this program to Botika ng Barangays. Medicines for Botika ng Barangays are purchased by DoH from PITC and managed by the CHD representative in the province, which sometimes takes time for the process. The provincial health office recently set "inter-local health zone" pharmacies for every 3-4 municipalities for faster distribution process to Botika ng Barangay. Medicines to Botika ng Barangays will be distributed through the inter-local health zone pharmacies.

³⁵ There is on-going debate on standard medicine prices. However, since medicine prices in public hospital pharmacies should be the cheapest in neighborhood, prices are determined by each hospital based on the observation of prices at the neighboring private pharmacies.

³⁶ Since availability of any product was asked, results are combined between originator brands and generic equivalents, which is a different method from the WHO/HAI manual. Except for a few hospitals, branded medicines were not found in the public sector.

public hospitals targeted in this study showed a lower percentage than in private hospitals. Results of availability in this study, both in the public sector and private sector, were higher than in the WHO/HAI report probably because this study targeted only hospitals. The price difference between the public sector and private sector confirmed the previous study in the Philippines in 2005 although the method was not exactly the same. [81] (also see 3.8.1). Concerning insulin in the public sector, only tertiary level hospitals dispense it. Among the six private hospitals, at least one type of insulin was available at each hospital.

Table 6-1 Availability and median price of selected medicines in USD*

generic name		public hospitals (N=20)	private hospitals (N=6)	IRP*** (USD)
glibenclamide 5mg tablet	availability (%)	11 (55%)	4 (67%)	
	median price**	0.07	0.30	0.0050
metformin 500mg tablet	availability (%)	17 (85%)	6 (100%)	
	median price**	0.06	0.22	0.0214
regular insulin 1ml	availability (%)	4 (20%)	5 (83%)	
	median price**	1.24	3.44	0.5480
isophane insulin 1ml	availability (%)	4 (20%)	5 (83%)	
	median price**	1.24	3.43	0.5480

* The average exchange rate during the data collection period (July 10 - October 17, 2008) was 1 USD = 46 PHP.

** Some hospitals sell two products of the same medicine. In such a case both items are included as a sample when the median of the total samples was calculated.

*** international reference price from "International drug price indicator guide" [90]

The metformin 500mg tablet was the most available oral hypoglycemic medicine at public hospital pharmacies; it was available in 17 out of 20 pharmacies. When available, some issues on prices were implied from the observation; 1) in the central Luzon (Areas A and B) in general, prices were cheaper than in other areas, 2) in remote provinces (Areas C and D), prices at lower level hospitals were very expensive, and 3) in Area E, where the provincial health office procures medicines for hospitals, the medicine price was almost standardized. However, the price was more expensive than those in Areas A and B.

Another finding was that "existence" did not mean that the medicine was actually available to patients. For example, as described before, some hospitals use medicines at the hospital pharmacy only for emergency and charitable use and so, available medicines cannot be dispensed to ordinary patients even though the medicine exists.

6.3.6 Availability of laboratory tests

Availability of HbA1c among the 27 surveyed hospitals was very low, only at two DoH-retained tertiary hospitals and four private hospitals. The median price for HbA1c testing among these six hospitals was 688 PHP (15.0 USD). Blood sugar testing was available at all hospitals, but rarely at rural health units. At one surveyed rural health unit, whose physician

was trained for diabetology, a portable machine for HbA1c testing, sponsored by a supplier, was available. However, as the provision of test strips from the municipal government is limited, patients need to buy a strip, which costs 800 PHP (17.4 USD).

6.3.7 Diabetes-related activities

Diabetes-related activities varied among the surveyed provinces. It seemed to depend on the availability and leadership of physicians in the area. In terms of patient activities, three trends were observed: 1) where the club is officially registered as an organization, 2) where the club is managed by patient officers, but not officially registered as an organization, and 3) where patients gathered voluntarily on diabetes clinic day. While some clubs routinely (monthly or annually) collect money from members to support the activities, others do not. One diabetes club collected money for purchasing medicines in bulk.

Concerning physician's commitment to the club, three trends were observed; 1) where a physician is officially assigned for a diabetes (or non-communicable diseases) program and supports patient activities as part of the program, 2) where a physician in charge of the hospital is committed to the activities, and 3) where a private clinic physician visits the hospital for the diabetes clinic with/without an allowance. According to the chairman of the Institute for Studies on Diabetes Foundation, Inc (ISDFI) (see 6.1.2), the institute organizes the Consortium of Government Diabetes Clinics, many of which are being helped by ISDFI graduates and all consortium members are registered.

Table 6-2 Diabetes clubs in surveyed facilities

	facility	type of club	committed physician
Area A	DoH retained tertiary hospital	registered diabetes club	endocrinologist in the hospital
	health canter	patient-lead diabetes club (not registered)	city health physician
Area B	DoH-retained tertiary hospital	patient-lead diabetes club (not registered)	volunteer diabetologist
	Province-owned secondary hospital	patient-lead diabetes club (not registered)	volunteer diabetologist
	According to health offices, three municipal offices and two city health centers organize diabetes-related groups, although members were not interviewed		
Area C	DoH retained tertiary hospital	registered diabetes club	endocrinologist in the hospital
	Province-owned tertiary hospital	registered diabetes club	a visiting consultant (private physician)
	rural health unit	patient-lead diabetes club (not registered)	rural health physician (diabetologist)
	According to health offices and the hospital, one province-owned secondary hospital is preparing for organizing a diabetes club.		
Area D	According to health offices, no diabetes club is organized in the hospitals in the province.		
Area E	According to health offices, no diabetes club is organized in the hospitals in the province. Although a "patient group" is not organized, the city health office leads many diabetes-related activities that patients can participate.		

As no diabetes club was found in Areas D or E, physician group members for PDA were contacted in these areas to ask about patient activities. In Area D, according to one of the interviewed specialists, diabetes-related activities were quite active a decade ago. However, due to political reasons, it became difficult to continue the activities in the public hospital where the office was located. Although a new lay group was organized a few years ago, it has not been active so far. In Area E, one doctor in the city health office is assigned as a “diabetes coordinator” and collaborates with private specialists. There are two endocrinologists in the province, and they are leading the provincial chapter of PDA, both of a physician group and a lay group. According to an interviewed specialist, fund-raising activities are planned to subsidize a Glucometer for rural health units.

6.3.8 Treatment guidelines

Treatment guidelines or a medicine formulary were available at some private hospitals. One surveyed province developed provincial treatment guidelines for leading diseases; however, diabetes was not included. One provincial health office provided guidelines for diabetes screening and referral for rural health physicians and general practitioners in the hospital. However, as far as observed and interviewed, rural health units in this province do not have glucose testing devices. Treatment guidelines from the Institute for Studies on Diabetes Foundation, Inc (ISDFI see 6.1.2) are passed on to practitioners via regular workshops and courses that the institute offers. The CHD-NCR is currently developing standard treatment guidelines for screening, diagnosis and minimal standard management to be used for local health facilities in the area, which is expected to be published by next year.

6.3.9 PhilHealth coverage

As described in 6.3.3, even though the number of diabetes inpatients was not available in many hospitals, PhilHealth coverage for all inpatients, not limited to diabetes admissions, was surveyed in each hospital. Although the recording method was not standardized in all the hospitals (e.g. including or excluding newborn admissions, recording with other terms instead of "PhilHealth" and "non-PhilHealth", etc.), the numbers are presented in Appendix 2. Among 17 public hospitals that recorded the coverage, the median PhilHealth coverage was 28%. The median PhilHealth coverage among the four private hospitals was 61%.

When possible reasons for the low coverage were enquired about in a province-owned primary hospital in Area D, the administrator of the hospital suggested that it was because PhilHealth offices were located far away from the area and transportation fees were more expensive than the quarterly contribution. In addition, indigent programs supported by LGUs had just started in the province. According to a private hospital with high PhilHealth coverage,

which is a member of a church family, it was because PhilHealth enrolment was encouraged at the church.

6.3.10 Social welfare

Each public hospital applied DoH's Administrative Order for patient classification on hospitalization; A for "pay" patients, B for "pay ward" patients, C for "ward" patients (further divided into C1, C2 and C3) who are provided with 25 to 75% of the hospital share for the hospital fees, and D for "full social services" patients who are exempted from the hospital fees [91]. However, the term and its definition that is actually used for each class as well as the proportion of each class among the total admissions varied among hospitals. How many patients are categorized in C and D affects hospital financial administration. Therefore, even though social workers are responsible for interviewing and classifying newly admitted patients, the final decision seemed to be made by the chief of the hospital, chief and medical staff and the administrative officer. When a medicine is not available in the hospital pharmacy, even C and D patients need to buy them outside at a private pharmacy at the selling price. Regarding outpatient services, the term of "indigent" was often heard. Who classifies as "indigent" and what kinds of benefits are given to them seemed to depend on physician's decision, too.

6.4 Barriers to care

Open-ended interviews of health professionals and patients asking their personal experiences and perceptions in terms of barriers to care were analyzed according to the framework identified (see 5.5.1. For subthemes, also see Appendix 3). Interviews at multilevel administrative sections, whose findings are described in 6.2 and 6.3, have been integrated into this analysis.

6.4.1 Health system factors

6.4.1.1 Supply of medicines in general and oral hypoglycemic medicines

Medicines supply in the public sector in general was considered to be inadequate for all prescriptions. Medicines dispensed at public hospital pharmacies were limited in terms of quantity and variety, and usually medicines at health center/health unit were limited to "indigent people". Therefore, many public facility users needed to buy expensive medicines from the private sector.

*"Medicines at the hospital are not complete. So, we have to buy them outside"
(Inpatient, main public hospital, Area B)*

"Even though consultations are free [at the rural health unit], if medicines are not available, patients need to buy medicines outside, which are expensive." (Physician,

rural health unit, Area C)

"To distribute medicines among patients as equally as possible, I provide part of medicines with each patient, for example, a patient is given one sheet free of charge and buys the rest of tablets by himself" (Physician, rural health unit, Area A)

"Availability of medicines in this hospital is not sufficient for diabetes care, we only have metformin here." (Physician, primary public hospital, Area C)

Furthermore, prescribed medicines were not available at small drugstores in front of a hospital located in a remote area.

"In our place, there are only few drugstores, and some medicines are not available in the drugstores. Patients need to go to the city to buy medicines. (Dietician, secondary public hospital, Area C)

Administrators and health professionals in the public sector suggested the limitation of medicines was due to the limitation of the budget of the LGU. In addition to budgeting matters, an issue in the procurement system was pointed out.

"Sometimes, communication between suppliers and the bidding and award committee is not very good. Nobody bids and as a result, there is no supply of the medicine. When we request the medicine from the provincial capital, we are told that nobody came for bidding and that the hospital pharmacy needs to look for medical representatives from suppliers to come for bidding." (Main public hospital, Pharmacist, Area E)

Shortage or delay of supplies was also suggested by medical technologists. They found that they could not do laboratory tests because test agents were out of stock.

Possible strategies for cheaper medicines existed; however, for example, physical accessibility to a Botika ng Barangay and availability of medicines were questioned by respondents.

"I have been working in this hospital as a nurse for more than 30 years, but I have never seen or heard of a Botika ng Barangay around here. It is difficult for patients to get cheap medicines." (Nurse, secondary public hospital, Area B)

"Five km away from a commercial drug store is one of criteria for establishing a Botika ng Barangay, so it is difficult to find one in front of a hospital. And there is limited information about generics to the public [It can be another reason for low utilization of Botika ng Barangay]." (Pharmacist, CHD, Area B)

"I have my doubts about the quality of medicines at Botika ng Barangay" (Specialist, tertiary private hospital, Area C)

"I do not rely on medicines at Botika ng Barangay because they are imported from India" (Private specialist, Area B)

At the time of the interview, diabetes medicines were not sold at Botika ng Barangay. Concerns were also expressed about the quality of generic medicines.

"If the government insists on the use of generics, they also need to improve the function of BFAD (Bureau of Food and Drugs). How can we believe it if only few members of staff are allocated in each province?" (Director, tertiary public hospital, Area C)

6.4.1.2 Resource allocation for diabetes

Human resources

Shortage of manpower in the public sector in a specific section was suggested at facility level.

"I hope to check patients as much as possible, but there are only a few doctors available. We don't have sufficient numbers of doctors in this town." (Physician, primary public hospital, Area D)

"I heard that another diabetologist who used to work in the main hospital has left for abroad after getting a nursing license. (Diabetologist, rural health unit, Area C)

"Services are compromised because of the limited number of staff available. And we need to do multitasking work." (Pharmacist, main public hospital, Area D)

"Release of results tends to be delayed because we do not have enough members of staff." (Medical technologist, primary public hospital, Area C)

"It is hard for me to explain to patients about diet. We do not have a nutritionist to counsel patients about proper amounts of calorie intake." (Physician, primary public

hospital, Area D)

"Since this is a public hospital, we find it hard to keep good maintenance, cleanliness and sanitation." (Nurse, main public hospital, Area D)

In addition to a shortage of health professionals, complex administrative procedures might have created other duties besides patient care.

"The hardest part for me is working with deadlines such as for an inventory report. Especially when the system here is still manual." (Pharmacist, secondary public hospital, Area E)

Facility

Not only human resources, but also facilities seemed to be limited in public hospitals. Patients suggested an overflow in the wards.

"It is very pitiful to be hospitalized in a public facility like this because most of the rooms are congested, dealing with other inpatients." (Inpatient, main public hospital, Area A)

Physicians at lower level hospitals told us that they needed to refer patients because of a lack of equipment in the facility.

"We do have limited equipment in this facility. So, we refer patients with critical conditions to the tertiary hospital. (Physician, primary public hospital, Area C)

"I wanted to help the patients as much as possible. [but] if we don't have the necessary facilities, it (=making efforts) is useless." (Specialist, main public hospital, Area B)

In addition to medicine prices, access to laboratory tests, in terms of availability and affordability, was shown to be difficult. In some primary hospitals and rural health units, even blood sugar testing, both the dry method (Glucometer) and the wet method, was not available. Only a few places could measure HbA1c in each province, as described in 6.3.6, mainly at private hospitals. Even when available, the price of HbA1c was not affordable for many patients.

"No laboratory test, except sputum smear, is available in this health center. A patient

needs to go to the public health laboratory. If the test is not available even at the public health laboratory, the patient needs to go to a private laboratory or a city hospital." (Physician, health center, Area A)

"Costs of laboratory tests are expensive, especially HbA1c, which not everyone can afford." (Physician, secondary private hospital, Area B)

"HbA1c is not available here, so patients have to travel to the next province. It will require additional expenses." (Physician, primary public hospital, Area E)

In two areas, there are public health laboratories that are operated by LGU's health office. They accept walk-in patients at the lowest price in the area; however, people need to physically come to the laboratories. No centralized laboratory system was found in the surveyed areas.

"The price of testing is the cheapest in the area, but our place is a bit far from the center of the city. Patients need to pay transportation fees. [They weigh] test fees and transportation fees in a balance." (Medical technologist, public health laboratory, Area D)

Budget

When availability of medicines was surveyed, many health professionals responded that it was "dependent on the budget of the LGU". A positive answer was obtained, which implied budget allocation was much influenced by political situations.

"Health is one of our mayor's priorities. I believe that budget to purchase medicines is allocated more than other municipalities." (Physician, municipal health office, Area C)

6.4.1.3 Health insurance

Hospitalization with complications would be an issue for diabetes patients. However, according to interviews at the administrative section in each hospital, based on medical records in 2007, around one third of inpatients in public hospitals were PhilHealth members or dependents. (see 6.3.9) This number was consistent with the result from the patient interviews, which will be described in 7.6 in the next chapter. Besides financial reasons, possible reasons for this low registration rate were implied by respondents: some believed the contribution was not worth the premium, counters for payment were located far away; many medicines were not covered in reality; and the required documentation was complex.

"I have PhilHealth to support me for my expenses, but the coverage is not enough. So, we have to pull out our pocket money for the remaining fees." (Inpatient, tertiary private hospital, Area E)

"I had PhilHealth before, but I stopped paying it because my children are getting older and their needs are getting bigger." (Community patients group discussion, Area E)

"PhilHealth can cover only 8,000 PHP for one year and the coverage of medicines is very small. (Physician, secondary private hospital, Area D)

"Many patients don't have health insurance. I think many of them are eligible for the indigent program of PhilHealth. But the application process is complicated. They need to have interviews with social welfare workers and fill in documents. Elderly people don't hope to do that or cannot do that." (Physician, health center, Area A)

"Although my wife is a member of PhilHealth, I cannot use it because of some problems in her documentation." (Community patient, Area B)

"All required documents must be completed when discharged. Otherwise, a patient needs to pay it temporarily by himself and to wait for reimbursement which is paid at the PhilHealth office." (Administrator, the main hospital, Area D)

"Every Monday, a staff member from PhilHealth comes to this hospital to accept applications and receive contributions. For other days, people need to go to the PhilHealth office in the city." (Administrator, primary public hospital, Area E)

According to informal information gained from a member of staff from the CHD who attended our data collection, there are only three places where people can pay PhilHealth contributions in Area D. Transportation fees to pay at the office costs more than the quarterly contribution for the Individually Paying Program (300 PHP).

6.4.1.4 Social welfare

Application of the nationally standardized patient classification in the governmental hospital varied among hospitals (see 6.3.2 and 6.3.10). Other various aid measures for healthcare services, both governmental and private, were prepared. Governmental ones seemed to rely on the budget and political decision of each LGU. Utilization of private charities depended on

availability, physical accessibility to the charity offices, complexity of the procedure as well as the social worker's capacity. As a result, social welfare services sometimes might not be very useful for needy people. Charity programs rarely cover maintenance care. In some lower level hospitals, social workers were not allocated and a cashier or the chief nurse took over this role.

"There are only two social workers in this hospital. We need to interview more than 20,000 patients a year." (Social worker, main public hospital, Area B)

The Senior Citizen Card can be used for regular medicines, but it did not seem to be advantageous for every person.

"Some hospitals and private pharmacies do not acknowledge our senior citizen discount. They also tell us that medicines are not available when we present the prescription together with the Senior Citizen Card." (Diabetes group members discussion, Area C)

6.4.2 Health facility factors

6.4.2.1 Management

Treatment and management was dependent on the physician. Specialists (internists, diabetologists, and endocrinologists) said they referred to guidelines from the American Diabetes Association, the European Association for the Study of Diabetes, or the Institute for Studies on Diabetes Foundation in the Philippines. General practitioners relied on knowledge from their basic and/or continuous training. If a visiting consultant existed, general practitioners followed the specialist's instructions. On the other hand, some specialists might not have trusted general practitioners' care as found below.

"Most patients are mismanaged by general practitioners. Diabetes patients must be referred to specialists and there should be standardized methods of treatment." (Specialist, main public hospital, Area B)

Physicians doubted the quality of low-cost medicines (see 6.4.1.1). These doctors also believed that patients soon realized that cheap medicines would not be effective and asked the doctor to prescribe branded ones again. It was not revealed from patients' answers how these doctor attitudes on low-cost medicines influenced medicines purchasing behavior of the patient.

Dieticians in some hospitals felt that they were not considered as a member of the medical

management team.

“Coordination with doctors is not very good because they don’t consider us as health care providers.” (Dietician, secondary public hospital, Area E)

“What they (dietitians) can do is following doctor’s instructions in the kitchen. The doctor is responsible for dietary management of the diabetes patients.” (Director, tertiary public hospital, Area C)

6.4.2.2 Services

Both health professionals and patients were aware of the shortage of health personnel in the public sector. Many patients complained about the long line at the outpatient department in public facilities. Statements below are only some examples.

"He (the patient) is impatient of waiting in a long waiting line for his laboratory test. He has edema on his feet. It's very painful." (Inpatient, main public hospital, Area A)

"I experienced that I waited for the doctor for a very long time because he was very busy with many patients." (Community patient, Area B)

Some patients compared services in public facilities with private facilities. From the patients’ responses, the sole reason for choosing a public health facility was that it was cheaper than a private one. Those who suggested differences in services between public hospitals and private hospitals also recognized marked differences in the costs. A couple of patients indicated poor services even in a private hospital.

"In some private laboratories they have adequate staff to assist all patients, so it is more convenient to have a laboratory test at a private laboratory. But [the prices are] quite expensive." (Community patient, Area A)

"It is not advisable for low-income earners to come to this hospital, but I think the services are OK, compared with other government hospitals." (Inpatient, tertiary private hospital, Area E)

"Even though my father was brought to a private hospital, we still experienced poor services such as slow assistance." (Community patient, Area A)

6.4.2.3 Support group

As described in 6.3.7, the type of patient support group (or diabetes club) varied among health facilities; while some were just voluntarily gatherings of patients on diabetes clinic day, others were officially registered organizations. The following advantages of being a member of a diabetes club were indicated; free or cheap laboratory tests, which might be sponsored by pharmaceutical companies in some facilities, cheaper medicines by purchasing in bulk, information and mutual help, including emotional support. The fourth patient below was a lady who said both she and her husband could not manage the self-monitoring device although she had one (see 6.4.3.3). She said that she asked for a colleague's help at the club.

"The diabetes club has a glucometer and gets strips with a cheap price buying them in bulk." (Specialist, main public hospital, Area C)

"As members, we usually get some benefits such as a free consultation and cheaper medicines. We also get free screening for diabetes feet." (Diabetes group members discussion, Area C)

"If a member is not regularly coming to the club, we find time to know recent status of the member and the reason behind why he or she can't have regular check-ups." (Diabetes group members discussion, Area A)

" ... So, I just bring the device to this club and ask for somebody's assistance." (Diabetes group members discussion, Area C)

Even though clubs provide various benefits with patients, their financial status seemed to be too unstable to supply low-cost services regularly.

"If we have enough money from registration fees of our diabetes club, we buy medicines and distribute them at the senior citizen price, but we cannot do it very often because of the limitation of our money. We collect registration fees for the club 100 PHP per year and no monthly fees." (Nurse, secondary public hospital, Area B)

In many facilities, diabetes-related activities, including free blood sugar testing supported by companies, were dependent on an individual doctor.

6.4.3 Patient factors

6.4.3.1 Household finance

*"I cannot accept that I have diabetes. ... I am scared of losing all properties just because of diabetes. I know that it is expensive to have a disease like this."
(Inpatient in her 40s, main public hospital, Area C)*

Her story shows a fear of financial difficulties in living with diabetes. Although actual income was not assessed in this study, many responses implied that diabetes was not only a disease for the rich. The majority of respondents, not only patients, but also health professionals and administrative people, repeatedly emphasized the financial problems of maintaining diabetes care in their answers. According to their answers, household finance influenced diabetes care, and the reverse was also true. Financial status seemed to affect regular medication. As found in the answers below, many patients also suggested that they skipped medication when they did not have enough funds.

"Taking maintenance medicines is irregular. If I have money, I would buy [medicines], but if I don't, I would just skip [them]. (Community patient in her 60s, Area B)

"I have been compliant with medication except when I don't have money to buy medicines." (Community patient in his 50s, Area D)

Health professionals' observations were consistent with above-mentioned patients' statements, in which patients were weighing their budget and subjective symptoms as to whether to seek healthcare. According to health personnel, many patients did not come to a consultation when they felt well.

While the majority of patients told us that the family's daily needs took priority over medication, some patients tried to adhere to the prescription beyond their financial capacity.

"Buying medicines increases expenses. I'd rather buy our family food first than my medicines. (Community patient in her 30s, Area D)

"Every time when I don't have money to buy medicines, I usually borrow money from relatives because I just don't want to miss medication.'" (Community patient in his 50s, Area B)

When patients could allocate the budget to diabetes care, they seemed to prioritize certain

items of the care. Medication was the highest priority for many of them. Therefore, some patients took medication without outpatient consultations, which was consistent with the result in CHAPTER 7. Less priority was given to laboratory tests than to medication and consultations unless tests were free. Self-monitoring came last. Even though the self-monitoring device was sometimes sponsored by a company, strips were expensive and available mainly at chain pharmacies, which were located far from patients in remote areas.

Although hospitalization is a heavy burden for household finances, it seemed difficult to avoid emergency admission, unlike services at the outpatient department. However, inpatient respondents were worried about unexpected expenses. Some patients described how they were already in debt because of previous hospitalization.

"I am afraid of being hospitalized because it is like a sudden rush of expenses. In our current situation, we cannot afford hospitalization. (Community patient in her 40s, Area B)

"I have never taken any medication for my diabetes due to lack of money. ... I have no work and cannot work anymore. My children have no permanent job, too. So, it is very hard for us to allocate our money to medicines....Actually I may discharge against medical advice because I don't want to pay a bigger bill" (Inpatient in her 80s, primary public hospital, Area E)

"According to the doctor, my father (= the patient) may have an amputation. We are not ready to pay for it." (Inpatient in his 80s, main public hospital, Area B)

"We still have minus balance in the hospital where she (= the patient) was hospitalized before. We still owe 70,000 PHP in that hospital. So if she is admitted again, we don't know how to pay it." (Community patient in her 60s, Area A)

6.4.3.2 Social status

Work

In general, there is an association between work and income, which was evident in the interviews. Patients said they could not afford healthcare because they did not have a stable job or any job. However, expenditure for healthcare was not the only problem for those who did not have a stable job. A health center physician in a poor area indicated that the time spent on healthcare could reduce their income.

"Some patients have poor compliance; their priority is earning daily income rather

than seeking medical care. If you are absent from work for one day to come to the health center, you will lose one-day wage. For some patients, it is very critical." (Physician, health center, Area A)

The same doctor continued about a probable issue caused by hospitalization; being hospitalized might force not only the patient but also family members to be absent from work.

"For some patients, hospitalization results in making family members lose working time. It means a decrease of family income."

Some patients thought the disease influenced their work.

"I have been feeling weak since I got the disease. I can't do the things that I used to do before, like working on a farm or cleaning the house. Maybe it is because I reduce food intake. So, I don't have enough energy to work anymore." (Diabetes group members discussion, Area C)

"I feel weak. I was a driver before, but I cannot work for eight years after I got the disease." (Community patient in his 60s, Area B)

A lady in her twenties, who worked as a receptionist in one of the surveyed hospitals, was diagnosed with type 1 diabetes in her middle teens. She told us below;

"I can't go working abroad because of this disease. I am a graduate of BS Tourism but since I am diabetic I cannot apply for a job. Fortunately, I am working with this hospital. It really helps me to manage my disease."

Educational background

While many health professionals believed that a patient's educational background influenced their understanding of the disease, some observed poor adherence to medical instructions regardless of a patient's educational status.

"Educational background influences understanding of the disease, especially about consequences of the disease." (Specialist, tertiary private hospital, Area E)

"It is really hard to educate illiterate patients unless they have significant personal competency." (Pharmacist, secondary public hospital, Area E)

"Some diabetes patients are stubborn. They do not listen to instructions in our health education even though they are well educated and understand the contents. It happens especially about diet." (Nurse, secondary public hospital, Area B)

6.4.3.3 Family support

Although patients thought that their diabetes imposed burdens on their family, discrimination due to the disease was rarely reported and family members were usually supportive. Financial assistance was commonly reported by patients. Especially for elderly patients, physical or technical help from family members was reported such as; accompanying the patient to the health facility, reminding the time of medication, giving injections, and using a self-monitoring device. In other words, for patients who did not have a companion, it was suggested that maintaining care was difficult.

"I don't have anyone to accompany me to go to the check-up. My family members are busy and I cannot go alone because I cannot see clearly." (Inpatient in his 50s, main public hospital, Area C)

"If we are not around, he (= the patient) injects insulin by himself, but he keeps on saying he cannot inject properly." (Community patient in his 60s, Area A)

"I have a self-monitoring device sent by my son abroad. But the problem is I can't use it because I have blurry eyes and cannot prick myself. I stay only with my husband at home and he cannot do it, too." (Diabetes group members discussion, Area C)

Support from family members overseas was also reported and was not limited to transferring money. Like the abovementioned patient (the third quotation), self-monitoring equipment and strips were sent from other countries. Other interesting examples of overseas assistance are shown below;

"I don't have any problem with my medication since my brother who works abroad sends medicines every time when I don't have money." (Community patient in his 40s, Area B)

"I don't have check-ups with doctors here in the Philippines. My brother is a doctor practicing in Hawaii. I just call him for a consultation." (Community patient in his 60s, Area B)

6.4.3.4 Patient knowledge

Many patients thought that they were required to take medicines when they had subjective symptoms. Financial constraint might have forced them to do so; however, limited budget was not the only reason. Some patients thought that subjective symptoms were an indication of when to take anti-diabetic medicines and/or their specific symptom was linked to their glucose level.

"I started taking medicines two months ago when I was diagnosed. One month later, I stopped it because I already felt well. But in this month, I experienced several symptoms which required me to revisit the hospital several times. So, I have to take medicines again." (Inpatient in his 50s, tertiary private hospital, Area E)

"She (=the patient) does not take medicines very regularly. She only takes them if she feels she has high blood sugar as it is manifested by the itch at her genitalia." (Community patient in her 80s, Area A)

Although health professionals recognized that patients could not always adhere to medical instructions because they could not afford to, they also thought that many patients could not fully comprehend their advice. While some health professionals considered that insufficient understanding of the disease and medication was attributed to a patient's inadequate educational level, as described in 6.4.3.2, others believed that poor adherence was more influenced by a patient's attitude than their knowledge (also see the next section).

"Knowledge is dependent on how the patient perceives the doctor's instructions on diet plan, vices, alcohol, soft drinks, etc." (Specialist, main public hospital, Area C)

Incomplete comprehension of the doctor's instructions was observed during the interviews. For example, a couple of patients stated that they regarded herbal medicines as temporary substitutes of hypoglycaemic agents and believed it was doctor's instruction.³⁷ Although many other patients also indicated that they used herbal medicines for several reasons, mainly due to the financial constraints of purchasing prescribed medicines, the discussion below was different from others. However, it was difficult to determine if this was caused by their misinterpretation or the doctor's actual direction.

"If my medicines run out, I make use of herbal medicines as alternatives. I boil

³⁷ According to a Cochrane review (Zhang, et al. 2002), routine use of herbal medicines for diabetes cannot be recommended at the moment although some herbal medicines show hypoglycaemic effects. A review (Basch, et al. 2003) and a randomized control study (Dans, et al. 2007) on Ampalaya failed to demonstrate a positive effect.

leaves of Ampalaya and Malunggay for one cup. They are good blood-sugar-lowering plants, as my doctor told me." (Community patients discussion, Area E)

Health professionals told us that they tried to give explanations to patients that were as understandable as possible. It was not well known from the patient perspective how they perceived health professionals' efforts to make them understand the health advice.

"I must simplify my knowledge and try not to use medical and technical terms so that patients easily understand all the information I am instructing." (Dietitian, secondary public hospital, Area B)

6.4.3.5 Patient attitudes

Attitudes to care

In addition to financial constraints and a lack of knowledge of the disease and its care, patients' attitudes were believed to cause poor adherence to health professionals' advice. For example, some health professionals thought that some diabetes patients were stubborn and insufficient compliance was caused by laziness and so on.

"The hardest part of treating diabetes patients is convincing them to follow your instructions and advice about proper management of their disease, like complying with diet, quitting vices, etc. A lot of them are hard-headed." (Nurse, secondary private hospital, Area D)

"Patients are too lazy to go to the check-ups. ... they think they know everything and they don't need to seek a doctor's consultation." (Dietitian, secondary public hospital, Area E)

"Character of the patient is really a factor for you how to explain about the disease." (Nurse, secondary private hospital, Area D)

Attitudes to free services

The term "free laboratory test" was very frequently heard across the interviews in both patient and health professional responses. Many of the interviewed patients seemed to seek every possible opportunity of a free test, especially blood glucose checking.

"Some of us go to the city or even to the next province because we have friends who are doctors. So, basically, the consultation fees are free. We use that opportunity

even if the place is far away." (Community patients group discussion, Area E)

"I go to Mercury (=one of big chain pharmacies) every month for the free blood sugar [testing], even if the place is far away. I am still going because it's free." (Community patients group discussion, Area E)

"Whether a patient takes a laboratory test depends on the capacity of the patient to pay, and it also depends on whether there is a free laboratory test provided by a drug company." (Physician, health center, Area A)

Some of the responses implied that patients were unwilling to pay for laboratory tests and waited for the next occasion of a free test.

"I only do a laboratory test if there is a free laboratory test or a medical mission (= occasional, mobile free medical services)." (Inpatient in his 70s, main public hospital, Area A)

"Patients do not want to pay for a blood sugar test and they are just waiting for an opportunity of a free test. Free tests are offered some special occasions, like hospital anniversary, politician's birthday, diabetes week, social organization's activity, etc." (Physician, secondary private hospital, Area D)

"In this city health office, we have free cholesterol testing and ECG checking once a month sponsored by pharmaceutical companies. Patients only depend on free tests. If they are not free, patients will not take tests." (Nurse, city health office, Area E)

Abovementioned observations by health professionals were consistent with patients' low prioritization to laboratory tests in their budget allocation (see 6.4.3.1). It was difficult to know from the answers what influenced these patients' behavior; whether possible opportunities of free tests made patients unwilling to pay laboratory tests or whether budgeting for higher priority items force patients to seek for free services for lower priority items, like laboratory tests.

Although free laboratory tests were widely recognized, whether they were widely available or not was another issue. Moreover, these services might not have always been applied to medical decisions appropriately. For example;

"Sometimes some patients go home without doctor's consultation after knowing the

result of free FBS (= fasting blood sugar testing). They know that they cannot buy the medicines that the doctor will prescribe. If so, some patients think that a doctor's consultation is useless." (Nurse, secondary public hospital, Area B)

In addition to free laboratory tests, health professionals believed that free medicines distribution was expected by some patients.

"When our stock of medicines ran out, the last patient was not given free metformin. Then the patient got upset. I explained that I did not do it intentionally. ... We accept donations like medicines from private doctors or medical representatives." (Nurse, health center, Area A)

"Some patients think this pharmacy belongs to the hospital and expect to get free medicines." (Pharmacy operator, cooperative pharmacy next to primary public hospital, Area D)

"If there is a rumor among patients that there is medicines stock at the health unit, many people come to the health unit." (Physician, health unit, Area C)

Reliance on prescribed medicines

A patient, who did not take regular medication, told us that he did not rely on medicines prescribed by the doctor. During one group discussion, participants also raised similar issues. Both statements below demonstrate that patients doubted that they could perceive the effectiveness of the prescribed medicines. Perceived ineffectiveness and side effects, which were indicated in the second one, seemed to be part of the reason for stopping medication.

"Even though my doctor prescribes medicines, I don't buy them. It is not only because I cannot afford them but also because I don't believe [in the medicines]. I prefer to take herbal medicines and drink some herbal teas (Inpatient in his 60s, main public hospital, Area A)

"I feel that medicines are not effective to me. No change in my condition [can be felt with the medication], and my body doesn't accept the medicines that I take. I feel dizzy and abdominal pains. Most of us rely on herbal remedies, and we prefer to drink herbal tea." (Community patients discussion, Area D)

6.4.3.6 Experiences

Stressful episodes in the health facility, such as the long waiting time and a physical pain

caused by a laboratory test, seemed to influence revisits to the facility. Uncomfortable experiences in taking medicines, which patients believed were side effects of the medication, also discouraged regular medication. The subjective feeling that the medicine was not functioning influenced medication, too.

"It's years since I went to the last check-up. I experienced difficulty. ... I was impatient with waiting for the doctor. I tended to go home when I felt uneasy. (Inpatient in her 50s, main public hospital, Area B)

"When I was diagnosed five years ago, my doctor prescribed metformin. When I took one, I always suffered from abdominal pain. ... I asked the doctor to change my medicine. The doctor prescribed glimepride. ... I felt the same pain, and in addition to the pain, I had heartburn. I stopped taking the medicine without permission of the doctor." (Inpatient in her 40s, secondary public hospital, Area C)

"I stopped taking medicines and took herbal drugs instead since the medicines were expensive and did not work. I felt there was no improvement [with the herbal drugs]. So, now I am back to my medication and continue taking them." (Inpatient in her 50s, tertiary private hospital, Area E)

6.4.3.7 Disease impact

Emotional stresses

At the beginning of section 6.4.3.1, the serious concern over the continuous financial burdens was described. In addition to financial issues, some other factors may have contributed to patients' emotional stress. Diabetes is a lifelong disease; it requires restrictions to daily routines; it can make the patient feel useless; it imposes burdens on family members; diabetes can be inherited and; it can cause serious complications. All these fears were condensed in the expression below. The respondent was a young housewife in her twenties and had been suffering from diabetes for eight years.

"I cannot accept that I have diabetes. ... The hardest part for me is to see that I cannot be the same as my friends. My plans and dreams were all gone since I cannot even go to school because of my sickness. ... I have seven siblings and four of us have diabetes. My younger sister died a year ago because of complications of diabetes. Our assets and properties were all gone because of our sickness."

She might have been one of the most extreme cases, but other less complicated patients with a shorter period of illness also expressed their anxiety. However, how these emotional

stresses influenced their healthcare seeking behavior was not clearly revealed by their answers. Health professionals did not mention patients' emotional stress very often but they believed that patients thought their disease was easy to deal with, which accounted for part of the poor compliance with medical instructions and the potential for serious consequences from the disease.

"Patients think the disease is easy to deal with because they lack knowledge of the disease. ... I need them to be aware of the worst scenario that might happen to them if they take the disease lightly." (Nurse, secondary public hospital, Area C)

Physical activities

As mentioned in 6.4.3.2, some people believed the disease lessened their work opportunities. Even without a serious complication, patients felt that they were getting weaker than before. Complications from the disease imposed physical restrictions on patients. Complications did not only result in loss of work, which could lead to a decrease of family income, but also an increase in various burdens for family members. Consequently, diabetes complications such as diabetes foot and blindness made it more difficult for patients to go to health facilities regularly.

*"My activities became limited, compared with the time when I did not have diabetes".
(Community patient in his 50s, Area B)*

"For regular check-ups, I need someone to accompany me all the time. I am too weak and unable to walk because of my foot. ... The wound was just a simple one, but it got infected and resulted in amputation of my foot. How can I walk now? How can I work? ... I have given my family members a lot of obligations for me." (Inpatient in his 50s, main hospital, Area A)

"I cannot go to the hospital on my own. My left leg was amputated and I am blind. So, going to the hospital is really a problem. Especially, we are only two of us. I am living together with my husband. ... I don't want the other leg to be amputated. (Inpatient in her 70s, secondary public hospital, Area E)

Co-morbidity

Diabetes patients can have other diseases. Below is a case where the patient described the difficulties of treating many diseases at the same time. This patient took four kinds of oral medicines; two hypoglycaemic agents, a brand-name anti-hypertensive medicine and a brand-name hypolipidemic agent, totaling 120 PHP a day.

"I don't have a problem with my diabetes medicines because I am taking generic ones. But for hypertension and cholesterol control, even generic medicines are still expensive." (Inpatient in his 50s, main public hospital, Area C)

The patient above admitted that he had thought that treating diabetes alone was not very hard. Later, however, co-morbidities stopped him from farming as much as before and imposed financial burdens on him and his family members. He said that he had thought about committing suicide because of the illness.

Financial issues aside, taking a variety of medicines can be difficult. The patients below did not mention if "too many medicines" were required due to co-morbidity or only diabetes. In any case, continuing polypharmacy did not seem to be easy for them. The first patient listed only one oral hypoglycaemic agent as her current medication during the structured interview (see CHAPTER 7), and she did not tell us if she had reduced the number of medicines from the doctor's prescription. The third patient took an angiotensin receptor blocker, a vasodilator, and vitamin B complex, in addition to glibenclamide.

"Taking too many medicines is hard for me to remember what to take." (Inpatient in her 50s, secondary private hospital, Area D)

"I am tired with taking too many tablets because I am apt to forget it." (Community patients discussion, Area E)

"It's difficult for me to swallow many kinds of tablets." (Community patient in her 70s, Area A)

"Patients get bored when they take too many kinds of medication. That's why I'd rather give them combination drugs to lessen the tablets that they take a day." (Physician, secondary public hospital, Area B)

Besides multiple medications, co-morbidity also requires multiple laboratory tests, which requires additional financial, physical and emotional effort.

6.4.4 Others /external factors

6.4.4.1 Price

As already described in 6.4.3.1, every stakeholder suggested that the prices of medicines and laboratory tests were the most serious barriers to regular diabetes care. They thought the

self-monitoring device and strips were far beyond the affordability of the majority of patients and regular self-monitoring was out of the question.

In the answers, the limited capacity of a patient's household budget to accommodate diabetes care was emphasized more than the issue of price. In many responses, prices were just described as "expensive" or "high", and only some patients discussed their perception of or actions against high prices such as, looking for a cheaper option. The responses below are some examples. The first and second patients were Botika ng Bayan users and the third patient was a private pharmacy user.

"So far, there is no difficulty in regular medication since I have only one medicine to take everyday. And it is not very expensive. I usually buy a generic medicine which is cheaper." (Community patient, Area A)

"The costs of medicines are expensive, so I ask my doctor to prescribe the cheapest one." (Community group discussion, Area E)

"The hardest part for us is buying lifelong medicines, especially if they are branded. So, I choose generic medicines so that I can save money." (Community patient, Area C)

Issues concerning the price gap and availability of their options were not much discussed. As described in 6.4.1.1 and 6.4.2.1, some doctors had doubts about the quality of low-cost medicines. With a few exceptions, patient perceptions of low-cost medicines were not often discussed.

"I prefer to take generic medicines than branded medicines because they are the only medicines that I can afford. And I think they are as effective as branded ones." (Inpatient, secondary public hospital, Area B)

6.4.4.2 Information

Health professionals felt that information about the disease was inadequate although it was important. As a result, public awareness of the disease was still low. However, many healthcare providers did not consider it part of their responsibilities, and had very few concrete plans to improve the situation.

"Information dissemination can alleviate or prevent having the disease. Only if they have proper education on the disease, they may prevent themselves having

complications." (Nurse, main hospital, Area D)

"There is lack of education and public information [on diabetes]." (Specialist, primary private hospital, Area D)

"Inadequate information on diabetes is the primary cause of the disease." (Specialist, main public hospital, Area A)

"Patients don't have disease knowledge and have inadequate information from health units." (Physician, secondary public hospital, Area E)

Some health professionals thought it was a matter of patients' attitudes, if the patient accepted health information or not. There was a suggestion that patients liked to have new information.

"Hardest part of dealing with diabetes patients is patients' resistance to digest health information." (Nurse, secondary public hospital, Area C)

"Patients should accept and be aware of their disease. They must be concerned with their eating habits and lifestyle. ... Patients do not absorb information." (Dietitian, secondary public hospital, Area B)

"They really like to get some new information from us." (Dietitian, secondary public hospital, Area E)

6.4.4.3 Accessibility

As many medicines and laboratory tests for diabetes are not available at health centers and health units, patients need to come to the hospital. The first patient below, who had a seven year history of diabetes, was hospitalized due to syncope. He took regular medication, usually without the prescription and had not had an outpatient consultation and laboratory test in the last year.

"Taking regular check-ups may be impossible for me even if I am a member of the diabetes club in this hospital. I am living in a mountainous area. Coming to the facility is tiring. It takes time before I reach to flatlands." (Inpatient in his 50s, main public hospital, Area C)

"Patients have to stay overnight in the city just for the check-up." (Nurse, main public

hospital, Area D)

The quotation below is part of a group discussion among community patients at one health station³⁸ in a city. Even though they are residents in the city, going to the center of the city for a consultation or laboratory test seemed to be one-day activity.

“There is no private laboratory in this town. You have to go to the city, which will cost you more than 500 PHP. Besides the test fees, you need to eat there after the test. Moreover, I can’t go there alone. As I need my daughter to accompany me all the time, expenses are doubled.” (Community patients group discussion, Area E)

In addition to the fact that the nearest hospital is already far away from people in remote areas, patients were sometimes required to go further, for example to the capital city, for several reasons; they needed to have further tests, the medicine prescribed was not available at the pharmacies near the hospital, and the senior citizen card was not applicable in the neighborhood. Some hospitals are located far from the main road, where public transportation is not available.

“The place of the hospital is not very accessible. You have to take a tricycle from the main road to go inside.” (Diabetes club members discussion, Area C)

Transportation to the PhilHealth office was also a burden for some patients (see 6.3.9). For all cases described, transportation fees could not be ignored.

³⁸ Health stations are the most frontline public health service places, which are managed by midwives from health centers/units in collaboration with health volunteers. (See 3.3)

CHAPTER 7 Findings II (Structured patient interviews)

7.1 Summary of the chapter

In this chapter, narrative information presented in CHAPTER 6 is triangulated by data from the structured interviews that were summarized to describe patients' situations in numbers. Quantitative data revealed that less than 70% of the all respondents attended outpatient consultations regularly. The number of patients who took regular laboratory tests was much lower than the number for the outpatient consultations. More than 70% of patients purchased regular medicines at a private pharmacy outside the hospital even though some of them had doctor consultations at public facilities. The median of prices respondents had actually paid demonstrated that frequently used diabetes medicines were much more expensive than international reference prices. At the same time, the wide range of medicine prices, which was not much discussed in the qualitative interviews, were presented. The median monthly costs for the medicines were 750 PHP (16.3 USD) and out-of-pocket expenditure for one hospitalization was 8,580 PHP (186.7 USD), which would be devastating for many household budgets, considering the daily minimum wage rate of 8.2 USD and the 43 percent of people who live on less than 2 USD per day. Low utilization of PhilHealth was also revealed by the quantitative patient data. Nearly three fourths of the respondents answered that they had given up an item of diabetes care because of financial difficulties at some point in the past, which also supported qualitative findings.

7.2 Description of respondents

One hundred and sixty patients responded to the structured questions (See 5.3.4.2). The proportion of male and female respondents was 39 to 61 percent respectively, and the average age of respondents was 60.5 years old. Fifteen respondents (9%) did not complete elementary school, 61 (38%) completed elementary school, 59 (37%) completed high school, and 25 (16%) completed more than college level. Nineteen respondents (12%) were employed, 20 (13%) were self-employed or informal workers, and others (76%) were house-workers, retired, or unemployed.

Table 7-1 Number and percentage of respondents by age and sex

Sex \ Age (years)	<40	41-50	51-60	61-70	71=<	Total
Male	2	7	28	17	9	63 (39%)
Female	4	15	27	28	23	97 (61%)
Total	6 (4%)	22(14%)	55(34%)	45(28%)	32(20%)	160 (100%)

Table 7-2 Number and percentage of respondents by occupation and sex

Sex \ Occupation	Employed	Self-employed Informal	Housework Retired No work	Total
Male	10	12	41	63 (39%)
Female	9	8	80	97 (61%)
Total	12 (12%)	20 (13%)	121 (76%)	160 (100%)

7.3 Regular diabetes care

All respondents were diagnosed as having diabetes by a doctor, however not all of them had regular care as shown in the table below:

Table 7-3 Number and percentage of respondents who had regular outpatient consultations, medication, and laboratory tests

	number	(%)
regular outpatient consultations	110	69%
regular medication	122	76%
regular laboratory tests	64	40%

In the last year, 13 people (8%) did not have an outpatient consultation, nine people (6%) did not take any medication, and 38 people (24%) did not take a laboratory test. "I cannot afford it" or "I do so when I have a symptom" are the two major reasons for not having regular outpatient consultations, medication or laboratory tests.

Table 7-4 Main reason for irregular outpatient consultations, medication and laboratory tests

Main reason for irregular care	Irregular consultations (N=50)		Irregular medication (N=38)		Irregular laboratory tests (N=96)	
	number	(%)	number	(%)	number	(%)
I am told it is not necessary.	5	10%	5	13%	9	9%
I do so only when I have a symptom.	16	32%	8	21%	41	43%
I cannot afford it	24	48%	17	45%	37	39%
I cannot manage time.	0	0%	0	0%	2	2%
Facilities are very far.	2	4%	1	3%	2	2%
Other reason(s)	3	6%	7	18%	5	5%
Total	50	100%	38	100%	96	100%

Although the majority of patients (82%) always got medicines with a doctor's prescription, seven (6%) said they always bought medicines without prescription. Among the 122 people who took medication regularly, 103 (84%) usually bought medicines outside the hospital (consultation facility), 88 (72%) at a private pharmacy and, 8 (7%) usually at a Botika ng Bayan. Among the 64 people who took regular laboratory tests, 23 (34%) used a private laboratory or hospital.

Table 7-5 Place where respondents usually bought medicines

	At consultation facility (N=19)		Outside consultation facility (N=103*)		Total (N=122)	
Public hospital	13	68%	2	2%	15	12%
Health center / unit	3	16%	0	0%	3	2%
Private hospital / clinic	3	16%	0	0%	3	2%
Private pharmacy	-	-	88	85%	88	72%
Botika ng Bayan	-	-	8	8%	8	7%
From relatives	-	-	2	2%	2	2%
Others / unknown	0	0%	3	3%	3	2%
Total	19	100%	103	100%	122	100%

*including 7 people who did not buy medicines with doctor's prescription

Table 7-6 Place where respondent usually took laboratory tests

	At consultation facility (N=38)		Outside consultation facility (N=26*)		Total (N=64)	
Public hospital	15	39%	1	4%	16	25%
Health center / unit	5	13%	0	0%	5	8%
Private hospital / clinic	16	42%	3	12%	19	30%
Private laboratory	-	-	20	77%	20	31%
Public health laboratory	-	-	1	4%	1	2%
Others / unknown	2	5%	1	4%	3	5%
Total	38	100%	26	100%	64	100%

*including 3 people who did not take laboratory tests with doctor's order

Sixty eight people (43%) answered that they had received acute diabetes care in the past, and among them, 56 (82%) needed hospitalization (among which 40 were hospitalized at the time of the interview.)

7.4 Diabetes medication

7.4.1 Medicines used

One hundred and thirty six respondents (85%) were taking at least one oral medicine (either a hypoglycemic agent or another medicine), among which 132 (97%) were oral hypoglycemic users. Twenty four respondents (15%) were using insulin. One hundred and forty eight (93%) of the respondents said they were using either an oral or an injectable medicine. Twelve patients (8%) used both.

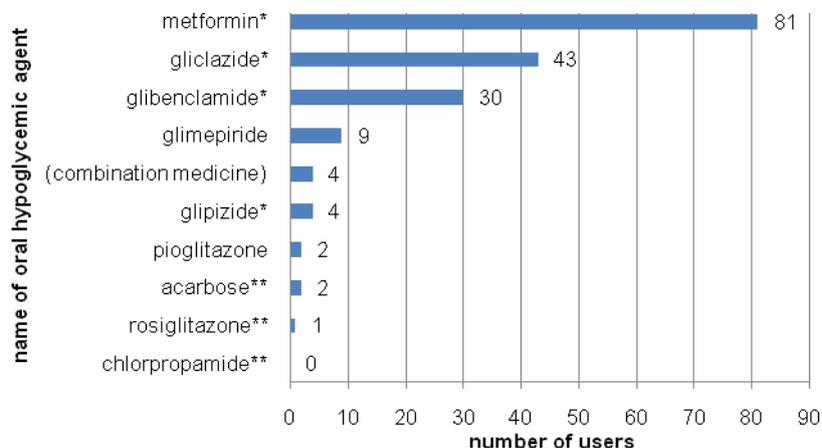
Table 7-7 Number and percentage of respondents who were using oral medicines and/or insulin

		Any oral medicine		Total
		Yes	No	
Insulin	Yes	12	12	24 (15%)
	No	124	12	136 (85%)
Total		136 (85%)	24 (15%)	160 (100%)

Combining oral hypoglycemic agents and other oral medicines, the median number of medicines per person (among oral medicine users) was two.

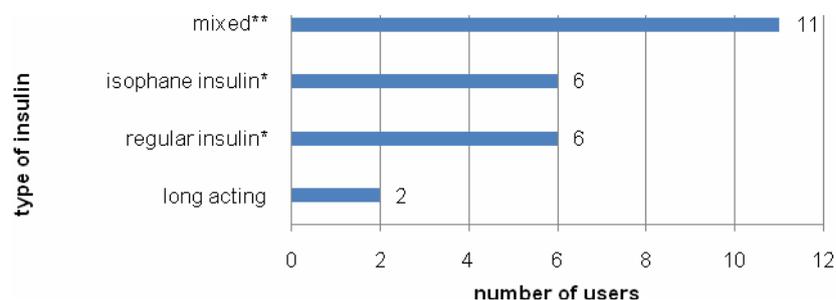
The number of users of oral hypoglycemic agents and insulin is shown below.

Figure 7-1 Number of users of oral hypoglycemic agent



* on the core list of Philippine National Drug Formulary ** on the complementary list of the Philippine National Drug Formulary

Figure 7-2 Number of users of insulin



* on the core list of Philippine National Drug Formulary ** on the complimentary list of the Philippine National Drug Formulary

7.4.2 Unit price of diabetes medicines

Counting users by each medicine and each strength, metformin 500mg was the most commonly used oral hypoglycemic agent, being used by 78 respondents. The median unit price (price per tablet or vial) of frequently used medicines is shown below.

Table 7-8 Median unit price and inter-quartile range of frequently used oral hypoglycemic agents and insulin in USD*

	No of users**	Median unit price (USD)	Inter-quartile range	IRP*** (USD)
Oral hypoglycemic agent				
metformin (500mg tablet)	77	0.11	0.07-0.17	0.0214
glibenclamide (5mg tablet)	28	0.16	0.07-0.22	0.0050
gliclazide (30mg tablet)	25	0.30	0.20-0.32	n.a.
gliclazide (80mg tablet)	18	0.18	0.15-0.30	0.0448
Insulin				
mixed insulin (1ml)	9	1.74	1.31-2.07	0.5716
isophane insulin (1ml)	6	2.53	1.55-2.61	0.5480
regular insulin (1ml)	6	2.61	2.48-2.61	0.5480

* The average exchange rate during data collection period (July 10 - October 17 2008) was 1 USD = 46 PHP.

** excluding free medicine

*** international reference price from "International drug price indicator guide" [90]

Out of 77 patients who answered the question about the unit price of metformin 500mg tablets, 19 were public facility or Botika ng Bayan users, 46 were private facility or private pharmacy users, and 12 did not indicate a "usually used pharmacy". Comparing the median price of metformin 500mg tablets among public facility or Botika ng Bayan users and private facility or private pharmacy users, the price of the former group was lower. Using the Wilcoxon rank-sum test, however, statistical significance could not be demonstrated (p=0.34).

Table 7-9 Comparison of the median unit price of metformin 500mg tablets by usually used pharmacy

Usually used pharmacy	No of users	Median unit price (USD)*	Inter-quartile range
Public facility or Botika ng Bayan	19	0.10	0.07-0.14
Private facility or private pharmacy	46	0.13	0.07-0.18

* The average exchange rate during data collection period (July 10 - October 17 2008) was 1 USD= 46 PHP.

7.4.3 Estimated daily medicine costs

Daily medicine costs per person were computed. They were not actual costs, but calculated from respondent answers about unit prices and daily amounts. This calculation was based on an assumption that the patient took medication according to the regimens. The costs of oral hypoglycemic agents, other oral medicines, insulin and insulin-related materials were totaled. Among the 148 respondents who used any oral medicine and/or insulin, 139 described the prices of the items they indicated. Among these 139 respondents, the median monthly cost was 750 PHP (16.3 USD) and inter-quartile range was 308 – 2198 PHP (6.7 – 47.8 USD).

7.5 Expenditure of outpatient consultation and hospitalization

Out of 160 respondents, 145 (91%) visited at least one outpatient consultation during the last 12 months. The total out-of pocket expenditure for the last outpatient consultation for each patient was calculated, including hospital fees, costs outside the consultation facility, and

transportation fees. The median out-of-pocket expenditure among 142 patients who paid something in relation to the consultation was 687 PHP (15.0 USD). Sixty six people (41%) were hospitalized at least once during the last 12 months. The median out-of-pocket expenditure among 65 patients who paid something for the last hospitalization was 8,580 PHP (186.7 USD). The majority of respondents who spent money outside hospital bought medicines at a private pharmacy.

Table 7-10 Computed out-of-pocket expenditures for the last consultation and/or hospitalization in USD*

	No (%) of respondents who paid:			median (IQ range) of out-of-pocket expenditure in the last time (USD)
	at hospital	at outside hospital	transportation fees	
Last outpatient (N=145)	102 (70%)	84 (58%)	129 (89%)	15.0 (3.9 – 38.5)
Last hospitalization (N=66)	60 (91%)	36 (55%)	62 (94%)	186.7 (81.6 – 423.7)

* The average exchange rate during the data collection period (July 10 - October 17 2008) was 1 USD = 46 PHP.

Only 20 (30.3%) out of 66 hospitalizations were covered by insurance partially or totally.

7.6 Insurance and household finance

Sixty five (41%) out of 160 respondents were PhilHealth members or dependents of a member. Among 20 people who were self-employed or informal sector workers, only three (15%) were covered by PhilHealth. Of 65 PhilHealth members/dependents, 12 (18%) were categorized in an individually paying program and five (8%) were in an indigent program.

Table 7-11 PhilHealth membership category by occupational category

occupational category	membership category					Total	Cf. all (N)
	government	private sector	individually paying program	retired	indigent program		
employed	12	2	0	0	1	15 (23%)	19
self-employed informal sector	0	1	2	0	0	3 (5%)	20
housework retired no work	10	6	10	17	4	47 (72%)	121
total	22 (34%)	9 (14%)	12 (18%)	17 (26%)	5 (8%)	65 (100%)	160

Although 23 (35%) had received a PhilHealth benefit in the last 12 months, only two (3%) were covered for the full costs.

Nearly three fourths of respondents answered that they had given up diabetes care because of financial difficulties at some point in the past. The number and proportion of respondents

by item is described below:

Table 7-12 Number and percentage of respondents who have given up care at some point by item

	no of answers	(%)
consultation	69	43%
medication	96	60%
laboratory test	90	56%
acute care	10	---
hospitalization	6	---

One hundred and seven patients (67%) experienced a shortage of money because of diabetes-related expenditure and borrowed money or pawned assets. Only 41 (26%) answered that they were prepared for future acute care with their own money or private insurance. Others said that they had no preparation or planned to borrow money if needed.

CHAPTER 8 Discussions

8.1 Summary of the chapter

Findings from CHAPTER 6 and CHAPTER 7 are integrated and discussed in this chapter. It was observed that there were very few sustainable measures for maintenance of regular medication. Because of the difficulty in obtaining regular medication, which was mainly but not exclusively caused by financial constraints, many patients took their medication sporadically of their own accord. This could lead to complications and hospital admissions which would likely cost more. Irregular care could occur where there are not sufficient medicines available to cover all the prescriptions for the public facility users. Many public facility users believed that they needed to buy expensive medicines at private pharmacies. Multiple possible reasons for this low availability emerged in the health system. Low utilization of PhilHealth was suggested by both parts of interviews and possible reasons behind this emerged. With the current situation, in terms of material and human resource allocation, maintaining diabetes at primary care level seemed to be difficult, which was also a barrier to regular care for people in remote areas.

8.2 Findings

From the multilevel interviews and patient interviews, it was found that patients weighed their household funds and subjective symptoms and discontinued and restarted diabetes care. Various factors that discouraged patients to take regular care also emerged.

8.2.1 Regular care

Many patients had irregular diabetes care. Out of a total of 160 respondents, 110 had regular check-ups (outpatient consultations), 122 took regular medication and 64 had regular laboratory tests (except blood sugar testing). It was suggested from open-ended interviews that many patients prioritized items of diabetes care and medication as the highest priority. It was also known that they procured medication intermittently, weighing household budget with subjective symptoms. Although it could not be concluded from this study, on-and-off medication by patients' self-diagnosis might cause complications, which necessitates further spending, including inpatient admissions. Moreover, complications and financial burdens for hospitalization, for example, which results in a debt might make it more difficult for patients to continue maintenance care.

Among the 122 patients with regular medication, 26 answered that they did not have regular consultations. There was inconsistency between those who took regular medication and those who answered that they were currently taking at least one medicine and indicated the price. This observation implied that more people took self-medication. However, the gap

between "current" medication and "regular" medication was not asked directly in the structured questionnaire. The actual cases of self-medication among diabetes patients and its effect on the total course of the disease were not investigated.

With a few exceptions, the majority of patients suggested that financial constraints were the main reason for irregular care. In addition to monthly medicine costs of 750 PHP (16.3 USD), patients needed transportation fees and there were sometimes indirect costs, such as losing the daily wage of the patient and/or companions. Once hospitalized, out-of pocket expenditure for one hospitalization event cost 8,580 PHP (186.7 USD). Considering the daily minimum wage rate of 362 PHP³⁹ (8.2 USD) and the proportion of people who live on less than 2 USD per day (43% in 2005), these expenditures would be devastating for many household funds. While health professionals recognized patients' difficulties in being able to afford regular care, they also indicated patients' poor compliance due to, from their view, patients' inadequate knowledge and obstinate attitudes. Some comments were given on health information and education; however, health professionals' responsibility for and environmental influence, e.g. mass media, on patient adherence to regular care were not directly asked in the questions and not much was suggested.

Besides financial limitations and the patient's knowledge and attitudes, other possible barriers to regular care were suggested. Transportation fees contributed to a substantial part of healthcare expenditure and travelling time, especially when located further from the nearest health facility. For those who did not have a stable job, time to attend regular consultations was also a barrier. In addition to financial assistance, physical and technical support from family members was critical, especially for elderly patients and those with a complication. Uncomfortable experiences, including perceived side effects from medicines, discouraged patients from continuing regular care. Developing complications and co-morbidities made it difficult for patients to visit health facilities regularly. Several advantages of diabetes groups were indicated. Although not directly suggested, it is likely given the responses that existence of a diabetes group was a motivating factor in visiting health facilities. However, free laboratory tests might have been the most attractive aspect of club membership.

8.2.2 Medicine procurement and supply in the public sector

This study was consistent with the previous study that found low availability of medicines in the public sector in the Philippines. [81] Results in this study, both from the semi-structured interviews and from the structured interviews, showed patients' routine use of private pharmacies to purchase medicines prescribed at public facilities. Medicines at public facilities

³⁹ Non-agriculture sector in the National Capital Region (the exchange rate on June 14, 2008, when the rules became effective, was used.)

seemed to be perceived as "medicines only for indigent patients" because of the limited supply. Especially, at health center or health unit, where the primary level healthcare is provided and the only accessible health facility for people in remote areas, medicines in general are usually not sold/available.

Many possible reasons for this low availability emerged. Firstly, many health professionals interviewed indicated the "limited budget of the LGU". However, if the medicines are sold constantly at reasonable prices, each hospital can revolve the fund for further procurement. In Area C, where province-owned hospitals are running "cash pharmacies", at least availability of metformin was 100% although the price was high in some hospitals. In Area E, where "pooled procurement system" or "bulk purchasing" is practised, metformin availability was also 100%.

Second, in relation to poor availability, decentralization causes a situation where each LGU, especially a small municipality, purchases medicines in small quantities. As a result, each unit cost is high. In addition, there are few incentives for suppliers/distributors to bid for these small amounts. A pharmacist in the main public hospital said that no supplier bid for some medicines at the provincial capital and it might be one of the reasons for the limited supply of the medicines. In a small municipality in a remote area, similar situations are more likely to exist.

Thirdly, complex procedures for procurement could be another reason. According to interviews with pharmacists and procurement officers, usually in public hospitals, the annual procurement plan is made and public bidding is conducted annually. For this process, many documents and approvals are required. Then, medicines are distributed at quarterly intervals based on purchase requests, which also require the long process with many procedures. Even medicines for "cash pharmacies" in Area C require almost the same process as the "regular pharmacies".

Fourth, long intervals in the supply, usually quarterly as mentioned above, is also a problem. Furthermore, the arrival of medicines is sometimes delayed. In private hospitals, where availability is higher than in public hospitals, the medicine procurement system is different. Every time the stock of a medicine decreases below a certain amount, the distributor is contacted to supply it. In a DoH-retained tertiary hospital in the NCR, "repeated order" is possible; medicine can be repeatedly procured when the stock becomes less than 25% of the originally contracted quantity with the same conditions from the distributor who won the bidding for the year. It is worth considering whether a similar medicines procurement system could be applied to secondary or lower level public hospitals.

Outside hospitals, programs for low-cost medicines are not very useful for diabetes patients. At Botika ng Barangays, only two kinds of prescription medicines are dispensed. Anti-diabetic medicines are not included. That issue aside, a delayed and limited medicines supply system to Botika ng Barangay was indicated. Physical availability of Botika ng Bayans are still limited. Nevertheless, patients who prefer low-cost medicines chose Botika ng Bayang as an option. As Botika ng Bayans are privately owned, medicines procurement depends on the owner, but supply depends on the response of PITC.

8.2.3 Place of medicines purchasing and medicines price

Wide differences between the medicine price in the public sector and in the private sector in the Philippines were indicated in a previous study. [81] In this study, the high price of each diabetes medicine, compared with the international reference price, and a wide range among patient prices of the same medicine was indicated. Among 96 patients who regularly attended consultations and took their medication, 57 visited public facilities for the check-ups. Among these 57 respondents, 35 usually used private pharmacies to purchase medicines.

However, it was difficult to demonstrate a difference in the median price between public pharmacy and Botika ng Bayan users and private pharmacy users. Several reasons can be deduced. First of all, the sample size of public pharmacy users and Botika ng Bayan users was small; among the 122 patients who took medication regularly, only 18 patients answered that they usually purchased medicines at public facilities and eight patients at Botika ng Bayan. Another reason might have been the structure of the questionnaire. The price of medicines being currently taken and the place of medicines purchasing were asked in different sections. Only patients who took regular medication were asked where they usually purchased medicines. Among 77 patients who indicated the purchase price of metformin 500mg tablet, 67 purchasing places were known; 19 at public pharmacies or Botika ng Bayans and 48 at private pharmacies. It was questionable if it was meaningful to compare the two groups statistically. Furthermore, the price indicated might not have been the one at the "usual place".

Both patients and health professionals emphasized the limitations of household budget for the affordability of diabetes care, but neither group discussed price issues in any detail. Only a few patients showed a preference for generic medicines because of the lower costs. It was not clear from the answers whether other patients realized the wide range of prices and many options. Patient perceptions of the quality of low-cost medicines were not clearly revealed in the interviews.

8.2.4 Health insurance

In the quantitative part of this study, out-of-pocket expenditure for hospitalization was shown to be substantial. The qualitative part of this study revealed patients' fear of future hospitalization and/or their experience of burdens from past hospitalization, which sometimes resulted in debt. Nearly three fourths of respondents answered that they had given up diabetes care at some point in the past because of financial constraints; however, only few patients answered that it was acute care and/or hospitalization that was missed. It was implied that escaping from necessary acute care and emergency admission was difficult, though how many respondents had actually required acute care and hospitalization was difficult to ascertain. Nevertheless, only 26% of the respondents answered that they were prepared to pay for future acute care with their own money or private insurance.

Government insurance, PhilHealth, should be the first step towards preparation for future hospitalization. However, a low enrolment rate for Philhealth was shown in this study. Only 41% of the respondents were PhilHealth members or dependents of a member. In particular, enrolment among self-employed and informal sector workers was low although the sample size of the category (self-employment and informal sector workers) was small. Data from the administrative section in 21 hospitals that provided the figures on Philhealth coverage in the last year supported the low enrolment rate finding; median coverage was 30%.

Difficulties in physical accessibility to PhilHealth offices and complex documentation both for registration and for reimbursement were de-motivating factors for using PhilHealth. Low expectations from benefits versus the contributions were implied. It is understandable that people who discontinue their regular care cannot afford to prepare for possible hospitalization in the future that may or may not happen. Furthermore, limited benefits to medication during hospitalization were indicated. When a prescribed medicine during hospitalization was not available at the hospital pharmacy, the patient needed to buy the medicine at a private pharmacy outside the hospital, for which the patient was required to pay out-of-pocket or to prepare further documentation and wait to receive reimbursement.

8.2.5 Standard treatment

Medical management of diabetes patients depended on individual physicians. Although Philippine treatment guidelines from professional associations and an educational institute seemed to exist, specialists also answered that they referred to American and/or European guidelines. General practitioners said that they referred patients to a specialist if the patient's condition went beyond routine care. Limitations of medical equipment and medicines were also suggested as a reason for referral. General practitioners' stances were understandable, considering a situation where only blood sugar testing was available or where even blood

sugar could not be measured. However, early referral might result in the patient's discontinuation of medication. One of possible reasons was the burden of transportation fees to a higher level of facility and another reason was overcrowding on the specialist consultation day. Development of standard treatment guidelines for general practitioners was ongoing.

8.3 Methods

This study was exploratory and experimental in three particular aspects. Firstly, various methods were combined and re-organized into one study. Secondly, it was intended to collect qualitative data and quantitative data in one sampling scheme. Thirdly, the study was conducted within the limited period in difficult situations. For the first point, simplifying existing research tools was needed not only for this research but also for future application in other areas. Regarding combining methods, the mixed methods research approach is being more frequently considered when selecting a study design, enabling better understanding of the issue by converging numeric trends and quantifiable detail. In particular, this approach has the potential to address practice and policy issues from the point of view of both numbers and narrative. [92-94] The time required is another important factor in conducting research, especially for applied research. Completing a survey within a relatively short period is crucial to make useful practice and policy recommendations.

8.3.1 Semi-structured multilevel interviews

Macro-level RAPIA questionnaires could not be directly applied to the Philippines because of its highly decentralized structures. Targets of interviewees (Ministry of Health, importers, diabetes organizations, etc.) and topic areas (funding, pricing, distribution, structure, etc.) were applicable; however, answers for many questions in RAPIA's Macro-level questionnaires could not be obtained at the central level. To describe the healthcare system in the Philippines, interviews in local areas were more important than in the central offices. Therefore, national level interviews were not utilized very much in this study. Nevertheless, data collected at the national level were useful as background information. Although RAPIA's Macro-level questionnaires were referred to, more open-ended interviews were conducted in this study, sometimes over several visits.

Meso- and Micro-level questionnaires also needed modification for the Philippines situation. Firstly, RAPIA's original structure (three levels and 15 questionnaires) was re-organized based on the locations visited, the interview subjects in each place and how the interview data was to be used. Secondly, different units of analysis were identified; describing healthcare system and identifying barriers to care. Thirdly, interviews at administrative sections focused on describing the healthcare system, which was useful to understand

possible patterns as well as to compare similarity and differences among areas. Therefore, the questionnaires for administrative sections only selected questions that would obtain objective information. Fourthly, quantifiable questions in RAPIA's patient questionnaire were moved to the structured patient questionnaire. In contrast with the questionnaires for officials in administrative sections, open-ended questionnaires were used for health providers and patients as they focused on personal experience and personal perceptions to identify barriers to care. Findings from the other units of the analysis, background information obtained at the national level, and descriptions of healthcare system in areas were referred to for the thematic framework analysis to identify barriers to care. The qualitative findings were also verified by quantitative findings when such data was available.

The questionnaires, which asked about a respondent's personal experience and perceptions, used the same topics both for healthcare providers and patients, according to items of diabetes care, e.g. regular check-ups, regular medication, regular laboratory tests, self-monitoring, acute care (emergency), and hospitalization as well as how the disease influenced a patient's life. These topics were also covered in the structured patient questionnaire from several aspects so that the results could be triangulated.

8.3.2 Structured patient interviews

Several issues made it difficult to develop the structured questionnaire. One of the major problems was a variety of possible patterns in healthcare services and in payments. Another concern was that the definition of a term was not always universal and/or a phrase could be perceived differently among respondents.

For patients, there are many options as to how they choose a health facility for each item of healthcare, related to accessibility and affordability. It is not necessary to use the same facility for all items, such as consultations, medicines, laboratory tests, self-monitoring (materials), and hospitalization. A patient can combine his/her choices, based on availability and affordability. For example, although a patient sees a doctor in a public hospital, he/she might purchase prescribed medicines at a private pharmacy and might not take an ordered laboratory test. A patient might be given one of three prescribed medicines free at a public hospital pharmacy where he has a consultation because the medicine is available, then he might choose to buy another medicine at a private pharmacy because it is cheaper than the other, and he might give up the third medicine because he cannot afford it. A patient might also be sent medicines and Glucometer strips from abroad. It was difficult to reflect this complexity in a simple closed-ended questionnaire.

Measuring payments also required care because although payment systems in public

hospitals were almost uniform, how the hospital bill indicated items of care depended on each facility. For hospitalization in the public sector, many patients were categorized as “service” patients or “charity” patients and given a certain percentage discount. They usually knew their own out-of-pocket payments but not the total amount of the hospital fees. Some patients paid as much as possible first, signing a promissory note, and paid the remaining amount later, sometimes dividing this into several installments. In private hospitals, credit cards are taken and cashless payments for private insurance holders are available, which makes it difficult to collect data on actual payments, although this was not so problematic for this study. For PhilHealth members/dependents, while a patient pays only the deducted amount if all of the documents required by PhilHealth are ready by the date of discharge, other patients needed to pay the whole amount out-of-pocket first and then pursue reimbursement by PhilHealth later. It takes time to be reimbursed by PhilHealth, up to 120 days. It is important to consider whether patients were aware of the actual out-of-pocket expenditures of all of the costs.

The number of patients who had irregular care was more than expected. This produced unforeseen inaccuracies in the responses to some questions. There was the discrepancy between those who answered “currently taking a medicine” and those who answered “taking regular medication”, which was not directly addressed in the questionnaire. Furthermore, as described for one of the examples before, there was a possibility that all prescribed medicines might not be purchased in the same pharmacy. However, the questionnaire only asked about the “usually used pharmacy” in relation to the “regular medication”. The price indicated by a respondent could be the price outside the “usually used pharmacy”. This could impede any comparison of purchase prices at public pharmacies and private pharmacies.

The fact that free laboratory tests were widely available affected the assessment of “regular laboratory tests”. Firstly, utilization of free tests should have been asked directly in the questionnaire to distinguish them more accurately from other tests at the hospital or private laboratory. Secondly, the definition of the “free tests” should have been clearer in the questionnaire. Some patients counted monthly contributions to the diabetes club as fees for the laboratory test that was sponsored by a company. Thirdly, for “pay” tests, the specific item should have been questioned, at least on blood sugar and HbA1c testing.

Pharmacies outside hospitals were not visited in this study, including private pharmacies, both big chain pharmacies and independent pharmacies, Botika ng Barangays and Botika ng Bayans. This would have provided more information.

8.3.3 Sampling method

For several practical reasons, the sampling method for the patient interviews for the

quantitative part was compromised. For qualitative interviews, purposive sampling recruiting patients from three categories (hospitalized patients, diabetes club members and community patients) was meaningful. Comparing subgroups in stratified purposive sampling can reveal variations within a particular phenomenon provided that they are informationally representative [95, 96]. However, purposive sampling is less representative for quantitative analysis. Ideally, all patients should have been randomly sampled in the community and analyzed by patient attributes, including history of hospitalization and diabetes club membership. Initially, random sampling was determined to select patients for this study, collaborating with a national household survey conducted by the DoH (see 2.3.3 and 5.3.4.2). However, as the survey was postponed, the majority of patients in this study were recruited by purposive sampling. Combining the household survey and an in-depth study could not be realized for this study. Since the household survey enquires about the morbidity of the household members, the household survey has the potential to identify respondents for another in-depth study on a particular disease/condition.

CHAPTER 9

Recommendations & conclusion

9.1 Summary of the chapter

The findings in this study suggest strategies that could improve access to regular diabetes care, in terms of costs, availability and affordability in the Philippines. Firstly, the importance of regular check-ups and regular medication should be promoted for tertiary prevention, which will hopefully reduce the total expenditure across the course of the disease, for both individual patients and society. To make regular care available and affordable, several policy options are required: medicines procurement and supply systems in the public sector should be more stable and efficient so that all public health facility users can buy medicines in the public sector; access to and quality of low costs medicines should be improved by strengthening existing programs as well as by encouraging the use of low-cost medicines to physicians, patients and the general public; PhilHealth programs should be reinforced, expanding benefits while increasing enrolment; standard treatment guidelines for general practitioners at primary level must be available and; there should be minimum equipment to enable physicians to adhere to the guidelines. Further intervention research to investigate these possible policy options is required. Methods used for this study are also applicable in other countries.

9.2 Policy recommendations

This research has produced some possible policy options. Regular care should be promoted while the environment which can facilitate this is urgently needed.

9.2.1 Promotion of regular care

The importance of regular check-ups and regular medication should be promoted among those already diagnosed with diabetes so that they can avoid future complications, which would cause additional expenditure for both households and the government. Undoubtedly, availability and affordability of laboratory tests and medicines are the main factors in promoting regular care. One of the most important findings in this study was that many patients stopped and re-started medication of their own accord to balance household budgets and subjective symptoms. While some patients were compelled to do so because of financial constraints, some believed that they did not need to take medication when they felt well. In addition to a "healthy lifestyle" campaign to prevent and detect lifestyle-related diseases, including diabetes, promotion on the importance of continuous care for tertiary prevention is also needed.

Diabetes screening, healthy lifestyle checks and diabetes care should be established within the framework of the primary care system. The existing notion among physicians, especially

specialists, that diabetes is a disease that must be treated only in higher centers and by specialists must be overcome. The DoH needs to develop standardized management protocols that are appropriate for each level of the local health system. Also, considering the scarcity of trained physicians and specialists, it is necessary to organize a clustered referral system, where primary care health personnel can refer patients when necessary.

Frontline health professionals should play the central role in ensuring proper understanding of the disease and regular care. In the interviews, ways to improve health information dissemination was not discussed very much by health professionals. It seemed that many health professionals considered it beyond their responsibility because of patient factors such as financial constraints, knowledge and attitude as well as resource factors such as, insufficient equipment. Non-specialist health professionals, including general practitioners, nurses, pharmacists, medical technologists and dietitians, should be encouraged to promote regular care among diabetes patients. Besides health education skills for health professionals, a realistic and practical environment that includes management guidelines and referral system would be welcome.

Health professionals are also responsible for providing cost-effective care so that patients can continue medication. Issues on low-cost medicines are discussed later in 9.2.3. Another concern is selecting the most cost-effective therapy option where it is clinically appropriate.

Careful notice should be paid to commercial promotion by pharmaceutical companies. Although free laboratory tests sponsored by pharmaceutical companies were of help both for health professionals and for patients, they might be sometimes misused: some patients admitted that they did not take tests unless they were free, health professionals observed that some patients only received the result of the free test without a doctor's consultation; free sample tablets might be given as an "initial regimen" to people who are diagnosed as diabetes, which might keep the patient on an expensive regimen. Moreover, as some health professionals indicated, occasional free services, especially free medicine distribution, might be inappropriate because it would discourage patients from paying for medications themselves and they may just wait for the next "free" opportunity. This could negatively impact continuous medication use. Utilization of free services and their influence on the total course of diabetes care should be evaluated and monitored.

Diabetes clubs should be utilized to promote regular care. Although not directly assessed in this study whether the existence of a diabetes club was a promoter of regular care, several advantages of the diabetes club were suggested by respondents. Activities seemed to depend on individual doctors, and there was a risk that the club would become inactive when

the doctor moved from the facility. Continuous technical support as well as monitoring and evaluation of diabetes clubs are needed.

9.2.2 Stable and efficient medicines procurement

Procurement of medicines by each LGU should be stabilized. As observed in surveyed areas, operating "cash pharmacies" by a revolving fund and pooled procurement with bulk purchasing are considered to be effective. It was observed that such programs resulted in high availability of medicines at public hospital pharmacies. Nevertheless, the observed prices in these areas were not ideal. Efforts made by one surveyed provincial health office to get a distributor license would be beneficial for supplying medicines at a low cost and for more regular distribution. Pooled procurement at a higher level and advanced purchasing commitments with local generic manufacturers are other possible strategies.

Although health centers/units are the first contact for healthcare for many people, especially for those in remote areas, medicines are not usually dispensed at these health centers/units. Small municipalities procure a small amount of medicines, which make each unit cost high. It is crucial to identify at least the minimum level of essential medicines at each level of care that must be provided by the LGUs. Systems in use at province-owned hospitals could be applied to enable a health center/unit to dispense medicines; operating a "cash pharmacy" with a revolving fund and participating in bulk purchasing for the province. Recruiting a Botika ng Barangay or Botika ng Bayan operator and locating it near or inside the health center/unit might be another strategy, although some administrative and operational barriers may exist. The Botika ng Barangay program has great potential for improving access to medicines in the rural areas. However, a well-designed procurement and supply and distribution system is necessary to ensure availability, affordability and the quality of medicines at all times.

It is also important for local health managers to have guidelines for the preparation of their annual procurement plans. Anything that is not indicated in the annual procurement plans will not be procured by the LGU. Local health managers do not use evidence-based mechanisms (such as morbidity data) and proper quantification methods in the preparation of their annual procurement plans. An intervention in this area could improve procurement in the public sector.

9.2.3 Access to and quality of low-cost medicines

Assuring the quality of low-cost medicines is essential. Low-cost medicines could be generic medicines or branded medicines that are managed by parallel importation project. Specialists were sceptical of the quality control of these medicines because of the weakness of the Bureau of Food and Drugs at regional and provincial level. Specialists' attitudes can be

influential both on other professionals and on patients. While strengthening the function of the regulatory body, it is also necessary for the DoH to demonstrate its efforts on the quality assurance of medicines to the specialists. This could be done by publishing the results of the Good Manufacturing Practices inspections and product testing.

Existing programs for dispensing low-cost medicines should be reinforced. Physical accessibility to Botika ng Barangays and Botika ng Bayans is important. Establishing a Botika ng Barangay should not be limited to “underserved areas”, but it should be an option for patients even when private pharmacies are available in the area. Recruiting an operator of a Botika ng Bayan located near the health center/unit is one possibility to improve convenience for health center/unit users. Although two diabetes medicines are presently included in the initial PITC package for Botika ng Barangays, it was reported that they were not often replenished probably because of low utilization and systematic failure in replenishment of these medicines.⁴⁰ As a result, diabetes medicines seem to be unavailable at many Botika ng Barangays even they are on the list. Utilization of two hypoglycemic agents should be improved by keeping medicines availability and assuring quality of the parallel importation medicines. The same efforts might be needed for other prescription medicines for chronic diseases to be sold at Botika ng Barangays (hypertension and asthma). The government can maximize the potential of the P100 program to increase patients' access to low-cost quality medicines.

Patient education and public information on low-cost medicines and their outlets is required. Patients should be informed about the wide range of medicine prices and possible medicines options. Some patients clearly expressed their preference for generic medicines although they were in the minority. These patients were Botika ng Bayan or private pharmacy users and bought medicines at a cheaper price than the median purchase price of the same medicines. Since the sample size was small, it could not be concluded that generic preference resulted in purchasing cheaper medicines, but other data such as the WHO/HAI survey suggest that this would be the case. [16] Nevertheless, empowering patients to select a generic product from the possible options could be a strategy to change the medicines market. Importantly, increasing the use of low-cost medicines, especially generic substitutes, can be realized where the quality of low-cost medicines is reliable. Attitudes to generic medicines of patients and physicians from other countries have been reported [97-101] and efficacy and safety of generic medicines have been argued. [102, 103] As debates on generic versus brand medicines seem to exist globally, this issue requires a wider perspective.

⁴⁰ Information is based on a couple of personal contacts to advisors at the national level. Botika ng Barangays and Botika ng Bayans were not directly observed in this study.

9.2.4 Reinforcement of the PhilHealth program

The existing PhilHealth program should be improved in several ways. First of all, the coverage should be increased. In particular, the low enrolment rate for the individually paying program among self-employed and informal sector workers was found although this result could not be generalized due to the sample size and sampling method. The enrolment rate might increase by improving issues that were raised by health professionals and patients; while wider insurance coverage for the informal sector may be a complex issue, PhilHealth may consider instituting a simpler documentation system for both the enrollment of patients and reimbursement procedures. PhilHealth desks could also be made available in municipalities or in designated areas within districts.

PhilHealth may also need to review its current engagement with the LGUs in order to stimulate LGU participation in the indigent program. Currently, health services provided by municipalities in local health centers (medicines and laboratories) are not reimbursed by PhilHealth. As such, LGUs may not find any incentive to "invest" in the indigent program and would rather resort to providing direct monetary assistance to sick patients.

An outpatient benefit program for selected chronic diseases should be considered to meet patient expectations. A realistic and practical environment for the program is expected, for example, a sufficient number of accredited outlets and simple procedures. Direct payment for medicines to retail outlets from the PhilHealth outpatient benefit package is recommended in order to avoid reimbursement procedure which is time- and labor-consuming, both for patients and for PhilHealth. In particular, for those who cannot afford the initial out-of-pocket expenditures even though they will be reimbursed later, the direct payment program mechanism is critical to ensure they can continue their medication. Although patients contribute "excess" costs over the "ceiling price" in the current PhilHealth system for hospitalization, different payment structures should be developed for the outpatient benefit package, such as, reference pricing or disease-related grouping, which are considered as sustainable strategies for chronic disease maintenance. To improve quality of care insured by PhilHealth, treatment guidelines and a medicines formulary should be provided by PhilHealth while monitoring quality of care. It is important that patients are willing to participate in the mutual support system and encouraged to share part of costs for the sustainability. This entails demonstrating the advantages of regular care to the patients and to PhilHealth.

9.2.5 Dissemination of standard treatment guidelines to general practitioners

Applicable standard treatment guidelines for both general practitioners in the public sector and public facility users should be developed. When routine care is available at the nearest physician, it was likely to improve the patient's adherence to regular care as it can reduce

transportation fees and allow the patient to avoid overcrowding at the specialist clinic. Resource allocation which promotes physicians' adherence to the guidelines should be considered since some general practitioners cannot adhere to very basic management in their present situations where even glucose testing is not available. Sharing portable laboratory equipment (blood sugar and HbA1c) and purchasing materials in bulk might be able to reduce prices for laboratory tests.

It is recommended that standard guidelines for general practitioners, which are currently developed by specialist associations and one regional office (Center for Health Development office), are published as soon as possible. Consistency between both publications and early dissemination to frontline practitioners is highly encouraged. While production of these guidelines is the first step, well supported dissemination and follow-up will also be required.

Discussions on standard treatment guidelines (STGs) were raised: who is responsible for the development of STGs? Creating a board or a committee within DoH and Philhealth was suggested, with representation from the public and private sector from different levels and areas, and including a range of health workers who would use the guidelines to develop and standardize treatment guidelines.

9.3 Further studies

An association between irregular care and catastrophic expenditure should be examined to provide the necessary evidence to promote actions that support continuous care. This study demonstrated that many patients stopped and re-started medication of their own accord to balance household budgets and subjective symptoms. This was assumed to be a cause of future complications and additional expenses. However, the relationship between adherence to care and the long-term costs of care was not assessed in this study.

Intervention studies could be planned to assess if the recommendations in the previous section (9.1) would affect processes and outcomes. For example, as already planned for hypertension, an intervention study on a PhilHealth outpatient benefit package for diabetes could be implemented to investigate if such a program would increase adherence to care, reduce incidence of complications and decrease the total health expenditures both for households and Philhealth in a certain period.

Methods used for this study can be applied in other countries for a selected disease/condition to identify barriers to access to care and describe patient situations.

9.4 Final conclusion

The increasing incidence and prevalence of chronic conditions, which require life-long care is an issue across the world. Poor availability in the public sector forces patients to use the private sector at high costs. This can lead to patient and family impoverishment and discourages regular care. Failure to adhere can lead to severe complications and hospital admissions, which would cost more than maintenance care both for the household and the government in the long term. Many policy options exist. Further intervention research to investigate these possible policy options is required.

However, many of the barriers lie within the health system structure, and addressing these may be just as important as making medicines affordable and available. The barriers identified in the study can potentially be addressed with practicable solutions and strategies.

Appendix

Appendix 1 Summary and comparison of existing survey methods

	WHO/HAI ref: [11]	Pharmaceutical situations (Level II) ref: [14, 15]	RAPIA ref: [18-21]
objectives	To measure price, availability, and affordability of medicines, including price components in the supply chain.	To assess, monitor, measure and evaluate country's medicine situations (for Level II, especially about access, quality, and rational use)	To identify the possible barriers to access to diabetes care
target	public, private and "other sector" medicine outlets for centralized procurement, central medical store or government procurement office	warehouses medicine outlets general population (households)	stakeholders of diabetes care at 3 levels, including diabetes patients
data collection (sampling methods in the next page)	observation using 'medicine price data collection forms'	observation using 'survey forms'	interview (semi-structured questionnaires) discussions site visits (observations) document review
data analysis	<p>Calculation of result values:</p> <ul style="list-style-type: none"> ▪ median price ratio (ratio of median local price to international reference price) ▪ per cent availability ▪ days wages needed for treatment (affordability) ▪ mark-ups ▪ price composition <p>Comparisons:</p> <ul style="list-style-type: none"> ▪ product type (originator brands vs generics) ▪ sector (e.g. public vs. private) ▪ region (optional) 	<p>Calculation of result values:</p> <ul style="list-style-type: none"> ▪ central tendency with range (numeric indicators) ▪ proportion (category indicators) <p>Comparisons:</p> <ul style="list-style-type: none"> ▪ by sector ▪ by region ▪ overtime 	<p>Qualitative analysis using framework Information categories:</p> <ul style="list-style-type: none"> ▪ health service structure and functioning ▪ diabetes policies ▪ practice for diabetes management ▪ availability and price of care ▪ distribution network ▪ knowledge and attitudes <p>(Comparison can be done (eg. by region) but not the main purpose.)</p>

(continued)

Field sampling methods (facilities and patients/households)

	WHO/HAI (field)	Pharmaceutical situation (Level II)	RAPIA (micro level)*
no of sites	6 (previously 4)	5	3
sampling	Major urban center (usually capital) other 5 regions (random sampling)	capital most rural or lowest income other 3 regions (random sampling)	capital city urban area rural area
no of facilities / site	5 public facilities (anchor samples) 5 private sector medicine outlets (paired samples) 5 "other sector" outlets, if applicable (up to 2 "other sectors" can be surveyed)	6 public facilities (anchor samples) 6 private drug outlets (paired samples)	not fixed
sampling of facilities	selection of anchor samples 1 main public hospital + random sampling of 4 other hospitals or + stratified sampling by level of facility	selection of anchor samples 1 main public hospital 1 lowest level public facility 4 middle level facilities (random sampling)	purposive sampling
total number of facilities	30 public facilities (anchor samples) 30 private sector medicine outlets (paired sampling) 30 "other sector" outlets (if applicable, for up to 2 "other sectors") 60 - 120 outlets in total	30 public facilities 30 private drug outlets 60 facilities in total	8 facilities & 8 pharmacies in capital 6 facilities & 6 pharmacies in urban area 4 facilities & 4 pharmacies in rural area 36 outlets in total
no of patients (HHs) / facility	-----	30 HHs (5 HHs X 6 clusters)	not fixed
sampling of patients (HHs)	-----	2 clusters selected within a 5 km radius from the facility 2 clusters selected between 5-10 km 2 clusters selected more than 10km	purposive sampling
total number of patients (HHs)	-----	900 HHs	20 patients in capital 10 patients in urban area 5 patients in rural area

* As RAPIA applies purposive sampling (snowball sampling) and theoretical saturation, indicated numbers are only guideline numbers.

(continued)

Examples of field sampling

	HAI (Philippines, 2005)	Pharmaceutical situations (Philippines, planned in 2008)	RAPIA (Nicaragua, 2007)
no of sites	4	6	3
sampling	capital city 3 urban cities (highly urbanized cities) from 3 geographical regions	capital region 5 provinces	capital city urban area rural area
no of facilities / site	Manila - 7 public, 6 private Baguio - 3 public, 20 private Cagayan De Oro - 7 public, 18 private Cebu - 9 public, 7 private	6 public hospitals 1 rural health unit 14 private pharmacies 1 - 6 private hospitals	---
total number of facilities	26 public hospitals 51 private pharmacies	36 public hospitals 6 rural health units 84 private pharmacies 18 private hospitals (assumption) -----	36 facilities (private & public) 32 pharmacy (private & public) ----- 20 facilities & 14 pharmacies in capital 15 facilities & 17 pharmacies in urban area 1 facilities & 3 pharmacies in rural area
no of patients (HHs) / facility	-----	30 HHs	---
total number of patients (HHs)	-----	1080 HHs	63 patients in capital 26 patients in urban area 5 patients s in rural area

Appendix 2 Numbers of the total and diabetes admissions and Philhealth coverage

area	public or private		level	no of admission		PhilHealth coverage	
				total	diabetes	from record	estimate*
Area A	public	DoH	3	22813	350	11%	
Area B	public	DoH	3	17599	192	30%	
	public	province	2	6110	NA	10%	
	public	city	2	2863	250	NA	≈~10%
	public	province	2	7519	145	28%	
	public	province	2	4719	NA (rank 5)	33%	
	private		2	2500	NA	48%	
Area C	public	DoH	3	16506	193	25%	
	public	province	3	10854	NA	36%	
	public	province	2	2567	NA	37%	
	public	province	2	1928	NA	15%	
	public	province	1	753	NA	14%	
	public	province	2	3634	17	39%	
	public	province	2	2897	15	31%	
	private		3	20724	NA	49%	
Area D	public	DoH	2	13,200	58	NA	20-40%
	public	province	1	1979	8	NA	<1%
	private		2	2731	45	NA	45-50%
	private		2	4198	NA	73%	
	private		1	1163	NA	NA	20-30%
	military		2	NA	NA	NA	
Area E	public	province	3	6945	NA	5%	
	public	province	1	1794	NA	24%	
	public	province	2	5456	NA	30%	
	public	province	2	1481	NA	28%	
	public	province	2	4937	NA	31%	
	private		3	8644	71	81%	

* When the record of PhilHealth coverage was not available, administrator's estimate was asked.

Appendix 3 Categories, themes and subthemes of the framework analysis

category		theme		subtheme
1	health system factors	1	medicines supply	
		2	resource allocation	human resource
				facility
		3	insurance and social welfare	budget
social welfare				
2	health facility factors	1	management	
		2	services	
		3	support group	
3	patient factors	1	household finance	
		2	social status	work
				educational background
		3	family support	
		4	knowledge and	economical
		5	attitudes	attitudes to regular care
				attitudes to free services
6	experience	reliance on prescribed medicines		
7	disease impact	emotional stresses		
		physical activities		
		co-morbidity		
4	others / external factors	1	price	
		2	information	
		3	accessibility	

Appendix 4 Questionnaires

Interview to health office

Interviewer:

Date of meeting:

(mm/dd/yyyy)

Starting & ending time:

Part I. General information & organization

1. Region:

2. Name:

3. Level:

1. Region
2. Province
3. City
4. Municipality
5. Others

4. Size of the area

Covered area (ex. number of LGUs):

Distance from the farthest population:

Others:

5. Ask for the recent annual health report or get information on:

- 1) Population
- 2) Health infrastructures (health facilities and their level, bed capacity, etc.)
- 3) Health human resources
- 4) Health statistics

Part II. Pharmacy and laboratory

6. Ask for data on number of facility by level and numbers of beds.

7. Is there any pharmacy directly operated by the office?

1. Yes
2. No

If Yes, please indicate details.

8. Is there any laboratory directly operated by the office?

1. Yes
2. No

If Yes, please indicate details.

9. Is there any centralized pharmacy system?

1. Yes
2. No

If Yes, please indicate details

10. Is there any centralized laboratory system?

3. Yes
4. No

If Yes, please indicate details

Part III. Payment

11. Do you have standard payment system in the area?

1. Yes (→ get the price list if possible)
2. No

12. Please describe how patient pays.

Part IV. Social welfare

13. Do you have standard social welfare system in the area?

1. Yes (→ get the list if possible)
2. No

14. Please describe details. (eligibility, categories, who determines, conditions, etc.) Please describe how to apply it for those who have Philhealth and who do not.

Part V. Referral

15. If each item below is not available in the health facility, what kind of options does a patient have?

1) Medicines (including insulin and medical materials):

2) Laboratory tests:

3) Specialist consultation (which is not available in the hospital):

4) Higher level care:

16. Please describe how to refer a patient.

Part VI. Diabetes services and activities

17. In the office, is there a team that deal with diabetes?

1. Yes
2. No

If Yes, please describe details.

18. Is there an office budget which is earmarked for diabetes?

1. Yes
2. No

If Yes, please describe details.

19. Is there any diabetes-related program run by the office?

1. Yes
2. No

If Yes, please describe details.

20. How many diabetes clinics exist in the area?

Please describe details. (Or get the list.)

21. How many diabetes patient groups and diabetes associations exist in the area??

Please describe details. (Or get the lists)

Are there any (other) diabetes-related activities in the area?

1. Yes
2. No

If yes, please describe details.

22. Is there any donation or special price offer for diabetes medicines (including insulin) and/or other related medical materials (needles, syringes, monitoring materials, etc.) in the area?

1. Yes
2. No

If yes, please describe details.

23. Please indicate any other diabetes specific programs if exist.

Part VII. Medicine and medical materials supply

24. Is the office supplied medicines and other medical materials to health facilities?

1. Yes
2. No

If Yes, for what? (multiple answers allowed)

1. Regular supply
2. Program related items
3. Others

25. Are diabetes medicines included?

1. Yes
2. No

If, Yes, please describe details.

26. How is the office supplied medicines and medical materials?

27. How does the office distribute medicines and medical materials?

Other issues

Interview to hospital

Interviewer:

Date of meeting:

_____ (mm/dd/yyyy)

Starting & ending time:

Part I. General information & organization

1. Region

2. Facility name

3. Type of facility

1. Public
2. Private
3. Others

4. Operated by:

1. DoH
2. Province
3. City
4. Municipality
5. Private
6. Charity
7. Others

5. Level of facility

1. Primary
2. Secondary
3. Tertiary
4. Others

6. Number of beds:

7. Size of the area

Covered area (ex. number of LGUs):

Distance from the farthest patient:

Others:

8. Population of the area

Part II. Human resources

9. Please indicate the total number of people who work full-time in the hospital (regardless of the contract status).

10. Please indicate the number of health professionals in categories below who work full-time in the hospital (regardless of the contract status):

	number
Doctor (include CoHosp)	
Nurse (include CoNs)	
Pharmacy personnel in total	
Pharmacist	
Pharmacy aid	
Others	
Laboratory personnel in total	
Medical technologist	
Laboratory technician	
Laboratory aid	
Others	

11. Please indicate the number of attending physicians (visiting consultants, part-time specialists, etc.) who contract with the hospital.

12. Do you have specialists below in the hospital?

	availability	if yes, full-time?
Endocrinologist / Diabetologist	yes / no	full-time / not full-time
Ophthalmologist	yes / no	full-time / not full-time
Neurologist	yes / no	full-time / not full-time
Orthopaedic surgeon	yes / no	full-time / not full-time
Nephrologist	yes / no	full-time / not full-time

13. Do you have diabetes-related personnel below in the hospital?

	availability	if yes, full-time?
Diabetes educator	yes / no	full-time / not full-time
Dietician	yes / no	full-time / not full-time

Part III. Disease information

14. During 2007, how many people used the hospital?

	no of patients	remark
hospitalization		please indicate the number of <u>admissions</u> please exclude <u>healthy newborns</u>
OPD		indicate ER cases separately
ER		
Others if applicable		

15. Please indicate morbidity and mortality due to diabetes in 2007. If the number is not available please indicate 'NA'.

	morbidity	mortality
inpatients		
OPD patients		
ER patients		

Part IV. Infrastructure

16. What are equipped in your hospital?

Pharmacy	
Medical storage / stock room	
Laboratory	
ER	
Operation room	
Ambulance car	

17. Is the pharmacy independently operated?

1. Yes
2. No

18. Is the laboratory independently operated?

1. Yes
2. No

Part V. Payment

19. Please describe how a patient pays.

1) OPD (consultation, medicines, laboratory, etc.):

2) Hospitalization (board, medicines, laboratory, operation, professional fees, etc.)

3) Others:

20. Regarding cases that do not require hospitalization, if a patient cannot afford to pay, what happens? Please explain about payment for consultation, medication, and laboratory tests.

21. Regarding hospitalized cases, if a patient cannot afford to pay, what happens? Please explain for those who are PhilHealth members or dependents and who are not.

22. During 2007, how many percentages of hospitalized patients were PhilHealth members or dependents?

23. During 2007, how many percentages of hospitalized patients receive social welfare (discounted or free hospital payment)?

24. Please explain social welfare or charity program.

Part VI. Referral

25. If each item below is not available in the hospital, where does a patient usually go?

1) Medicines (including insulin and medical materials):

2) Laboratory tests:

3) Specialist consultation (which is not available in the hospital):

4) Higher level care:

26. Please describe how to refer a patient.

Part VII. Diabetes services and activities

27. Do you have diabetes clinic in the hospital?

1. Yes
2. No

If yes, please describe details.

28. Is a diabetes group organized in the hospital?

1. Yes
2. No

If yes, please describe details.

29. Does the hospital cater health education / promotion that informs diabetes-related issues?

1. Yes
2. No

If yes, please describe details.

30. Is there any donation or special price offer for diabetes medicines (including insulin) and/or other related medical materials (needles, syringes, monitoring materials, etc.)?

1. Yes
2. No

If yes, please describe details.

31. Is there any free service that is related with diabetes care (e.g. free FBS check)?

1. Yes
2. No

If yes, please describe details.

32. Please indicate any other diabetes-related programs or activities if exist in the hospital or in the area.

Part VIII. Medicine and medical materials supply

33. Is the hospital supplied with medicines and other medical materials?

1) Oral medicines:

1. Yes
2. No

2) Insulin:

1. Yes
2. No

3) Syringes & needles:

1. Yes
2. No

4) Monitoring & diagnostic equipment:

1. Yes
2. No

34. Please explain medicines / medical supplies procurement system. (From where, how often per year, how to decide the amount and price, how to receive them, etc.)

Other issues

Interview to health center / health unit

Interviewer:

Date of meeting:

_____ (mm/dd/yyyy)

Starting & ending time:

Part I. General information & organization

1. Region

2. Facility name

3. Size of the area

Covered area (ex. number of LGUs):

Distance from the farthest patient:

Others:

4. Population of the area

5. Please describe the organization where the health center belongs to.

Part II. Human resources

6. Please tell us numbers of health personnel in the health center.

Doctors	
Nurses	
Pharmacists	
Medical technician / laboratory aid	
Other health professionals	
Aid workers	
Administrative staff	
Others	

7. Do you have specialist visits in the health center?

1. Yes
2. No

If yes, please describe details.

Part III. Disease information

8. Do you keep statistics of the health service utilization? (Or do you have patient record keeping system?)
1. Yes
 2. No

If yes, please describe details. (items recorded, frequency of making a report, etc.)

9. How many people used the health center during a specific period? (preferably indicate the annual number in 2007, otherwise specify the period, eg. monthly, quarterly, etc.)
10. How many diabetes patients used the health center during a specific period? (preferably indicate the annual number in 2007, otherwise specify the period, eg. monthly, quarterly, etc.)

Total number:

Type specific numbers, if available:

Part IV. Infrastructure

11. Do you have facilities below in the health center?

Pharmacy	
Storage	
Laboratory	
ER	
Beds for overnight observation	
Suture room for minor operation	
Ambulance car	

12. What kinds of physical examination tools are available in the health center?

BP machine	
Weighing scale	
Height measure	
Fundoscope	
Neurological testing tools	

13. What kinds of laboratory tests are available in the health center?

Part V. Payment

14. Please describe how a patient pays.

1) Consultation:

2) Medication:

3) Laboratory tests:

4) Others:

15. If a patient cannot afford to pay these fees what happens?

16. Do you have discount system or a sponsored program for the fees?

1. Yes
2. No

Part VI. Referral

17. If each item below is not available in the health center, where does a patient usually go? (Please indicate if it is located within a walking distance. If not, please describe how far it is located from the health center. And please also list other possible options if available.)

1) Medicines:

2) Laboratory tests:

3) Specialist consultation:

4) Acute care / hospitalization:

18. Please describe the procedure when a patient is referred to another facility.

Part VII. Diabetes services and activities

19. Is a diabetes group organized in the health center?

1. Yes
2. No

If yes, please describe details.

20. Is there any (other) diabetes-related activity in the health center or in the area?

1. Yes
2. No

If yes, please describe details.

21. Is there any donation or special price offer of diabetes medicines (including insulin) and other related medical materials (needles, syringes, monitoring materials, etc.)?

1. Yes
2. No

If yes, please describe details.

22. Please indicate any other diabetes specific programs if exist.

Part VI medicines and medical material supply

23. How is the health center supplied with medicines and other medical materials? From where, how often per year, how to decide the amount and price, how to receive them, etc.

1) Oral medicines:

2) Insulin:

3) Syringes & needles:

4) Monitoring / diagnostic equipment:

24. Please tell us amount and price of medicines and medical materials supply.

	strength or unit	total amount of the last supply	for how many months?	acquisition price	selling price
OHAs					
glibenclamide					
gliclazide					
glipizide					
chlorpropamide					
metformin					
rosiglitazone					
acarbose					
Insulin					
short-acting (regular)					
intermediate (isophane)					
mixed					
rapid-acting					
Syringes / needles					
Monitoring materials					
Urine strip					
Blood strips					

If other medicines (other strengths, branded names, etc.) are available, write below.

	strength or unit	total amount of the last supply	for how many months?	acquisition price	selling price

25. Other issues.

Interview to pharmacy

Interviewer:

Date of meeting:

 (mm/dd/yyyy)

Starting & ending time:

1. Region
2. Facility name
3. Operated by:
 1. DoH
 2. Province
 3. City
 4. Municipality
 5. Private
 6. Charity
 7. Others
4. The pharmacy is:
 1. a part of hospital (or health facility)
 2. independently operated

If 1., fees for medicines are:

 1. included in the hospital payment
 2. paid directly to the pharmacy
5. How many people are working in the pharmacy?

Total:

Doctor:

Pharmacist:

Pharmacy aid:

Other:
6. Do you sell / dispense oral medicines?
 1. Yes
 2. No
7. Do you sell / dispense insulin?
 1. Yes
 2. No
8. Do you sell / dispense syringes / needles?
 1. Yes
 2. No

9. Do you sell / dispense self-monitoring materials (strips)?
 1. Yes
 2. No
10. How do you decide the amount?
11. How do you decide selling price?
12. How are medicines (including injections) and/or medical materials supplied? (from where, how often, how to receive, etc.)
13. Do you have any donation or special price offer besides regular supply?
 1. Yes
 2. NoIf Yes, is any diabetes medicine or diabetes-related material included?
 1. Yes
 2. NoIf Yes, please specify (from whom, to whom, how much, etc.)
14. If a medicine prescribed is not available in the pharmacy, where the patient should do?
15. If a patient cannot afford to pay fees, what happens?
16. What are difficulties that you experience in regular supplies of medicines (including injections) and/or medical materials?
17. In your opinion, what are difficulties that patients experience in regular supplies of medicines (including injections) and/or medical materials?
18. What is the hardest part of your work? Are there any specific problems with diabetes patients?

Other issues

Availability and price of diabetes medicines and related materials

Oral Hypoglycemic Agencies

name	strength		availability	acquisition price	selling price
glibenclamide	2.5mg	generic	yes / no		
		branded	yes / no		
	5mg	generic	yes / no		
		branded	yes / no		
gliclazide	30mg	generic	yes / no		
		branded	yes / no		
	80mg	generic	yes / no		
		branded	yes / no		
glipizide	2.5mg	generic	yes / no		
		branded	yes / no		
	5mg	generic	yes / no		
		branded	yes / no		
chlorpropamide	250m	generic	yes / no		
		branded	yes / no		
metformin	500mg	generic	yes / no		
		branded	yes / no		
	850mg	generic	yes / no		
		branded	yes / no		
	1000mg	generic	yes / no		
		branded	yes / no		
rosiglitazone	4mg	generic	yes / no		
		branded	yes / no		
	8mg	generic	yes / no		
		branded	yes / no		
acarbose	50mg	generic	yes / no		
		branded	yes / no		
	100mg	generic	yes / no		
		branded	yes / no		

Insulin

name	type (volume)	availability	purchasing price	selling price
<u>regular insulin</u>				
	3ml cartridge	yes / no		
	10ml vial	yes / no		
<u>isophane insulin human</u>				
	3ml cartridge	yes / no		
	10ml vial	yes / no		
<u>mix (30/70)</u>				
	3ml cartridge	yes / no		
	10ml vial	yes / no		

Medical materials

name	pieces	availability	purchasing price	selling price
Syringes / needles		yes / no		
Monitoring materials				
Urine strip		yes / no		
Blood strips		yes / no		

Additional form

name	strength	generic / branded	acquisition price	selling price

Interview to laboratory

Interviewer:

Date of meeting:

 (mm/dd/yyyy)

Starting & ending time:

1. Region

2. Facility name

3. Operated by:

1. DoH
2. Province
3. City
4. Municipality
5. Private
6. Charity
7. Others

4. The laboratory is:

1. a part of hospital (or health facility)
2. independently operated

If 1., fees for laboratory tests are:

1. included in the hospital payment
2. paid directly to the laboratory

5. How many people are working in the laboratory?

Total:

Doctor (Pathologist):

Medical technologist

Laboratory technician:

Laboratory aid:

Other:

6. What laboratory tests are available in the hospital laboratory? If yes, can the result be obtained within a day? And please indicate price of the test.

	availability	result within a day?	price
Blood glucose	yes / no	yes / no	
OGTT	yes / no	yes / no	
HbA1c	yes / no	yes / no	
Urine analysis	yes / no	yes / no	
Complete blood count	yes / no	yes / no	
Cholesterol	yes / no	yes / no	
TG	yes / no	yes / no	
HDL	yes / no	yes / no	
DL	yes / no	yes / no	
GOT	yes / no	yes / no	
GPT	yes / no	yes / no	
BUN	yes / no	yes / no	
creatinin	yes / no	yes / no	

7. If a test requested is not available in the laboratory, where the patient should do?
8. If a patient cannot afford to pay these fees, what happens?
9. In your opinion, what are difficulties that diabetes patients may experience in taking regular laboratory tests?
10. What is the hardest part of your work? Are there any specific problems with testing diabetes patients?

Other issues

Interview to healthcare providers

4							
---	--	--	--	--	--	--	--

Interviewer:

Date of meeting:

(mm/dd/yyyy)

Starting & ending time:

Part I

1. Region
2. Facility (public / private / other)
3. Professional category
 1. Specialised doctor (endocrinologist / diabetologist)
 2. General practitioner
 3. Nurse
 4. Pharmacist
 5. Laboratory technician
 6. Other health professional → specify
4. Department or section (if applicable)
5. Age
6. Sex
 1. Male
 2. Female
7. Work experience as health personnel (in years)
8. Have you received any special training in diabetes care? (please circle appropriate)
 1. Yes
 2. NoIf yes, please describe details:

Part II

9. Please describe how many patients you see in a month? (Please specify outpatient, inpatient and others.)
10. How many people with diabetes do you see in a month?

11. Please describe your patients: (Data from records are more favourable if available.)

Number and proportion of type 1	
Number and proportion of patients under 15 years old	
Number and approximate proportion of patients who were newly diagnosed within 1 year	
Number and approximate proportion of patients who were newly diagnosed over 10 year	
Number and proportion of patients who use insulin	
Number and proportion of patients who have diabetic complications such as retinopathy, neuropathy nephropathy and foot ulcers	

12. Do you use treatment guidelines for diabetes care?

1. Yes (specify →)
2. No

13. Please describe your management for a typical patient with type 1 diabetes.

Ex. for doctors: frequency of check-up, typical medication, laboratory tests (frequency and items), self-monitoring (frequency and items), timing of hospitalization or referral, etc.

14. Please describe your management for a typical patient with type 2 diabetes.

Ex. for doctors: frequency of check-up, typical medication, laboratory tests (frequency and items), self-monitoring (frequency and items), timing of hospitalization or referral, etc.

Part III

15. In your opinion, what are difficulties that diabetes patients experience in having regular check-ups?

Interview to diabetes patient

--	--	--	--	--	--	--	--

1. Please tell us difficulties that you experience in having regular check-ups.
2. Please tell us difficulties that you experience in taking regular medication.
3. Please tell us difficulties that you experience in taking regular laboratory tests.
4. Please tell us difficulties that you experience in doing self-monitoring.
5. Please tell us difficulties that you experience in taking acute care and hospitalization? (If you have never experienced acute care or hospitalization, what difficulties are assumed?)
6. What is the hardest part of your diabetes care? What would make things easier for you in your diabetes care?
7. How does your diabetes affect you and your family?

Interview to diabetes patient

Instructions

- Your preparation for answering questions will make the interview easier. However, please do not worry. We will explain all of the questions until you can understand. During the actual interview, we will guide you how to answer.
- It will be very helpful if you have a look of the questionnaire in advance before the interview. We hope you will tell us which question is difficult to understand.
- It will be also helpful if you gather receipts for health care expenditures, such as check-ups, hospitalization, medicines, injections, medical equipment, laboratory tests, etc.

How to answer questions

- After answering each question, please go to the next question unless there is a specific instruction.
- Specific instructions are:
 - ‘go to ___’ after an answer choice
 - ‘finish Section ___’ after an answer choice
 - ‘after finishing this question, go to ___’ below the all answer choices

Example 1 (‘go to ___’)

1	During the last year, did you have a check-up?	1. yes 2. no (go to 15)
---	--	----------------------------

If you answer ‘1’ in this question, you have to go to the next question. If you answer ‘2’, you can jump to question 15 without answering questions 2-14).

Example 2 (‘finish Section ___’)

29	During the last year, did you spend other expense(s) to receive medical / health care?	1. yes 2. no (finish Section I.)
----	--	-------------------------------------

If you answer ‘1’ in this question, you have to go to the next question. If you answer ‘2’, you can finish Section I and jump to Section II without answering question 30.

Example 3 (‘after finishing this question, go to ___’)

6	How often do you have the regular check-ups for diabetes care?	1. < once a month 2. once a month 3. once in 2 months 4. once in 3 months 5. once in > 3 months specify → _____times a year (after finishing this question, go to 9)
---	--	--

After finishing this question, you can jump to question 9 (without answering questions 7 & 8) regardless of your answer choice.

Interview to diabetes patient

Researcher's use

facility	region	HH number	date	roster number

Main interview

____ / ____, from : to : (____ minutes)
mm dd

interview method:

meeting at facility house hold visit telephone

language used:

Filipino local language →

interpreter:

yes no

interviewer:

Complementary contacts

before the main interview: ____ times, after the main interview: ____ times

Completed on

____ / ____
mm dd

	Section I. About your healthcare expenditure in general (for all diseases / conditions)	
1	During the last year, did you have a check-up?	1. yes 2. no (go to 15)
2	How many times a year?	____ times a year
3	When was the last time?	____ / ____ / ____ mm dd yyyy
(please recall your last check-up)		
4	Where did you have your last check-up?	1. public hospital 2. private hospital 3. health center or health station 4. private clinic or physician 5. other specify →
5	How much did it cost at the hospital / health center / clinic where you had the check-up?	_____ pesos
6	What did the cost include? (multiple answers allowed)	1. consultation fees 2. medicine(s) 3. X-ray / laboratory test(s) 4. others specify →
7	Was the cost paid by insurance(s) (partially or totally)?	1. yes 2. not yet, but will be paid (I have not received reimbursement.) (go to 9) 3. no (go to 9)
8	How much was paid by the insurance(s) in total?	_____ pesos in total
9	For the check-up, did you pay something outside the hospital / health center / clinic where you had the check-up? (e.g. at private pharmacy outside the health center, at private laboratory outside the clinic, etc.)	1. yes 2. no (go to 11)
10	Please indicate each amount which was <u>paid outside the hospital / health center / clinic where you had the check-up.</u>	_____ pesos at private pharmacy _____ pesos at private laboratory _____ pesos anywhere else specify →
11	How many days did you stop working for the check-up?	1. ____ days 2. I do not work

12	Did anybody else accompany you for your check-up?	1. yes 2. no (go to 14)
13	How many days did he/she (they) stop working for accompanying you?	_____ days X _____ people
14	How much did you pay the transportation fees to go to the check-up? (both for you and your companions)	_____ pesos
15	During the last year, were you confined in hospital?	1. yes 2. no (go to 29)
16	How many times a year?	_____ times a year
17	When was the last time? (discharge date)	____ / ____ / _____ mm dd yyyy
	(please recall your last hospitalization)	
18	Where were you confined in the last time?	1. public hospital 2. private hospital 3. other specify →
19	How much did it cost at the hospital?	_____ pesos
20	What did the cost include? (multiple answers allowed)	1. room and board 2. medicine(s) 3. X-ray / laboratory test(s) 4. operating room fees 5. professional fees 6. others specify →
21	Was the cost paid by insurance(s) (partially or totally)?	1. yes 2. not yet, but will be paid (I have not received reimbursement.) (go to 23) 3. no (go to 23)
22	How much was paid by the insurance(s) in total?	_____ pesos in total
23	During the hospitalization, did you pay something outside the hospital? (e.g. at private pharmacy outside the hospital, at private laboratory outside the hospital, etc.)	1. yes 2. no (go to 25)
24	Please indicate each amount which was <u>paid outside the hospital</u> .	_____ pesos at private pharmacy _____ pesos at private laboratory _____ pesos anywhere else specify →
25	How many days did you stop working for the hospitalization?	1. _____ days 2. I do not work
26	Did anybody else accompany and take care of you for your hospitalization?	1. yes 2. no (go to 29)
27	How many days did he/she (they) stop working for accompanying and taking care of you?	_____ days X _____ people
28	How much did you pay the transportation fees during the hospitalization in total? (both for you and your companions)	_____ pesos in total
29	During the last year, did you spend other expense(s) to receive health care?	1. yes 2. no (finish Section I.)
30	Please indicate each amount and item.	_____ pesos for _____ _____ pesos for _____ _____ pesos for _____

Section II. Prices of medicines / injections / self-monitoring equipment for diabetes care		
1	Do you take oral medicine(s) for diabetes care now?	1. yes 2. no (go to 3)
2	Please indicate the brand name, strength (dose), and price of each medicine in your last purchase. Please also tell us how you take the medicine. (eg. twice a day, 2 tablets for each time, etc.) ----- If you <u>regularly</u> take any other medicine besides oral hypoglycaemic agents, please tell us about it (them), too.	brand name : _____ strength / dose: _____mg unit price: _____pesos for 1 tablets usage: _____times a day X _____tablets --- brand name : _____ strength / dose: _____mg unit price: _____pesos for 1 tablets usage: _____times a day X _____tablets --- brand name : _____ strength / dose: _____mg unit price: _____pesos for 1 tablets usage: _____times a day X _____tablets --- brand name : _____ strength / dose: _____mg unit price: _____pesos for 1 tablets usage: _____times a day X _____tablets --- brand name : _____ strength / dose: _____mg unit price: _____pesos for 1 tablets usage: _____times a day X _____tablets --- brand name : _____ strength / dose: _____mg unit price: _____pesos for 1 tablets usage: _____times a day X _____tablets --- brand name : _____ strength / dose: _____mg unit price: _____pesos for 1 tablets usage: _____times a day X _____tablets --- brand name : _____ strength / dose: _____mg unit price: _____pesos for 1 tablets usage: _____times a day X _____tablets --- brand name : _____ strength / dose: _____mg unit price: _____pesos for 1 tablets usage: _____times a day X _____tablets --- brand name : _____ strength / dose: _____mg unit price: _____pesos for 1 tablets usage: _____times a day X _____tablets ---
3	Do you use insulin now?	1. yes 2. no (go to 5)
4	Please indicate the brand name, dose, and price of insulin in your last purchase. ----- If you pay injection-related equipment (syringes and/or needles) separately, please indicate the price, too. Please also tell us how many pieces you spend per week.	type: vial / cartridge (circle one) brand name : _____ dose: _____unit/vial or cartridge price: _____pesos for 1 vial/cartridge usage: _____ --- type: vial / cartridge (circle one) brand name : _____ dose: _____unit/vial or cartridge price: _____pesos for 1 vial/cartridge usage: _____ ----- injection-related equipment _____pesos for 1 piece _____pieces a week
5	Do you do self-monitoring at home?	1. yes 2. no (finish Section II.)

6	Please indicate the price of self-monitoring equipment in your last purchase. Please also tell us how often you do self-monitoring. (eg. 4 times a day X 3 times a week. If you monitor it less frequently then weekly, please specify.)	item: _____ _____ pesos for 1 pieces frequency of self-monitoring _____ times a day X _____ times a week --- item: _____ _____ pesos for 1 pieces frequency of self-monitoring _____ times a day X _____ times a week
Section III. About your diabetes care		
1	Were you diagnosed as diabetes by a doctor?	1. yes 2. no (go to 3)
2	In what year were you diagnosed as diabetes?	_____ (after finishing this question, go to 4)
3	If you are not diagnosed by a doctor, please tell us the reasons you believe you are diabetic? (Why did you know you were diabetic?)	
4	For diabetes care, do you have <u>regular check-ups</u>?	1. yes 2. no (go to 7)
5	Where do you usually have regular check-ups for diabetes care? (the most often)	1. public hospital 2. private hospital 3. health center or health station 4. private clinic or physician 5. other specify →
6	How often do you have regular check-ups for diabetes care?	1. < once a month 2. once a month 3. once in 2 months 4. once in 3 months 5. once in > 3 months specify → _____ times a year (after finishing this question, go to 9)
7	What is the main reason you do not have regular check-ups for diabetes care?	1. I am told it is not necessary for my conditions. 2. I do so only when I have a symptom. 3. I cannot afford it. 4. I cannot manage time. 5. Hospitals / health centers / clinics are very far. 6. other reason(s) specify →
8	If you occasionally had check-up(s) for diabetes care, how many times during the last year?	_____ times a year
9	For diabetes care, do you take <u>regular medication for diabetes (medicines / injections)</u>?	1. yes 2. no (go to 13)
10	Do you get medicines / injections with doctor prescription?	1. yes 2. not always, but more frequently with prescription 3. more frequently without prescription (I usually get medicines / injections by myself.) 4. never (I always get medicines / injections by myself.) (go to 12)

11	Do you usually get diabetes medicines / injections in the same hospital / health center / clinic where you have a check-up?	1. yes (go to 15) 2. no
12	Please indicate where you usually get diabetes medicines / injections.	(after finishing this question, go to 15)
13	What is the main reason you do not take regular medication for diabetes?	1. I am told it is not necessary for my conditions. 2. I do so only when I have a symptom. 3. I cannot afford it. 4. I cannot manage time. 5. Pharmacies / drug stores are very far. 6. other reason(s) specify →
14	If you occasionally took medication for diabetes care, please describe how often & how much you took medication during the last year. (e.g three times a year, a week for each time, etc.)	
15	For diabetes care, do you take <u>regular</u> laboratory tests asides from blood sugar (FBS)?	1. yes 2. no (go to 20)
16	Do you take regular laboratory test with doctor prescription?	1. yes 2. not always, but more frequently with prescription 3. more frequently without prescription (I usually take laboratory tests by myself) 4. never (I always take laboratory tests by myself) (go to 18)
17	Do you usually take regular laboratory tests in the same hospital / health center / clinic where you have a check-up?	1. yes (go to 19) 2. no
18	Please indicate where you usually take regular laboratory tests for diabetes care.	
19	How often do you take regular laboratory tests for diabetes care?	1. < once a month 2. once a month 3. once in 2 months 4. once in 3 months 5. once in > 3 months specify → _____times a year (after finishing this question, go to 22)
20	What is the main reason you do not take regular laboratory tests?	1. I am told it is not necessary for my conditions. 2. I do so only when I have a symptom. 3. I cannot afford it. 4. I cannot manage time. 5. Laboratories are very far. 6. other reason(s) specify →
21	If you occasionally took laboratory test(s) for diabetes care, how many times during the last year?	_____times a year
22	Have you ever experienced severe acute diabetic symptom / condition that requires you being brought hospital / health center / clinic?	1. yes 2. no (finish section III.)
23	How many times in the last year?	_____times

24	When was the last time? (or if it was not in the last year, how many years ago?)	____ / ____ / ____ mm dd yyyy (_____ years ago)
	Please recall your last acute care for a diabetic symptom / condition	
25	Please describe the symptom / condition.	
26	Where did you go for the acute diabetic care in the last time?	1. public hospital 2. private hospital 3. health center or health station 4. private clinic or physician 5. other specify →
27	Did it require hospitalization?	1. yes 2. no
	Section IV. About health insurance	
1	Are you a member of PhilHealth?	1. yes 2. no, but a dependent of a member 3. no (go to 7)
2	What is the membership category?	1. employed (government) 2. employed (private) 3. individually paying 4. non-paying (pensioner/retiree) 5. sponsored / indigent
3	How much is the monthly contribution for PhilHealth? If you are (or your family is) an employed sector member, please indicate employee share only.	_____ pesos a month
4	During the last year, did you avail for your PhilHealth Insurance?	1. yes 2. no (go to 7)
5	Did PhilHealth cover the full cost of the hospitalization?	1. yes (go to 7) 2. no
6	How was the remaining cost paid? (multiple answers allowed)	1. by your (or your family's) own money 2. by private insurance(s) 3. by other ways specify →
7	Do you have private health insurance(s)?	1. yes specify → 2. no (finish Section IV.)
8	How much do you contribute for the private insurance(s) <u>a year</u> ? (in total)	_____ pesos a year in total
	Section V. About diabetes care and household economy	
1	Have you ever given up any diabetes care because of financial difficulties?	1. yes 2. no (go to 3)
2	What kind of diabetes care did you give up? (multiple answers allowed)	1. check-ups 2. medication 3. laboratory tests 4. acute care without hospitalization 5. hospitalization 6. other specify →
3	Have you ever experienced shortage of money because of diabetes-related expenditures?	1. yes 2. no (go to 5)

4	How did you solve it? (multiple answers allowed)	1. borrowing money 2. pawning assets 3. selling assets 4. others specify →
5	Are you ready for paying acute care (unexpected treatment such as emergency room, hospitalization, etc.) for diabetes?	1. yes 2. no (go to 7)
6	How do you plan to pay it? (multiple answers allowed)	1. by your (or your family's) own money 2. by private insurance(s) 3. by other ways specify →
7	Do you have special meals (diet for diabetes) prepared separately from other family members?	1. yes 2. not always, but more frequently with special meals 3. less frequently with special meals 4. never (finish Section V.)
8	How much additional budget do you think is needed for special meals (diet for diabetes) a month?	_____ pesos a month

	Can we ask about you?	
1	sex	1. male 2. female
2	age	_____ years old
3	education	1. no formal schooling 2. some elementary 3. completed elementary 4. some high school 5. completed high school 6. some college/university 7. completed college/university 8. some post graduate 9. completed post-graduate
4	occupation (please specify)	1. employed (formal) 2. employed (informal) 3. self-employed 4. housework 5. unemployed/retired _____
5	membership of diabetes group	1. yes specify → 2. no

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