

International Survey Report

Medicine Prices and Affordability

For mental health of older people

2008 edition

**Mental Health Economics Task Force of
International Psychogeriatric Association**

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	4
DECLARATION OF CONFLICT OF INTEREST	6
ABBRIVIATIONS AND ACRONYMS.....	7
PREFACE.....	8
EXECUTIVE SUMMARY.....	9
PART I: PROTOCOL	11
1. INTRODUCTION.....	11
2. OBJECTIVES	13
3. METHODS	14
3.1. Selecting medicines	14
3.1.1. Criteria	14
3.2. How to collect data	14
3.2.1. General instruction.....	14
3.2.2. Components and characteristics of medicine prices	17
3.2.3. Web-based data collection and entry	18
3.3. How to compare.....	19
3.3.1. Affordability index	19
3.3.2. How to read tables	20
4. RESULTS.....	22
4.1. Alzheimer's drugs.....	22
4.1.1. Donepezil (Table 1)	22
4.1.2. Galantamine (Table 2), Galantamine PRC (Table 3)	22
4.1.3. Rivastigmine (Table 4).....	23
4.1.4. Memantine (Table 5).....	24
4.2. Antipsychotic drugs	25
4.2.1. Amisulpride (Table 6)	25
4.2.2. Aripiprazole (Table 7).....	25
4.2.3. Clozapine (Table 8).....	25
4.2.4. Olanzapine (Table 9).....	26
4.2.5. Risperidone (Table 10).....	26
4.2.6. Quetiapine (Table 11).....	26
4.2.7. Ziprasidone (Table 12).....	27
4.3. Antidepressants.....	28
4.3.1. Moclobemide (Table 13).....	28
4.3.2. Citalopram (Table 14).....	28
4.3.3. Fluoxetine (Table 15).....	28
4.3.4. Paroxetine (Table 16) & Paroxetine CR (Table 17)	29
4.3.5. Sertraline (Table 18)	29
4.3.6. Bupropion (Table 19).....	29
4.3.7. Mirtazapine (Table 20).....	30
4.3.8. Venlafaxine (Table 21) & Venlafaxine XR (Table 22)	30
PART II: ADDENDA : COMPARISON ACROSS COUNTRIES	54
1. POPULATION	54
2. BIRTH RATE & MORTALITY RATE	55

Medicine Prices and Affordability	3/58
3. FERTILITY, LITERACY, AND LIFE EXPECTANCY	56
4. GDP & GROWTH RATE.....	57
ADDRESS FOR CORRESPONDENCE.....	58

ACKNOWLEDGEMENTS

Permission to undertake this survey was given by the Board Committee of International Psychogeriatric Association.

We wish to thank devoted investigators, international advisors, and all the people who gave their precious time to provide data.

Leader : Guk-Hee Suh (E-mail: suhgh@chol.com)

List of Investigators

Country	Name of Investigator(s)
Argentina	Ricardo Allegri
Australia	Daniel O'Connor
Brazil	Carlos Augusto de Mendonça Lima
Dominican Republic	Rose Nina
France	Ennio Cocco
India	Samajdar Jyotirmoy
Japan	Manabu Ikeda
Korea	Seoung Ho Ryu
Macedonia	Roza Krsteska
Mexico	Victor FDO Villa Esteves
New Zealand	Chris Collins
Nigeria	Olusola Ephraim-Oluwanuga
Philippines	Jacqueline Dominguez
Portugal	Horácio Firmino
Serbia	Aleksandra Milicevic-Kalasic
Switzerland	Ennio Cocco
Thailand	Vorapun Senanarong
Taiwan	Yung-Jen Yang
Uganda	Noeline Kakasuja
UK	Ajit Shah
USA	Jay Luxenberg

List of international advisors

Country	Name of International advisors
Argentina	Raul Arizaga
Australia	Adrienne Withall
Australia	David Ames
Australia	G. Jamieson
Australia	Janine Stevenson
Australia	John Snowdon
Canada	Joel Sadavoy
Canada	Serge Gauthier
China	Linda C. W. Lam
China	Huali Wang,
China	Yu Xin
Croatia	Danilo Hodoba
Czech Republic	Eva Topinkova
Finland	Sirkka-Liisa Kivela
Greece	Kostas N. Fountoulakis
India	K.S. Shaji
Indonesia	Paulus Anam Ong
Japan	Akira Homma
Korea	Bong-Min Yang
Malaysia	Suraya Yusoff
Netherlands	Frans Verhey
Nigeria	Olusegun Baiyewu
Romania	Nicoleta Tataru
Singapore	Ng Li-ling
Spain	Manuel Franco
Sri Lanka	H Asita de Silva
Sweden	Anders Wimo
Turkey	Engin Eker

DECLARATION OF CONFLICT OF INTEREST

None.

This project has been completed without any external financial support. All investigators and advisors volunteered for this project with no financial benefits.

ABBRIVIATIONS AND ACRONYMS

CIA	Central Intelligence Agency
CR	Controlled Release
GDP	Gross Domestic Product
IPA	International Psychogeriatric Association
PPP	Purchasing Power Parity
PRC	Prolonged Release Capsule
UK	United Kingdom
UN	United Nations
US	United States
WDI	World Development Indicator
WHO	World Health Organization
XR	Extended Release

PREFACE

As chair of the Mental Health Economics Task Force of International Psychogeriatric Association (IPA), I would like to greatly appreciate all investigators, data collectors, international advisors, and all the friends in IPA who have supported this project to examine international medicine prices for diseases which has great burden and impact on mental health of older people. During this survey, I have thought about a dilemma proposed by Lawrence Kohlberg. It is as follows: “In a country, a woman was near death from a special kind of cancer. There was one drug that the doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make, but the druggist was charging ten times what the drug cost him to make. He paid \$200 for the radium and charged \$2000 for a small dose of the drug. The sick woman’s husband, Heinz, went to everyone he knew to borrow the money, but he could only get together about \$1000 which is half of what it cost. He told the druggist that his wife was dying and asked him to sell it cheaper or let him pay later. But the druggist said: “No, I discovered the drug and I’m going to make money from it.” So Heinz got desperate and broke into the man’s store to steal the drug for his wife. Should the husband have done that?” (Kohlberg, 1963, p. 19)

Justice means that we reach a solution that everyone considers fair. A fair solution comes about when everyone impartially puts himself or herself in everyone else’s shoes.

I strongly recommend you to have a chance to think about the Kohlberg’s dilemma and answer to it by yourself after reviewing this report.

Guk-Hee Suh

(IPA Board member, Chair of the Mental Health Economics Task Force)

EXECUTIVE SUMMARY

The Mental Health Economics Task Force of IPA has conducted a web-based international medicine price survey to examine the medicine prices of Alzheimer's drugs, antidepressants, and antipsychotics across 21 countries in all 6 continents. Data on prices for 19 medicines were collected.

The results are summarized.

- Great price differential was observed. Cheapest prices of branded originators are mostly from India and Mexico.
- Medicine prices in Argentina, Brazil, Dominican Republic, Macedonia, Nigeria, Philippines, Serbia, Thailand, and Uganda are greatly higher compared to Mexico and India, and relatively higher compared to developed countries in terms of purchasing power parity.
- People in most developing countries cannot afford to buy Alzheimer's drugs, novel antipsychotics, and antidepressants.
- Similar levels of price were observed in most developed countries.
- Japan has accepted few drugs yet, even though older people of Japan are known to take advantage of the longest life expectancy in the world. Only donepezil is available in Japan, while memantine is not reimbursed in Australia.
- Prices of antidepressants in European Union countries were cheapest level in the world.

It is hoped that equitable pricing – selling the same medicines at different prices in different countries in accordance with people's purchasing power – will be applied for all these drugs in near future.

PART I: PROTOCOL

1.

INTRODUCTION

World is progressively ageing. The World population prospects of United Nations (UN) predicted that, between 2000 and 2020, an increase of 66 and 227 million elderly people in developed and developing countries respectively. Developing countries are at a stage of initiating primary health care. The demographic change in developing countries implies a need for planning and developing more effective health care strategies. Large proportions of the world population have limited access to medicines, either because of poor availability or because patients must pay for their prescriptions and are not able to do so.

In developing countries, most medicines are paid out-of-pocket by individual patients rather than being subsidized through health insurance. Little is known about the prices that older people pay for medicines and how these prices are set. In this report, we describe the prices of Alzheimer's drugs, novel antidepressants, and atypical antipsychotic drugs for chronic mental illnesses in representative 21 countries in 6 continents around the world. Growing costs of treatment for mental health problems are apparent. Novel atypical antipsychotics for psychosis, and a variety of antidepressants for depression are marketed at higher prices than the older treatments they could potentially replace. Not surprisingly, there appear some initiatives of regulators or governments to determine whether the newer treatments are cost-effective. It is hoped that the report will stimulate dialogue among policy-makers, civil society, the pharmaceutical industry and health care professionals on finding ways to improve price, availability and affordability of these medicines.

This report contains an analysis of the data collected in recent international medicine price survey of originator medicines across countries. When an originator medicine is not available in a country, information about available

most-sold generic drug should be provided instead. The report is intended to be used by policy makers and authorities responsible for pricing, price regulation, procurement and other regulatory affairs related to these chronic mental illnesses. The data can also be used by civil society groups concerned about access to essential medicines to advocate for pricing policies that make medicines more affordable and available. It is also intended to be a basis for planning further surveys in the countries already surveyed or in extended area. The data provided in this report may also be used to suggest how medicines for treating chronic mental illnesses such as Alzheimer's disease, depression and psychosis could be made more available at more affordable prices, either for the individual or for the government providing care to the older people.

To conduct an international medicine price survey is not an easy task and it requires a great deal of time, effort and commitment. The pharmaceutical industry and others in the business community are very skeptical about these surveys and think of the potential adverse effects they may have on business. Equitable pricing – selling the same medicines at different prices in different countries in accordance with people's purchasing power – is infrequently implemented by pharmaceutical companies. Changes in trade regulations and particularly rules relating to intellectual property, such as patent rights, may also affect the international prices and availability of medicines. It is hoped that this report would initiate change in policies to improve availability and affordability of these medicines.

2.**OBJECTIVES**

The objectives of the project are:

- to prepare a network of international investigators to set a framework for data collection on relevant economic dimensions such as medicine price;
- to collect medicine price data to allow cross-country comparisons to be made;;
- to make information and indicators for each country compared;
- to disseminate these information and indicators comparable to policy makers, regulatory authorities, civil social groups, health care professionals, and patients and their families;
- to advocate for better mental health care for older people.

3.**METHODS****3.1.****Selecting medicines**

The Mental Health Economics Task Force of IPA decided to look at the price of each essential drug for mental health of older population.

3.1.1.**CRITERIA**

The 19 medicines (see Figure 1) have been selected because they meet the following criteria:

- Global burden of disease: they are all used to treat common mental health conditions, acute and chronic, that cause significant morbidity and mortality, including dementia, depression, and psychosis.
- Availability : they are available in standard formulations and are widely used in many countries.
- Patent status : they represent medicines that are both new and on patent, or recently off patent.

3.2.**How to collect data****3.2.1.****GENERAL INSTRUCTION**

At beginning of each web page for specific medicines, we wrote as follows;
“Please fill up the table. Indicate whether each drug with different dose or its equivalent generic drug is available in your country or region. If available, indicate price of each drug in your country or region” (Figure 2)

Medicine category	Generic name	Dose	Dosage form
Alzheimer's drug	Donepezil	5 / 10mg	Tablet
Alzheimer's drug	Galantamine	4/ 8/ 12mg	Tablet
Alzheimer's drug	Galantamine PRC	8/ 16/ 24mg	Capsule
Alzheimer's drug	Rivastigmine	1.5/ 3/ 4.5/ 6mg	Tablet
Alzheimer's drug	Memantine	10mg	Tablet
Antidepressant	Bupropion	150mg	Tablet
Antidepressant	Citalopram	10/ 20mg	Tablet
Antidepressant	Fluoxetine	10/ 20mg	Capsule
Antidepressant	Mirtazapine	15/ 30mg	Tablet
Antidepressant	Moclobemide	150mg	Tablet
Antidepressant	Paroxetine	10/ 20mg	Tablet
Antidepressant	Paroxetine CR	12.5/ 25mg	Tablet
Antidepressant	Sertraline	50/ 100mg	Tablet
Antidepressant	Venlafaxine	37.5/ 75mg	Capsule
Antidepressant	Venlafaxine XR	37.5/ 75mg	Capsule
Antipsychotic	Amisulpride	100/ 200/ 400mg	Tablet
Antipsychotic	Aripiprazole	10/ 15mg	Tablet
Antipsychotic	Clozapine	25/ 100mg	Tablet
Antipsychotic	Olanzapine	5/ 10mg	Tablet
Antipsychotic	Quetiapine	25/ 100mg	Tablet
Antipsychotic	Risperidone	0.5/ 1/ 2mg	Tablet
Antipsychotic	Ziprasidone	20/ 40/ 100mg	Tablet

(PRC = Prolonged Release Capsule, CR = controlled release, XR = extended release)

Figure 1. List of medicines to be surveyed

PRICES OF ANTI-DEMENTIA DRUGS -

LIST SAVE

Please fill up the table. Indicate whether each drug with different dose or its equivalent generic drug is available in your country or region. If available, indicate price of each drug in your country or region.

Drug	original				generic in your country			
	availa- bility	reimbur- sement	cost	unit	availa- bility	reimbur- sement	cost	unit
Donepezil 5mg	<input checked="" type="radio"/> yes <input type="radio"/> no	<input checked="" type="radio"/> yes <input type="radio"/> no	4500.0	Won	<input type="radio"/> yes <input checked="" type="radio"/> no	<input type="radio"/> yes <input checked="" type="radio"/> no		Won
Donepezil 10mg	<input checked="" type="radio"/> yes <input type="radio"/> no	<input checked="" type="radio"/> yes <input type="radio"/> no	5200.0	Won	<input type="radio"/> yes <input checked="" type="radio"/> no	<input type="radio"/> yes <input checked="" type="radio"/> no		Won

Figure 2. Scanned web page for collecting data of prices of donepezil

3.2.2. CHARACTERISTICS OF MEDICINE PRICES

COMPONENTS AND

The final price of a medicine paid by a government, a health insurer or the patient reflects the manufacturer's selling price (MSP), plus all intervening price additions. The add-ons to the producer's price are known as "price components" and represent the cost of importation, distribution and dispensing. They consist of local costs that may differ substantially from one country to another, within a sector and even between medicines. They typically include:

- Pharmaceutical import duties
- Taxes
- Mark-ups by importers, wholesalers and retail distributors
- Distribution costs
- Dispensing costs

Accurate information on the procurement price or manufacturer's selling price (MSP) should be available for direct comparison of international price differential. However, retail or wholesale prices can be also good alternatives for gross comparison in view of both policy makers and health authorities and civil society group.

Actually most of prices that we collected are prices at when given to patients (100% of a price irrespective of reimbursement), while those of Korea, Australia, and the UK are procurement prices. At first, all prices were converted to US dollars using the average currency exchange rate of 2007. Second, using purchasing power parity conversion rate of 2007 provided by the International Monetary Fund, medicine prices of each country are converted to PPP converted price (US dollar) to make the affordability index.

**3.2.3.
COLLECTION AND ENTRY****WEB-BASED DATA**

The success of the medicine price survey is dependent on the collection and recording of accurate and reliable data by the investigators. Web-based data entry has been prepared at central level using the website of the Mental Health Economics Task Force of International Psychogeriatric Association (IPA) (<http://economics.ipa-online.org>). All data collection was supposed to be conducted by the volunteered medical doctors who had a basic knowledge of pharmaceuticals, most of whom have used them in their clinical practice. They were familiar with pharmaceuticals and the different dosage forms and pack sizes which should be essential to extract the required information from health professionals and from written material, and to record it accurately during observations. For the purpose of collecting data of medicine prices, specific web pages were designed to enter the data that serve as the basis for reports. Predetermined ID and password were issued to each investigator to allow access of the survey contents of the web site. Detailed explanation for the completion of web survey was provided in each web page. When web access was difficult in some countries, a model Medicine Price Data Collection Form, which was made after preliminary tests, was provided to the investigator. Investigators should complete both originator and generics columns for each medicine. If generics are not available, investigators left the cost column vacant. A medicine may be available in different dosage forms, including tablets and capsules. Tablet and capsule are considered equivalent. Strength of a medicine on which information should be collected for a medicine was predetermined. The pack size should be identical to the recommended size. If this is not available, investigator could include other closest pack size found. Finally, investigators entered the price of the pack actually found in the national currency. If unit prices differ due to different pack sizes, middle value of minimum and maximum prices should be chosen as a representative unit price. If part of the price is paid by insurance or other means, investigators should record the full 100% price of the pharmaceutical.

For instance, if the medicine is reimbursed 60% and the patients pays 40%, investigators should record the full price (100%).

3.3.

How to compare

3.3.1.

AFFORDABILITY INDEX

Purchasing power is the amount of value of a good/service compared to the amount paid. Concept of purchasing power parity (PPP) is based on the law of one price: the idea that, in an efficient market, identical goods must have only one price. In reality, identical goods do not get only one price. The exchange rate between two currencies specifies how much one currency is worth in terms of the other. For example an exchange rate of 123 Japanese yen (JPY, ¥) to the U.S. dollar (USD, \$) means that JPY 123 is worth the same as USD 1. This international market based exchange rate will change whenever the values of either of the two component currencies change. On the other hand, if a Big Mac hamburger cost 4 US dollars in the U.S. and 3 sterling pounds in Britain, then PPP exchange rate would be 3 sterling pounds for 4 US dollars. A purchasing power parity exchange rate equalizes the purchasing power of different currencies in their home countries for a given basket of goods. It is often used to compare the standards of living between countries, rather than a per-capita Gross Domestic Products (GDP) comparison at international market exchange rates. For comparison of values for money in their home countries, the International Monetary Fund (IMF) publishes the latest “Purchasing power parity conversion rate.”¹ It is the number of units of a country’s currency required to buy the same amounts of goods and services in the domestic market as U.S. dollar would buy in the United States. Purchasing power parity conversion factor is much different from the currency exchange rate. The IMF provides the 2007 estimate of the

¹ *<http://www.imf.org/external/pubs/ft/weo/2007/02/weodata/index.aspx> accessed at July 1, 2008.

per capita GDP (PPP) of each country, which will be used to find the daily income in this report. Affordability index is operationally defined as the total number of pills purchasable with one's daily income.

3.3.2.

HOW TO READ TABLES

Each table has the same format as below.

Country	A.	B	C	D	E	F.	G.
	=	=	= A/B	=	=A/D	= GDP per capita (PPP) /365	=F/E
Drug 'A' Price in the country, 2007	Utopia	Exchange rate to US\$, 2007 average	Converted Price, US\$	IMF PPP conversion rate, 2007	PPP Converted Price, US\$	Daily income	number of pills purchasable with one's daily income = Affordability index
	5	0.5	10	2	2.5	200	80

Figure 3. An example to show how to calculate the affordability index of Drug 'A'

Figure 3 schematically demonstrates the way to calculate the affordability index of drug 'A'.

- Column A shows that price of drug 'A' in the Utopia is 5 Utopia dollars.
- Column B shows that 0.5 Utopia dollar is worth the same as US\$ 1.
- Column C shows that the converted price of drug 'A' using international currency exchange rate is 10 US\$ ($C=A/B$).
- Column D tells us that 2 Utopia dollars can buy the same amounts of goods and services in the domestic market as 1 U.S. dollar would buy in the United States.
- Column E shows a value of PPP converted price (US\$) considering 2007 PPP conversion rate³ provided by the IMF ($E= A/D$)

- Column F shows daily income, which is derived from PPP GDP per capita provided by the IMF. ($= \text{GDP per capita (PPP)} / 365$)
- Column G finally tells us the Affordability index, the total number of pills purchasable with one's daily income. It is derived when daily income is divided by the PPP converted price (US\$). A value of 80 as an affordability index means that, with daily income, people in Utopia can purchase 80 tablets of Drug 'A'.

4.**RESULTS**

A table shows raw prices of a drug, its currency converted prices (US\$), its PPP converted prices (US\$), and its affordability indices in 21 countries.

4.1.**Alzheimer's drugs****4.1.1.****DONEPEZIL (TABLE 1)**

- Donepezil is available in all 21 countries
- For 5 mg tablet of donepezil, range of PPP converted price is from US\$ 0.43 (Mexico) to US\$ 17.59 (Philippines), and range of Affordability index is from 0.2 tablets per daily income (Uganda, Nigeria) and 75.6 tablets per daily income (Mexico).
- For 10 mg tablet of donepezil, range of PPP converted price is from US\$ 0.40 (Mexico) to US\$ 18.51 (Philippines), and range of Affordability index is from 0.8 tablets per daily income (Philippines) and 81.6 tablets per daily income (Mexico).
- PPP GDP per capita of Mexico is US\$ 11,800, while their PPP converted prices of both 5mg and 10mg tablets are the lowest among all 21 countries.

4.1.2.**GALANTAMINE PRC (TABLE 3)****GALANTAMINE (TABLE 2),**

Galantamine PRC is a prolong-release formulation, which make galantamine administered once a day.

- Galantamine is also available in most countries, but not available in Japan and low-income countries.
- For 4 mg tablet of galantamine, range of PPP converted price is from US\$ 0.28 (Mexico) to US\$ 9.57 (Dominican republic), and range of

- Affordability index is from 1.7 tablets per daily income (Philippines) and 117.4 tablets per daily income (Mexico).
- For 8 mg tablet of galantamine, range of PPP converted price is from US\$ 0.29 (Mexico) to US\$ 16.60 (Philippines), and range of Affordability index is from 0.9 tablets per daily income (Philippines) and 111.2 tablets per daily income (Mexico).
 - PPP converted prices of both strength (4mg and 8mg) in Mexico is the lowest among all 21 countries.
 - Prices of three different doses of galantamine appear to be almost same without price differential, but 8 mg galantamine costs double compared to 4 mg galantamine in Philippines.
 - Galantamine PRC is not available yet in France, Portugal, Japan, and the UK, as well as low-income countries. Pricing of three different doses of galantamine PRC vary across countries; same price (USA), same price at higher strengths (Switzerland, Taiwan), same price at lower strengths (New Zealand), steadily increasing price (Brazil, Mexico, Argentina, Korea, Australia).

4.1.3.

RIVASTIGMINE (TABLE 4)

- Rivastigmine is also available in most countries, but not in Nigeria, Uganda, Thailand, and Japan.
- Prices of four different doses of rivastigmine PRC do not vary across countries.
- For 1.5 mg capsule of rivastigmine, range of PPP converted price is from US\$ 0.28 (Mexico) to US\$ 11.23 (Dominican republic), and range of Affordability index is from 1.8 tablets per daily income (India) and 115.2 tablets per daily income (Mexico).
- For 4.5 mg capsule of rivastigmine, range of PPP converted price is from US\$ 1.77 (New Zealand) to US\$ 6.38 (India), and range of Affordability index is from 1.8 tablets per daily income (India) and 62.1 tablets per daily income (Switzerland).

4.1.4.**MEMANTINE (TABLE 5)**

- Memantine is also available in most countries, but not in Nigeria, Uganda, India, Thailand, Macedonia, and Japan. Memantine is available in Australia, but not reimbursed.
- For 10 mg tablet of memantine, range of PPP converted price is from US\$ 0.21 (Mexico) to US\$ 10.72 (Philippines), and range of Affordability index is from 1.5 tablets per daily income (Philippines) and 155.3 tablets per daily income (Mexico).

4.2.**Antipsychotic drugs****4.2.1.****AMISULPRIDE (TABLE 6)**

- Amisulpride is available in Philippines, Brazil, Mexico, Portugal, Korea, Taiwan, France, the UK, Australia, and Switzerland, while its generic equivalents are available in Argentina and India. Amisulpride is not available in the USA.
- For 200mg tablet of amisulpride, range of PPP converted price is from US\$ 0.44 (Mexico) to US\$ 16.10 (Philippines), and range of Affordability index is from 1 tablets per daily income (Philippines) and 97.3 tablets per daily income (France). Price in Philippines is unusually high.

4.2.2.**ARIPIPRAZOLE (TABLE 7)**

- Aripiprazole is available in Philippines, Brazil, Thailand, Mexico, Portugal, Korea, Taiwan, France, the UK, Japan, Australia, Switzerland, and the USA, while its generic equivalents are available in Argentina and India. In 2007, 3 mg and 6 mg tablets of aripiprazole (instead of 10 mg and 15 mg) were available in Japan.
- For 10mg tablet of aripiprazole, range of PPP converted price is from US\$ 0.82 (Mexico) to US\$ 19.02 (Philippines), and range of Affordability index is from 0.8 tablets per daily income (Philippines) and 39.9 tablets per daily income (Mexico).

4.2.3.**CLOZAPINE (TABLE 8)**

- Clozapine is available in most countries, and its generic equivalents are available in Argentina and India, whereas not available in Thailand, Uganda, and Japan.

- For 100mg tablet of clozapine, range of PPP converted price is from US\$ 0.74 (Mexico) to US\$ 23.75 (Nigeria), and range of Affordability index is from 0.3 tablets per daily income (Nigeria) and 115.8 tablets per daily income (Switzerland).

4.2.4.**OLANZAPINE (TABLE 9)**

- Olanzapine is available in all 21 countries, and its generic equivalents are available in India.
- For 10mg tablet of olanzapine, range of PPP converted price is from US\$ 1.08 (Mexico) to US\$ 40.24 (Dominican Republic), and range of Affordability index is from 0.3 tablets per daily income (Nigeria) and 34.1 tablets per daily income (UK).

4.2.5.**RISPERIDONE (TABLE 10)**

- Risperidone is available in all 21 countries.
- For 1mg tablet of risperidone, range of PPP converted price is from US\$ 0.15 (Mexico) to US\$ 7.00 (Philippines), and range of Affordability index is from 0.7 tablets per daily income (Uganda) and 241.9 tablets per daily income (Japan).

4.2.6.**QUETIAPINE (TABLE 11)**

- Quetiapine is available in most countries except Uganda, Nigeria, Thailand, Macedonia, and France, while its generic equivalents are available in India.
- For 100mg tablet of quetiapine, range of PPP converted price is from US\$ 0.21 (Mexico) to US\$ 8.43 (Philippines), and range of

Affordability index is from 1.9 tablets per daily income (Philippines) and 151.6 tablets per daily income (Mexico).

4.2.7.

ZIPRASIDONE (TABLE 12)

Table 12 (ziprasidone) shows PPP converted price (US\$) and affordability index in each country.

- Ziprasidone is available in some countries except Uganda, Nigeria, Philippines, Serbia, Thailand, Macedonia, France, the UK, Japan, and Switzerland, while its generic equivalents are available in India.
- For 40mg tablet of ziprasidone, range of PPP converted price is from US\$ 0.51 (Mexico) to US\$ 6.77 (Dominican Republic), while range of Affordability index is from 4.1 tablets per daily income (Dominican Republic) and 63.5 tablets per daily income (Mexico).

4.3.**Antidepressants****4.3.1.****MOCLOBEMIDE (TABLE 13)**

- Moclobemide is available in some countries except Uganda, Nigeria, Serbia, Thailand, Macedonia, Dominican Republic, Argentina, New Zealand, Japan, and the USA.
- For 150mg tablet of moclobemide, range of PPP converted price is from US\$ 0.11 US\$ to US\$ 3.49 (Philippines), and range of Affordability index is from 4.5 tablets per daily income (Philippines) and 383.5 tablets per daily income (Australia). Prices in Philippines and Brazil are unusually high.

4.3.2.**CITALOPRAM (TABLE 14)**

- Citalopram is available in some countries except Nigeria, India, Philippines, Thailand, and Japan, while its generic equivalents are available in Dominican Republic and Macedonia.
- For 20 mg tablet of citalopram, range of PPP converted price is from US\$ 0.39 (Mexico) to US\$ 4.01 (Uganda), and range of Affordability index is from 1.2 tablets per daily income (Uganda) and 205.6 tablets per daily income (Australia).

4.3.3.**FLUOXETINE (TABLE 15)**

- Fluoxetine is available in almost all countries except Thailand and Japan.
- For 20mg tablet of fluoxetine, range of PPP converted price is from US\$ 0.30 (India) to US\$ 9.53 (Philippines), and range of Affordability index is from 0.7 tablets per daily income (Uganda) and 132.5 tablets per daily income (UK).

**4.3.4.
PAROXETINE CR (TABLE 17)****PAROXETINE (TABLE 16) &**

- Paroxetine is available in most countries except Philippine and Taiwan.
- Paroxetine CR is available in a few countries like India (only generics), Dominican Republic, Brazil, Mexico, Korea, Taiwan, and the USA.
- For 20 mg tablet of paroxetine, range of PPP converted price is from US\$ 0.33 (Mexico) to US\$ 8.03 (Uganda), and range of Affordability index is from 0.6 tablets per daily income (Uganda) and 141.5 tablets per daily income (UK).
- For 12.5 mg tablet of paroxetine CR, range of PPP converted price is from US\$ 0.84 (India) to US\$ 4.05 (Dominica Republic), and range of Affordability index is from 6.9 tablets per daily income (Dominica Republic) and 66.8 tablets per daily income (Taiwan).

4.3.5.**SERTRALINE (TABLE 18)**

- Sertraline is available in almost all countries, while its generic equivalents are available in Mexico and Macedonia.
- For 50mg tablet of sertraline, range of PPP converted price is from US\$ 0.36 (Mexico) to US\$ 31.92 (Philippines), and range of Affordability index is from 0.5 tablets per daily income (Philippines) and 149.3 tablets per daily income (Australia).

4.3.6.**BUPROPION (TABLE 19)**

- Bupropion is available in most countries except Uganda, Nigeria, Philippines, Thailand, Macedonia, Argentina, Portugal, and Japan, while its generic equivalents are available in India and Mexico.
- For 150mg tablet of bupropion, range of PPP converted price is from US\$ 0.24 (Mexico) to US\$ 5.44 (Dominica Republic), and range of Affordability index is from 5.2 tablets per daily income (Dominica Republic) and 136.9 tablets per daily income (Mexico).

4.3.7.**MIRTAZAPINE (TABLE 20)**

- Mirtazapine is available in most countries except Nigeria, Thailand, Brazil, New Zealand, and Japan. Its generic equivalents are available in India, Macedonia, Mexico, Portugal, and France
- For 30mg tablet of mirtazapine, range of PPP converted price is from US\$ 0.24 (Mexico) to US\$ 9.47 (Philippines), and range of Affordability index is from 1.7 tablets per daily income (Philippines) and 165.5 tablets per daily income (France).

4.3.8.**VENLAFAXINE XR (TABLE 22)****VENLAFAXINE (TABLE 21) &**

- Venlafaxine is available in most countries except Argentina, Portugal, New Zealand, and Japan, and generic equivalents of venlafaxine are available in India, Macedonia, and Mexico.
- Venlafaxine XR is available in most countries except Uganda, Nigeria, Phillipine, Serbia, Thailand, Macedonia, France, the UK and Japan, and generic equivalents of venlafaxine XR are available in India.
- For 75mg capsule of venlafaxine, range of PPP converted price is from US\$ 0.40 (India) to US\$ 20.07 (Uganda), and range of Affordability index is from 0.2 tablets per daily income (Uganda)

and 80.9 tablets per daily income (UK), when we do not consider data from Mexico where 75 mg venlafaxine was not available.

- For 75mg capsule of venlafaxine XR, range of PPP converted price is from US\$ 0.36 (Mexico, India) to US\$ 11.14 (Dominican Republic), and range of Affordability index is from 2.5 tablets per daily income (Dominica Republic) and 90.9 tablets per daily income (Australia).

Table 13. antidepressant, moclobemide 150 mg

Country	Price in the country, 2007	exchange rate to US\$, 2007 average	Converted Price, US\$	IMF PPP conversion rate, 2007	PPP Converted Price, US\$	Daily income (= PPP GDP /365)	Affordability index = number of pills purchasable with one's daily income
Uganda		1741.235		373.683		4.734	
Nigeria		128.612		81.225		3.509	
India	5.10	41.357	0.12	9.583	0.53	11.460	21.5
Philippines	45.25	46.214	0.98	12.963	3.49	15.722	4.5
Serbia		59.712		44.245		19.905	
Thailand		32.530		12.615		26.615	
Macedonia	-	44.450	-	19.674		22.606	
Dominican republic		33.739		13.378		28.056	
Brazil	2.18	1.952	1.12	1.272	1.71	29.142	17.0
Mexico	0.83	10.937	0.08	7.825	0.11	32.547	306.8
Argentina		3.122		1.118		48.107	
Portugal	0.54	0.731	0.73	0.641	0.84	65.388	77.6
Korea	495.00	935.270	0.53	706.298	0.70	70.794	101.0
New Zealand		1.362		1.524		73.957	
Taiwan	11.00	32.883	0.33	16.519	0.67	89.013	133.7
France	0.26	0.731	0.36	0.913	0.28	90.624	318.2
UK	0.31	0.500	0.62	0.609	0.51	102.269	200.9
Japan	-	117.815	-	118.354		93.216	
Australia	0.37	1.195	0.31	1.482	0.25	95.736	383.5
Switzerland	0.97	1.200	0.80	1.697	0.57	111.206	194.6
USA	-	1.000	-	1.019	-	122.643	

(Note: all values are for the originator price if * is not prefixed for the price of the generic equivalent drug.)

Table 17. antidepressant, paroxetine CR

Country	Price in the country, 2007		exchange rate to US\$, 2007 average	Converted Price, US\$		IMF PPP conversion rate, 2007	PPP Converted Price, US\$		Daily income (= PPP GDP /365)	Affordability index = number of pills purchasable with one's daily income	
	12.5 mg	25 mg		12.5 mg	25 mg		12.5 mg	25 mg		12.5 mg	25 mg
Uganda			1741.235			373.683			4.734		
Nigeria			128.612			81.225			3.509		
India	*8.04	*11.12	41.357	*0.19	*0.27	9.583	0.84	1.16	11.460	13.7	9.9
Philippines			46.214			12.963			15.722		
Serbia			59.712			44.245			19.905		
Thailand			32.530			12.615			26.615		
Macedonia			44.450			19.674			22.606		
Dominican republic	54.17	94.2	33.739	1.61	2.79	13.378	4.05	7.04	28.056	6.9	4.0
Brazil	2.36	4.72	1.952	1.21	2.42	1.272	1.86	3.71	29.142	15.7	7.9
Mexico		1.65	10.937		0.15	7.825		0.21	32.547		154.4
Argentina			3.122			1.118			48.107		
Portugal			0.731			0.641			65.388		
Korea	1004.00		935.270	1.07		706.298	1.42		70.794	49.8	
New Zealand			1.362			1.524			73.957		
Taiwan	22.00		32.883	0.67		16.519	1.33		89.013	66.8	
France	-	-	0.731	-	-	0.913	-	-	90.624		
UK	-	-	0.500	-	-	0.609	-	-	102.269		
Japan			117.815			118.354			93.216		
Australia			1.195			1.482			95.736		
Switzerland			1.200			1.697			111.206		
USA	3.80	3.97	1.000	3.80	3.97	1.019	3.73	3.90	122.643	32.9	31.5

(Note: all values are for the originator price if * is not prefixed for the price of the generic equivalent drug.)

CR = controlled release

Table 19. antidepressant, bupropion 150 mg

Country	Price in the country, 2007	exchange rate to US\$, 2007 average	Converted Price, US\$	IMF PPP conversion rate, 2007	PPP Converted Price, US\$	Daily income (= PPP GDP /365)	Affordability index = number of pills purchasable with one's daily income
Uganda		1741.235		373.683		4.734	
Nigeria		128.612		81.225		3.509	
India	*13.55	41.357	*0.33	9.583	1.41	11.460	8.1
Philippines		46.214		12.963		15.722	
Serbia	63.03	59.712	1.06	44.245	1.42	19.905	14.0
Thailand		32.530		12.615	0.00	26.615	
Macedonia	-	44.450	-	19.674		22.606	
Dominican republic	72.76	33.739	2.16	13.378	5.44	28.056	5.2
Brazil	2.98	1.952	1.53	1.272	2.34	29.142	12.4
Mexico	*1.86	10.937	*0.17	7.825	0.24	32.547	136.9
Argentina		3.122		1.118		48.107	
Portugal		0.731		0.641		65.388	
Korea	995.00	935.270	1.06	706.298	1.41	70.794	50.3
New Zealand	2.19	1.362	1.61	1.524	1.44	73.957	51.5
Taiwan	35.00	32.883	1.06	16.519	2.12	89.013	42.0
France	1.56	0.731	2.13	0.913	1.71	90.624	53.0
UK	0.66	0.500	1.32	0.609	1.08	102.269	94.4
Japan	-	117.815	-	118.354	-	93.216	
Australia	1.88	1.195	1.57	1.482	1.27	95.736	75.5
Switzerland	3.05	1.200	2.54	1.697	1.80	111.206	61.9
USA	2.00	1.000	2.00	1.019	1.96	122.643	62.5

(Note: all values are for the originator price if * is not prefixed for the price of the generic equivalent drug.)

Table 22. antidepressant, venlafaxine XR

Country	Price in the country, 2007		exchange rate to US\$, 2007 average	Converted Price, US\$		IMF PPP conversion rate, 2007	PPP Converted Price, US\$		Daily income (= PPP GDP /365)	Affordability index = number of pills purchasable with one's daily income	
	37.5 mg	75 mg		37.5 mg	75 mg		37.5 mg	75 mg		37.5 mg	75 mg
Uganda			1741.235			373.683			4.734		
Nigeria			128.612			81.225			3.509		
India	*1.83	*3.42	41.357	*0.04	*0.08	9.583	*0.19	*0.36	11.460	60.0	32.1
Philippines			46.214			12.963			15.722		
Serbia			59.712			44.245			19.905		
Thailand			32.530			12.615			26.615		
Macedonia			44.450			19.674			22.606		
Dominican republic		148.97	33.739		4.42	13.378			11.14	28.056	2.5
Brazil	2.65	6.26	1.952	1.36	3.21	1.272	2.08	4.92	29.142	14.0	5.9
Mexico	2.84	2.84	10.937	0.26	0.26	7.825	0.36	0.36	32.547	89.7	89.7
Argentina	3.21	4.62	3.122	1.03	1.48	1.118	2.87	4.13	48.107	16.8	11.6
Portugal	0.56	1.31	0.731	0.76	1.79	0.641	0.87	2.04	65.388	74.8	32.0
Korea	1110.00	1448.00	935.270	1.19	1.55	706.298	1.57	2.05	70.794	45.0	34.5
New Zealand		1.33	1.362		0.98	1.524			0.87	73.957	84.7
Taiwan		45.00	32.883		1.37	16.519			2.72	89.013	32.7
France			0.731			0.913			90.624		
UK			0.500			0.609			102.269		
Japan	-	-	117.815	-	-	118.354	-	-	93.216		
Australia	0.91	1.56	1.195	0.76	1.31	1.482	0.61	1.05	95.736	155.9	90.9
Switzerland	2.34	2.56	1.200	1.95	2.13	1.697	1.38	1.51	111.206	80.6	73.7
USA	3.95	4.42	1.000	3.95	4.42	1.019	3.88	4.34	122.643	31.6	28.3

(Note: all values are for the originator price if * is not prefixed for the price of the generic equivalent drug.)

XR = extended release

PART II: ADDENDA : COMPARISON ACROSS COUNTRIES

1.

POPULATION

Country	Population , 2007	Age Structure (%)			Population growth rate (%)
		0 ~ 14	15 ~ 64	65 +	
Argentina	40,301,927	24.9	64.4	10.7	0.938
Australia	20,434,176	19.3	67.4	13.2	0.824
Brazil	190,010,647	25.3	68.4	6.3	1.008
Dominican republic	9,365,818	32.1	62.2	5.7	1.500
France	63,713,926	18.6	65.2	16.2	0.588
India	1,129,866,154	31.8	63.1	5.1	1.606
Japan	127,433,494	13.8	65.2	21	-0.088
Korea	49,044,790	18.3	72.1	9.6	0.394
Macedonia	2,055,915	33.5	35.5	34.4	0.263
Mexico	108,700,891	30.1	64.0	5.9	1.153
New Zealand	4,115,771	20.8	67.3	11.9	0.950
Nigeria	135,031,164	42.2	54.7	3.1	2.379
Philippines	91,077,287	34.5	61.3	4.1	1.764
Portugal	10,642,836	16.5	66.3	17.3	0.334
Serbia	10,159,046	19.0	67.0	14.0	2.300
Switzerland	7,554,661	16.1	68.2	15.8	0.381
Taiwan	22,858,872	17.8	72.0	10.2	0.304
Thailand	65,068,149	21.6	70.1	8.2	0.663
Uganda	30,262,610	50.2	47.6	2.2	3.572
UK	60,776,238	17.2	67.0	15.8	0.275
USA	301,139,947	20.2	67.2	12.6	0.894

2. MORTALITY RATE

BIRTH RATE &

Country	Birth Rate/ 1000 population	Mortality Rate/ 1000 population	Infant Mortality Rate/ 1000 live birth		
			Male	Female	Total
Argentina	16.53	7.55	16.11	12.38	14.27
Australia	12.02	7.56	4.95	4.16	4.57
Brazil	16.30	6.19	31.27	23.78	27.62
Dominican republic	22.91	5.32	30.05	25.75	27.94
France	12.91	8.55	3.76	3.04	3.41
India	22.69	6.58	39.42	29.23	34.61
Japan	8.10	8.98	3.00	2.59	2.80
Korea	9.93	5.99	6.43	5.64	6.05
Macedonia	12.02	8.78	9.69	9.37	9.53
Mexico	20.36	4.76	21.54	17.62	19.63
New Zealand	13.61	7.54	6.48	4.82	5.67
Nigeria	40.20	16.68	102.44	88.38	95.52
Philippines	24.48	5.36	24.85	19.25	22.12
Portugal	10.59	10.56	5.38	4.42	4.92
Switzerland	9.66	8.51	4.77	3.77	4.28
Serbia	12.10	10.70	14.13	10.76	12.52
Taiwan	8.97	6.54	5.86	5.19	5.54
Thailand	13.73	7.10	20.13	17.51	18.85
Uganda	48.12	12.64	70.92	63.42	67.22
UK	10.67	10.09	5.58	4.40	5.01
USA	14.16	8.26	7.02	5.68	6.37

3. FERTILITY, LITERACY, AND LIFE EXPECTANCY

Country	Fertility Rate (children born per woman)	literacy	Life expectancy at birth		
			Male	Female	Total
Argentina	2.13	97.2	72.60	80.24	76.32
Australia	1.76	99.0	77.75	83.63	80.62
Brazil	1.88	88.6	68.30	76.38	72.24
Dominican republic	2.81	87.0	71.34	74.87	73.07
France	1.98	99.0	77.35	84.00	80.59
India	2.81	61.0	66.28	71.17	68.59
Japan	1.23	99.0	78.67	85.56	82.02
Korea	1.28	97.2	73.81	80.93	77.23
Macedonia	1.57	96.1	71.73	76.88	74.21
Mexico	2.39	91.0	72.84	78.56	75.63
New Zealand	1.79	99.0	75.97	82.08	78.96
Nigeria	5.45	68.0	46.83	48.07	47.44
Philippines	3.05	92.6	67.61	73.55	70.51
Portugal	1.48	93.3	74.60	81.36	77.87
Serbia	1.69	96.4	72.70	78.09	75.29
Switzerland	1.44	99.0	77.80	83.59	80.62
Taiwan	1.12	96.1	74.65	80.74	77.56
Thailand	1.64	92.6	70.24	74.98	72.55
Uganda	6.84	66.8	50.78	52.73	51.75
UK	1.66	99.0	76.23	81.30	78.70
USA	2.09	99.0	75.15	80.97	78.00

4. GDP & GROWTH RATE

Country	National PPP GDP (Unit: trillion US\$)	PPP GDP per capita (US\$)*	Real Growth Rate (%)	GDP composition (%)		
				Agriculture	Industry	Service
Argentina	0.609	17,559	8.5	8.5	35.9	55.6
Australia	0.675	34,943	2.7	3.7	26.2	70.1
Brazil	1.655	10,637	3.7	5.1	30.9	64.0
Dominican republic	0.077	10,241	10.7	11.6	28.6	59.8
France	1.902	33,078	2.2	2.0	20.7	77.2
India	4.164	4,183	9.4	17.5	27.9	54.6
Japan	4.218	34,024	2.2	1.5	25.6	73.0
Korea	1.206	25,840	4.9	3.2	39.6	57.2
Macedonia	0.017	8,251	3.1	12.6	29.5	57.9
Mexico	1.149	11,880	4.8	3.9	26.7	69.4
New Zealand	0.107	26,994	1.5	4.3	26.9	68.8
Nigeria	0.295	1,281	6.1	17.6	53.1	29.3
Philippines	0.450	5,738	5.4	14.1	31.6	54.2
Portugal	0.210	23,867	1.3	8.0	25.8	66.2
Serbia	0.077	7,265	7.3	12.3	24.2	63.5
Switzerland	0.256	40,590	2.7	1.5	34.0	64.5
Taiwan	0.682	32,490	4.7	1.5	26.8	71.7
Thailand	0.597	9,714	5.0	10.7	44.6	44.7
Uganda	0.053	1,728	5.3	31.4	24.6	44.0
UK	1.928	37,328	2.8	0.9	24.1	75.0
USA	13.060	44,765	2.9	0.9	20.9	78.2

*<http://www.imf.org/external/pubs/ft/weo/2007/02/weodata/index.aspx>

Prepared by Guk-Hee Suh, Chair of the Mental Health Economics Task Force of International Psychogeriatric Association. Guk-Hee Suh takes sole responsibility for all opinion and content in this report.

ADDRESS FOR CORRESPONDENCE

Guk-Hee Suh, MD, PhD

Professor of Psychiatry
Hallym University College of Medicine
Hangang Sacred Heart Hospital
94-200 Yeungdeungpo-Dong
Seoul, 150-030
South Korea

Phone : +82 2 2639 5289 / +82 10 7710 5910
Fax : +82 2 2633 5910
E-mail: suhgh@chol.com or suhgh@hallym.or.kr

International Psychogeriatric Association
550 Frontage Road, Suite 3759
Northfield, IL (Illinois) 60093
United States
Phone : +1 847 501 3310
Fax : +1 847 501 3317