Report on the Estimate of the Social Cost of Mental Disorders, a FY2010 Comprehensive Welfare Project for Persons with Disabilities

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I Outline

According to World Health Organization (2002) estimates, the percentage of each disease to the disability-adjusted life year (DALY) total in Japan is 17.8% for cancer and 16.8% for cardiovascular disease, but neuropsychiatric disorders accounted for as high as 22.5%. However, a problem arises when looking at the WHO 2002–2005 World Mental Health Survey in which Japan is placed eighth among nine developed countries with a low 11.2% consultation rate for people with mild mental illnesses, as opposed to Spain which placed the highest at 35.9%.

Medical treatment fees of the National Insurance System were used in past researches of the cost of mental disorders in Japan. However, care given by psychiatric social workers and clinical psychotherapists is not included in the medical fee point calculation of mental disorder care. The fact that the work hours of doctors and nurses are not sufficiently reflected in the services listed under medical fees is also a problem. Therefore, using medical treatment fees is likely to result in underestimation of costs when analyzing from the standpoint of service providers and the government. The cost of informal care, labor loss due to patients taking leave or resigning, and loss due to suicide also need to be calculated in relation to mental disorder treatment, but no studies in Japan have incorporated these as yet. On the other hand, reforms of mental disorder treatment programs have been tried in Europe and the USA, and well-organized economic analyses have been shown in parallel with these reforms.

Hence, this project was conducted to calculate the social cost of mental disorders in Japan and quantitatively show the social burden. Specifically, the following costs of each mental disorder to Japan were estimated according to the way of the Paying the Price (2008). An exploratory committee and project team staffs repeated discussion to establish a valid model for the estimate.

(1) Treatment (medicine, tests, equipment, staff costs, etc.)
(2) Social services
(3) Informal care (family, volunteer, etc.)
(4) Productivity costs
    a) Affliction-related costs (decreased productivity, labor loss, etc.)
    b) Death-related costs (productivity loss due to suicide)
(5) Other costs

Table I-1 shows a summary of the above. The estimate mainly used various statistical data and a caregiver survey using questionnaire. The resulting estimated annual social cost of mental disorders in Japan is 11 trillion yen. The estimates in the table were calculated as below.

The respective annual medical treatment costs for inpatients and outpatients were calculated as the treatment cost per day multiplied by the number of patients multiplied by the number of days for treatment. The medical fee points by illness category and the actual number of days for treatment found in the Survey of Medical Care Activities in Public Health Insurance (2008) were extracted and the points per day were multiplied by 10 Japanese Yen to calculate the treatment cost per day. The Patient Survey (FY2008) was

used for the number of patients receiving treatment by illness. The number of days for treatment was 365 days for inpatients, and the adjusted number of days used to calculate the total number of patients in the Patient Survey, i.e. 313 days (=365 x 6/7), for outpatients.

Table I-1 Estimated Annual Cost of Mental Disorders in Japan

Description	Estimate (million yen)	Sub-total (million yen)
Medical treatment costs		2,030,115
Inpatient	1,547,316	
Outpatient	482,799	
Social Services		2,261,156
Disabled welfare-related national government costs	100,870	
Prefectures:		
Mental health costs	44,109	
Social welfare costs	749,864	
Cities and towns:		
Social welfare costs	924,182	
Health costs	199,271	
Mental health-related costs of public health center	25,024	
Police dispatch due to reports	276	
Ambulance transportation	71	
Mental disability service: providers' income	211,517	
Mental disability service: payment of users	5,972	
Informal Care		298,813
Family care	286,798	
Transportation costs for hospital visit	11,939	
Costs of nursing care supplies	76	
Productivity Costs		6,597,058
Decreased productivity (excluding leave)	4,336,420	
Labor loss (due to hospital visit)	1,698,882	
Labor loss (due to sick leave)	46,497	
Labor loss (due to suicide)	515,259(6%)	
	702,988(3%)	
Other Costs		751
Total		11,187,893～11,375,622

Note) There are ranges of the estimates because we calculated it by using both 3% and 6% of net present value discount rate for labor loss due to suicide. For details to Table III-4-4 and Table III-4-5.

As pertains to social services, the costs paid by the government in relation to welfare for those with disabilities in social services were calculated by adding the relevant data gathered from publications and the Internet. Costs that include non-mental disabilities (physical and intellectual disabilities) as well as mental disabilities, such as budgets for measures for disabled persons, were adjusted to reflect only the costs relating to mental disorders. This was done by multiplying the percentage of mentally disabled users or the percentage of mentally disabled people. The values for prefectural and municipal expenditure were transcribed from the breakdown of expenditure by function and by character in the White Paper on Local Public Finance, 2008, omitting prefectural treasury payments and prefectural expenditure (municipal only). The cost items were calculated as (prefectural and municipal) social welfare costs by multiplying the percentage of mentally disabled people or the percentage of mental health workers, as with the case described above. The Public Health Center mental health-related costs were calculated by multiplying the Public Health Center costs found in the White Paper on Local Public Finance 2008 by the percentage of mental health staff. The police report and mobilization costs used the cost per call calculated by dividing the Police Department Community Police Affairs Division mental disability care-related budget (estimate) by the annual number ofcared persons. The cost per call was multiplied by the number of reports of incidents involving a mentally disabled person to give the mental disorder-related police report and mobilization costs. Ambulance transportation costs were calculated by multiplying the ambulance mobilization cost reported by the Tokyo Metropolitan Government's finance department (2004) by the annual number of certifiable patients. Mental disability service social worker costs and self-paid costs were calculated using the average worker cost multiplied by the number of workers per disability service then dividing this by the total number of users to calculate the cost per user. The cost per user was then multiplied by the number of mentally disabled users to give the said mental disability service social worker cost. All worker costs were then totaled. The mental disability service self-paid cost was likewise calculated using the average fee income instead of the average worker cost.

A questionnaire survey was conducted with the cooperation of the National Alliance on Mental Illness (Minnanetto) and NPO Caregiver Support Network Center Aladdin on informal care costs (by family, volunteers and others) to quantify the caregiver burden. The survey results and statistical data were used to estimate the number of mental disorder patients living at home, the percentage of them who receive family care, the number of caregivers, and the average number of caregiving hours per week. The value attained by multiplying these four items was further multiplied by the caregiver (home helper) salary to give the care cost. Hospital visit costs (the monthly average hospital visit transportation cost per patient multiplied by the number of mental disorder patients living at home multiplied by the percentage of outpatients) and care product costs (care product cost per patient multiplied by the number of mental disorder patients living at home multiplied by the percentage of patients receiving family care) were calculated in the same way.

Productivity costs were subdivided into decreased productivity due to mental disorder affliction, labor loss on treatment days, labor loss due to sick leave, and labor loss due to suicide. Decreased productivity due to mental disorder affliction was assumed to be about half the productivity and the employment rate by gender and age of the number of non-treatment days, and was calculated as a decrease in the general average income per day. Labor loss on treatment days was calculated on the assumption that the patient could not participate in

the workforce on inpatient or outpatient treatment days.

The cost of productivity loss due to sick leave of over one month for mental disorders was calculated by multiplying the number of employees, the mental-disorder sick-leave rate, the mental-disorder average sick-leave period, the average monthly income and the percentage of temporary leave compensation benefits. The cost of future income loss due to suicide from mental disorders was calculated by multiplying the number of suicide victims by illness, gender, and age by the net present values by gender and age.

Correctional institution costs for the mentally disabled inmates were calculated as other costs by multiplying the number of new inmates with mental disorders, the living expenses per inmate per day and the structure of the jail term and the commitment period.

II Objectives

According to the WHO (2002)[1] estimates, the percentage of various diseases to disability-adjusted life year (DALY) total in Japan is 17.8% for cancer, 16.8% for cardiovascular disease, but neuropsychiatric disorders accounted for as high as 22.5%. However, a problem arises when looking at the WHO 2002–2005 World Mental Health Survey in which Japan is placed eighth among nine developed countries with a low 11.2% consultation rate for people with mild mental illnesses, as opposed to Spain which placed the highest at 35.9%.

Medical treatment fees of the National Health Insurance System were used in past researches of the cost of mental disorders in Japan[2]. However, care given by psychiatric social workers and clinical psychotherapists was not included in the medical fee point calculation of mental disorder care. The fact that the work hours of doctors and nurses are not even reflected in the services listed under medical fees is also a problem[3]. Therefore, using medical fee points is likely to result in underestimation of the cost when analyzing from the standpoint of service providers and the government. The cost of informal care, labor loss due to patients taking leave or resigning, and loss due to suicide also needs to be calculated in mental disorder treatment. However, no studies in Japan have incorporated these as yet.

On the other hand, reforms of mental disorder treatment programs have been tried in Europe and the USA, and well-organized economic analyses have been shown in parallel with these reforms. Mihalopoulos C et al (1999)[4] weighed the medical cost of the EPPIC program against that of existing medical treatments. Medical costs for one year after treatment began were AUD16,964 (Australian dollars) per case, cheaper than that of existing treatment, AUD24,074. This was largest depending on the decrease in hospitalization costs (AUD11,298 vs AUD21,386). Moreover, Goldberg et al (2006)[5] compared the inpatient costs in one region of Canada (population of 390,000) for three years each before and after the introduction of the PEPP program (1966). The hospitalization cost per case significantly decreased from CAD1028.49 (Canadian dollars) to CAD792.28. Though not as significant, the number of days patients were hospitalized also decreased from an average of 60.18 to 43.65. As a result, psychiatric care costs for the region as a whole decreased from CAD1,877,286 to CAD1,551,002. Further, Cullberg J et al (2006)[6] compared the course of first episode psychosis with that in two control groups (past and present cases, and normal treatment) in a region with 1.5 million residents in the Parachute Project (Sweden). They found that the clinical course in cases after the introduction of the project were better than previous cases in the three-year follow-up. The medical costs per case (US dollars) when compared to current cases were USD11,614 vs USD23,192 in the first year (inpatient: USD9,895 vs USD23,090), USD533 vs USD474 in the second year, and 385 vs 1,126 in the third year. A significant decrease was especially seen in the first year. Using a simulation model, Serretti A et al (2008)[7] found that the costs per case in Italy decreased by 6% from 8861 to 8329 lira if the hospitalization rate and the number of days decreased 15.7% and 50%, respectively (EPPIC data), outpatient medication halved, and psychological treatment doubled. Moreover, the cost analysis of mental health services in Great Britain were reported in detail in Paying the Price (King's Fund)[8] in 2008.

The project staffs conducted research into local resources including economic analysis as part of the Ministry of Health, Labour and Welfare FY2007–2009 Health and Labour Sciences Research Grant for research regarding epidemiology of adolescent psychopathology and early intervention strategies for mental disorders. In this process, after translating Paying the Price (King's Fund), the significance of analyzing the social cost of mental disorders was put to people inside and outside the research group.

Hence, this project was conducted to calculate the social cost of mental disorders in Japan and quantitatively show the social burden. Specifically, the following costs of each mental disorder to Japan were estimated using the Paying the Price (2008) method. An exploratory committee and project staffs repeated discussion to establish a valid model for the estimate.

(1) Treatment (medicine, tests, equipment, staff costs, etc.)

(2) Social services

(3) Informal care (family, volunteer, etc.)

(4) Productivity costs

a) Affliction-related costs (decreased productivity, labor loss, etc.)

b) Death-related costs (productivity loss due to suicide)

(5) Other costs

III Methods, Results, Analyses and Discussion

1. Estimate of Medical Costs (Medicine, Tests, Equipment, Labor Costs, etc.)

The annual medical cost for mental disorders in Japan was estimated by disease, using the Survey of Medical Care Activities in Public Health Insurance and the Patient Survey released by the Ministry of Health, Labour and Welfare. The Survey of Medical Care Activities in Public Health Insurance is compiled from the receipts for medical fees covering treatment given in May every year. The survey also includes data from the union-based health insurance, the Japan Health Insurance Association, the National Health Insurance, and the Medical Aid System for the Elderly. The Patient Survey, conducted once every three years, uses samples from medical institutions, hospitals and clinics nationwide. The survey gathers information on the gender, age and illness of both inpatients and outpatients receiving treatment on one specified day in October. Since it is conducted once every three years, this research made estimates using FY2008 data, the latest data at the time (2010). To match this data, the Survey of Medical Care Activities in Public Health Insurance FY2008 data was used.

The illness classification used in the estimates was that of the Ministry of Health, Labour and Welfare. The Patient Survey contained the number of patients for detailed illness classifications, but the estimate used the illness classifications in the public data in the Survey of Medical Care Activities in Public Health Insurance, because they were most detailed.

The estimate was calculated by illness using the following equation based on the treatment fee per day from the Survey of Medical Care Activities in Public Health Insurance and the annual total of days treatment received calculated from the Patient Survey.

Annual medical costs per disease = Σ (Treatment cost per day) x (Annual total of days treatment received)

= Σ (Treatment cost per day) x （Estimated number of patients) x (Number of days for treatment)

Medical costs may differ according to age. The number of patients in intervals of five years of age can be calculated from the Patient Survey. However, the Survey of Medical Care Activities in Public Health Insurance does not gather data by age. Hence, this project calculated the medical costs divided into Medical Aid System for the Elderly medical costs (hereafter elderly) and general medical costs gathered from other sources (hereafter general), and estimated using the number of days treatment was received by patients under 75 years of age and those 75 years of age or over in the Patient Survey.

The detailed calculation process is as follows.

(1) Treatment cost per day

The treatment cost per day is calculated by extracting the total points and the number of actual days for treatment by mental disorder classification in the Survey of Medical Care Activities in Public Health

Insurance.

Table III-1-1 Estimate of Treatment Cost Per Day

(yen)

Middle Classification of Illness	Inpatient		Outpatient	
	General	Elderly	General	Elderly
Mental and Behavioural Disorders				
Vascular dementia and unspecified dementia	15038	14950	9354	7568
Mental and behavioural disorders due to psychoactive substance use	14622	11986	7338	7931
Schizophrenia, schizotypal and delusional disorders	13690	13231	7995	6975
Mood [affective] disorders	14870	15125	6064	6610
Neurotic, stress-related and somatoform disorders	14791	14758	5574	5640
Mental retardation	14454	12219	5880	2382
Other psychoses and disorders of action	14083	15557	5911	7304

(2) Estimated Number of Patients

The estimated number of patients, who were receiving treatment at hospitals and clinics on the survey day, was figured out in the following classifications from the Patient Survey. By inpatient and outpatient, by male and female, by age (under 75 years, 75 years and over)

(3) Number of Days for Treatment

The number of inpatients was assumed to be the number of patients that were hospitalized at the day the Patient Survey was conducted throughout the year, so the number of days for treatment was set to 365 days. However, this assumption does not mean that the same patient was hospitalized all year. It assumes that the number of patients on a daily basis does not change with patients being released and others being admitted. The number of outpatients was assumed to be about the same number daily of outpatients that received treatment that day. When taking into consideration, the medical institution holidays, the estimated total number of outpatients in the Patient Survey were adjusted to 313 days (=365×6/7). This adjustment factor is used for the estimation of the total number of patients in the Patient Survey.

Table III-1-2 Estimated Annual Total Days for Treatment

(thousand days)

Male	Inpatient		Outpatient	
Middle Classification of Illness	Under 75	75 +	Under 75	75 +

Mental and Behavioural Disorders				
Vascular dementia and unspecified dementia	1789	3650	250	688
Mental and behavioural disorders due to psychoactive substance use	3833	584	1377	94
Schizophrenia, schizotypal and delusional disorders	33252	2701	10575	282
Mood [affective] disorders	3139	621	8948	751
Neurotic, stress-related and somatoform disorders	438	110	4943	594
Mental retardation	1643	110	532	0
Other psychoses and disorders of action	2154	511	2565	94

(thousand days)

Female	Inpatient		Outpatient	
Middle Classification of Illness	Under 75	75 +	Under 75	75 +
Mental and Behavioural Disorders				
Vascular dementia and unspecified dementia	1387	9381	250	2816
Mental and behavioural disorders due to psychoactive substance use	475	37	375	31
Schizophrenia, schizotypal and delusional disorders	27485	4964	9292	626
Mood [affective] disorders	4198	2519	13171	2190
Neurotic, stress-related and somatoform disorders	840	402	8572	1408
Mental retardation	1278	146	407	0
Other psychoses and disorders of action	1424	949	1596	219

(4) Estimate Results

When calculating the FY2008 data, the total annual medical costs for mental and behavioural disorders was about 2 trillion yen, 1.55 trillion for inpatients and 480 billion yen for other patients. Looking at the costs by illness, costs for schizophrenia, schizotypal and delusional disorders were 1 trillion yen; costs for mood [affective] disorders were 310 billion yen; costs for vascular and unspecified dementia were 274 billion yen; and costs for neurotic, stress-related and somatoform disorders were 113 billion yen.

The medical costs for mental and behavioural disorders in the national health expenditure for FY2008 was 1.7978 trillion yen, and this entire estimate was overestimated by about 200 billion yen. Care must be taken, because the inpatient medical costs are especially overestimated.

Table III-1-3 Estimated Treatment Cost for Mental Disorders

(million yen)

Middle Classification of Illness	Inpatient	Outpatient	Treatment cost
Mental and Behavioural Disorders	1547316	482799	2030115
Vascular and unspecified dementia	242565	31201	273766
Mental and behavioural disorders due to psychoactive substance use	70415	13849	84264
Schizophrenia, schizotypal and delusional disorders	932908	165154	1098062
Mood [affective] disorders	156572	153563	310134
Neurotic, stress-related and somatoform disorders	26437	86634	113071
Mental retardation	45328	5518	50847
Other psychoses and disorders of action	73090	26880	99970

Male

(million yen)

Middle Classification of Illness	Inpatient	Outpatient	Treatment cost
Mental and Behavioural Disorders	762977	214004	976981
Vascular and unspecified dementia	81465	7550	89015
Mental and behavioural disorders due to psychoactive substance use	63039	10846	73885
Schizophrenia, schizotypal and delusional disorders	490959	86504	577463
Mood [affective] disorders	56062	59220	115282
Neurotic, stress-related and somatoform disorders	8095	30908	39003
Mental retardation	25079	3127	28206
Other psychoses and disorders of action	38278	15849	54128

Female

(million yen)

Middle Classification of Illness	Inpatient	Outpatient	Treatment cost
Mental and Behavioural Disorders	784339	268795	1053134
Vascular and unspecified dementia	161101	23651	184751
Mental and behavioural disorders due to psychoactive substance use	7376	3003	10379
Schizophrenia, schizotypal and delusional disorders	441950	78650	520599
Mood [affective] disorders	100510	94343	194852
Neurotic, stress-related and somatoform disorders	18343	55726	74069
Mental retardation	20249	2391	22641

Other psychoses and disorders of action	34812	11031	45842

2. Estimate of Social Service Cost

Disabled people are offered a variety of services on the national, prefectural, and municipal levels, as well as by health, medical care, and welfare service providers. We have collected and analyzed statistical data that was found in publications or on websites regarding both the provider costs needed to offer these services as well as the out-of-pocket expenses of the neuropsychiatric patients who use the services.

(1) National Expenditure Related to Welfare for Disabled People

The following cost items (items 1–9 below) related to mental disorders were taken from a 2010 white paper on disabled people entitled *Outline of the Budget for Policies Regarding Disabled People*[1)]. The amounts listed for each item are taken from the FY2008 balance sheet of the ministry.

1) Securing good welfare services for disabled people (Ministry of Health, Labour and Welfare) – 442,412 million yen
2) Steady implementation of local livelihood support projects (Ministry of Health, Labour and Welfare) – 40,000 million yen
3) Promotion of employment assistance for disabled people (Ministry of Health, Labour and Welfare) – 15,377 million yen
4) Promotion of support project for five-year plans to double wages (Ministry of Health, Labour and Welfare) – 366 million yen
5) Observation of mental health in accordance with the Act on Medical Care and Treatment for Persons Who Have Caused Serious Cases Under the Condition of Insanity (Ministry of Justice) – 244 million yen
6) Establishment of a system to provide medical treatment as per the Act on Medical Care and Treatment for Persons Who Are Under the Condition of Insanity (Ministry of Health, Labour and Welfare) – 11,904 million yen
7) Relocation and local livelihood support for persons with mental disorders (Ministry of Health, Labour and Welfare) – 489 million yen
8) Enhancement of the psychiatric emergency medical service system (Ministry of Health, Labour and Welfare) – 1,434 million yen
9) Implementation of comprehensive suicide prevention measures – 17,317 million yen

These statistics take into account people other than those with mental disorders (e.g. the physically and intellectually handicapped). Therefore, we applied the following percentages in order to obtain data that reflected only the costs pertaining to those with mental disorders: For cost item 1, the percentage of people with mental disorders who used the services; for cost items 2–4, the percentage of people with mental disorders; for cost item 9, the percentage of people who committed suicide who had mental disorders. Thus:

The percentage of people with mental disorders who used the services = the number of people with mental disorders who used the services[2)] / the total number of people who used the services[3)] = 74306 / 570326 =

0.130286889

The percentage of people with mental disorders = the number of people with mental disorders[4] / the total number of handicapped[4] = 323 / 744 = 0.434139785

The percentage of people with mental disorders who committed suicide = the number of suicides caused by depression, schizophrenia, or mental disorders[5] / the total number of suicides[5] = 9623 / 32845 = 0.2929

(2) Expenditure by Prefectures and Municipalities

The values for prefectural mental health and social welfare costs excluding national treasury disbursements were taken from data listed in 2008 local government finance white papers entitled *Annual Expenditure Breakdown by Prefectural Purpose and Classification (Arithmetic Totals)*[6] and *Annual Expenditure Breakdown by Municipal Purpose (Including Ordinance Designated Cities, Special Wards, Core Cities and Special District Authorities) and Classification (Arithmetic Totals)*[7], as were the values for municipal social welfare and health costs excluding national treasury disbursements and prefectural expenditures. The definition for each cost item is listed in appendix 1.

Within these cost items, "mental health costs" have been calculated without change to include labor costs for mental health related personnel (including remuneration for designated doctors), costs related to psychiatric hospitals and mental health welfare centers, and costs originating from the Act on Mental Health and Welfare for the Mentally Disabled, which we have limited to the expenses designated for people with mental disorders. Data relating to social welfare costs and health costs included handicapped people other than people with mental disorders (in both prefectures and municipalities). Therefore, as with the preceding paragraph, the percentage of people with mental disorders was multiplied in order to obtain the costs specific to people with mental disorders. For (municipal) health costs, the cost relating to mental disorders has been calculated by multipled by the percentage of personnel working in mental health. In addition, regarding the percentage of personnel in working in mental health, the *FY2009 Report on Research into the Functions of Public Health Centers and Their Roles in Addressing Health Issues*[8] lists a total of 11.8 mental health personnel (converted for full-time employment) at each facility. This figure is broken down into 10.7 public health nurses, 0.4 welfare workers, and 0.7 other personnel per facility. Multiplying by 518, which is the number of Public Health Centers[9], gives 6,112.4 mental health workers. Dividing that number by 54,748, which is the number of full-time Public Health Center personnel nationwide[10], yields 0.111646 as the final percentage.

(3) Mental Health Related Costs at Public Health Centers

According to the *White Paper on Local Public Finance, 2008*, the cost of Public Health Centers was 224,138 million yen. This was multiplied by the percentage of personnel working in mental health.

(4) Police Report and Dispatch Costs

The costs of dispatching police officers on calls in response to reports of incidents involving mental health matters was calculated using the publicly released *White Paper on Police, 2009* of the Tokyo Metropolitan Police Department[12] and by making the following assumptions.

Protection duties of the Metropolitan Police Department are largely dealt with by the personnel of local departments. So, the number of local departments was used for this calculation.

The protection duty percentage = (hours spent protecting[13])/(the number of local department employees[14] × 8 hours × 240 days) = 122,610 hours/26,067,840 hours = 0.004703

The cost of one instance of providing protection = the total annual budget for the Metropolitan Police Department[12]/the total number of Metropolitan Police Department personnel[12] ×the number of local department employees × the protection duty percentage/the annual number of people protected[13] = (650,835,000,000 yen/45,887 people × 13,577 people) × 0.004703/25,561 people = 35,435 yen

Next, Table 1 of the *FY2009 Report on Public Health Administration and Services*[15] shows the annual number of applications for protection and reports of incidents involving people with mental disorders and the annual number of patients hospitalized (specific to different categories of hospitalization). The table indicates that there were 16,392 instances of applications and reports involving people with mental disorders, of which 7,789 people underwent medical examinations. Multiplying the cost of one instance of providing protection (35,435 yen) by 7,789 people yields a value of 276,003,215 yen for police report and dispatch costs.

(5) Ambulance Dispatch Costs

According to the Tokyo Metropolitan Government's finance department, the cost of dispatching an ambulance one time was 45,000 yen[16,17]. Multiplying this by 1,579 people[15], which is the number of patients involuntarily hospitalized, yields 71,055,000 yen in ambulance dispatch costs.

(6) Mental Health Service Provider Costs and Out-of-Pocket Costs

The average operating cost for each type of service for disabled people was multiplied by the number of service providers. That number was then divided by the total number of users to get the cost per user. That number was then multiplied by the number of users with mental disorders to get the provider costs for each service used by persons with mental disorders. Finally, all of the provider costs were totaled up. In the same manner, in place of average provider costs, average usage fee income was used to calculate out-of-pocket costs for services used by persons with mental disorders. A list of cost items is shown in Table III-2–1.

Table III–2–1: Mental Health Service Provider Costs and Out-of-Pocket Costs

Service Type	(1) Average Operating Cost (Yen)	(2) Average Usage Fee	(3) Number of Provider	(4) Total Number of Users	(5) Provider Cost Per Patient (Yen)	(6) Out-of-Pocket	(7) Number of Users	[A] Provider Costs (Yen)	[B] Patient Costs (Yen)

		Income (Yen)	Establish-ments			Costs Per Patient (Yen)	with a Mental Disorder		
Outpatient nursing care for people with dementia	2,168,000	103,000	3,139	50,064	135,933	6,458	75,700	10,290,131,560	488,876,176
Group home with care for people with dementia	4,951,000	133,200	9,292	132,069	348,338	9,372	169,500	59,043,343,207	1,588,481,785
Home-visit nursing (home-visit nursing station)	1,938,000	4,000	5,434	281,917	37,355	77	12,777	477,288,572	985,116
Home help service	13,943,000	52,000	20,885	112,176	2,595,917	9,681	22,117	57,413,890,297	214,123,381
Visiting care for persons with severe disabilities	32,236,000	127,000	16,423	7,985	66,300,792	261,205	10	663,007,925	2,612,049
Activity support (nursing provider service)	16,498,000	191,000	1,848	5,372	5,675,410	65,705	13	73,780,334	854,167
Comprehensive support for persons with severe disabilities	—	—	67	25	—	—	—	0	0
Day service for children	20,089,000	295,000	1,695	55,162	617,288	9,065	—	0	0
Short stay service	5,914,000	518,000	3,872	28,135	813,898	71,288	586	476,943,973	41,774,937
Medical care	—	—	32	2,126	—	—	—	0	0
Care for daily life (day services)	46,955,000	1,340,000	3,571	135,142	1,240,742	35,408	741	919,389,546	26,237,504
Support for residential care	204,257,000	20,564,000	1,060	66,838	3,239,361	326,129	194	628,436,062	63,269,113
Group home with care (nursing home)	14,130,000	1,651,000	3,274	39,480	1,171,774	13,683	3,469	4,064,882,467	474,955,481
Rehabilitation service(functional training)	13,358,000	274,000	848	2,496	4,538,295	93,090	12	54,459,538	1,117,077
Rehabilitation service (training for daily living)	14,852,000	459,000	633	9,013	1,043,084	32,236	2,384	2,486,712,232	76,851,664
Transition support for employment	21,473,000	340,000	1,750	20,317	1,849,572	29,286	3,608	6,673,255,008	105,663,238
Support for continuous employment (type A)	29,038,000	978,000	601	11,177	1,561,406	52,588	1,260	1,967,371,914	66,261,097
Support for continuous employment (type B)	20,397,000	402,000	1,584	95,060	339,878	6,699	15,609	5,305,163,144	104,558,297
Group home with aid	7,511,000	1,122,000	4,193	21,504	1,464,547	218,775	8,939	13,091,587,425	1,955,633,217
Consultation support	10,707,000	0	2,150	3,212	7,166,890	0	2,210	15,837,794,400	0
Ambulatory vocational aid	39,587,000	4,823,000	16	341	1,857,455	226,299	366	679,828,364	82,825,478

center for persons with mental disorders									
Residential vocational aid center for persons with mental disorders	23,516,000	271,000	136	3,412	940,162	10,802	3,823	3,583,419,358	41,295,571
Small-scale ambulatory vocational aid center for persons with mental disorders	—	—	156	3,589	—	—	3,345	0	0
Welfare workshops for persons with mental disorders	—	—	7	188	—	—	160	0	0
Community activity support centers	21,388,000	490,000	2,432	371,853	139,882	3,205	198,644	27,786,742,067	636,595,456
							Overall total	211,517,427,391	5,972,970,802

Note 1: (5) = (1) × (3)／(4) & (6) = (2) × (3)／(4) (Formula 1)

Note 2: [A] = (5) × (7) & [B] = (6) × (7) (Formula 2)

1) Nursing Homes, Home Nursing, and Visiting Care

The figures for (1) and (2), which indicate outpatient nursing care for people with dementia, group home with care for people with dementia, home-visit nursing (home-visit nursing station), and home nursing (care at home), were taken from an outline of the *Fact-finding Survey on Economic Conditions in Long-term Care, 2008*[18-21]. The figure for (3) was taken from Table 1 (*Number of Establishments)* of an outline of the *Survey of Institutions and Establishments for Long-term Care, 2008*[22]. The figures for (4) are the user numbers and resident numbers taken from Table 2 of the same report[24]. The figure for (7) was taken from Figure 1 (*State of Mental Health Welfare*) of the *Annual Statistical Report of National Health Conditions (Journal of Health and Welfare Statistics)*[24].

2) Services Covered by Nursing Care Payment and Payment for Training

Of all the services covered by nursing care payment, we made the following calculations using formula [1] in accordance with the materials listed below regarding visiting care for persons with severe disabilities, activity support, comprehensive support for persons with severe disabilities, short stay service, medical care (i.e., functional training, nursing, and aid at a medical institution), support for residential care (e.g., nighttime care at support facilities for persons with disabilities), group home with care, as well as the payment for training applicable services of rehabilitation service (functional training), rehabilitation service (training for daily living), transition support for employment, support for continuous employment (type A = employment type), support for continuous employment (type B), and group home with aid.

The figures for (1) and (2) were taken from the *Fact-finding Survey on Economic Conditions of Welfare*

Services for Persons with Disability, 2008[25]. The figure for (3) is the number of service providers in FY2010 taken from data on welfare service providers for people with mental disorders provided by the Welfare and Medical Service NETwork System (WAM Net), which is operated by the Welfare and Medical Service Agency[26]. The figure for (4) was taken from a report issued by the Ministry of Health, Labour and Welfare Department of Health and Welfare for Persons with Disabilities entitled *Use of Welfare Services for People with Disabilities*[3]. The figure for (7) was taken from Figure 1 (*State of Mental Health Welfare*) of the *Annual Statistical Report of National Health Conditions (Journal of Health and Welfare Statistics)*[24].

3) Services Based on Old Laws

Of the services provided under the old Act on Mental Health and Welfare for the Mentally Disabled, we made the following calculations using formula [2] in accordance with the materials listed below regarding ambulatory vocational aid center for persons with mental disorders, residential vocational aid center for persons with mental disorders, small-scale ambulatory vocational aid center for mental disorders, and welfare workshops for persons with mental disorders.

The figures for (1) and (2) were taken from the *Fact-finding Survey on Economic Conditions of Welfare Services for Persons with Disability, 2008*[25]. The figure for (3) was taken from Table 1 (*Categories and Numbers of Facilities for the Year*) of the *Survey of Social Welfare Institutions, 2009*[26]. The figure for (4) was taken from Table 4 (*Categories and Numbers of People in Facilities for the Year*) of the *Survey of Social Welfare Institutions, 2009*[3]. The figure for Item (7) was taken from Figure 1 (*State of* M*ental Health Welfare*) of the *Annual Statistical Report of National Health Conditions (Journal of Health and Welfare Statistics)*[24]. It should be noted that operating cost data for the period around 2008 were not clear with regard to small-scale ambulatory vocational aid centers for persons with mental disorders and welfare workshops for persons with mental disorders.

4) Consultation Support and Community Activity Support Centers

Consultation support and community activity support centers' provider costs were calculated using the following materials and in accordance with formula [2].

The figures for (1) and (2) regarding consultation support are the consultation support operating costs taken from the *Fact-finding Survey on Economic Conditions of Welfare Services for Persons with Disability, 2008*[25]. The figures for (3) are the number of consultation support providers taken from Table 5 (*Composite Percentage of Core Management Provider Establishments by Classification*) of the *Survey of Social Welfare Institutions, 2009*[28]. The figure for (4) is the number of users in Table 9 (*Usage of Short Stay Service, Comprehensive Support for Persons with Severe Disabilities, Consultation Support, Group Home with Care, and Group Home with Aid*) of the *Survey of Social Welfare Institutions, 2009*[29]. The figures for (7) were obtained by multiplying 68.8% by the figures for (4) (total number of users), 68.8% being the percentage of all cases of consultation support that were provided to persons with mental disorders as found in the *Report on*

the Survey of Cooperation between Community Activity Support Centers, which Help Persons with Mental Disorders Live in the Community, and Individual Benefit Operations, which Focus on Employment (hereinafter referred to as 'The Support Center Report')[30].

The figures for (1) and (2) regarding community activity support centers are 21.39 million yen and 490,000 yen, which are the average operating costs and average user charge fees of the 126 providers that responded to the survey in the Support Center Report[31]. The figure for (3) was 2,432, which is the number of providers in Table 1 (*Categories and Numbers of Facilities for the Year*) of the *Survey of Social Welfare Institutions, 2009*[28]. The figure for (4) was calculated as 371,853, the number of users, which was derived from multiplying the 2,432 providers by 152.9 (the average number of users at the 126 providers in the Support Center Report)[32]. The figure for (7) was derived by ascertaining the number of users of the 126 providers in the Support Center Report (total 19,265.4)[33] with mental disorders (10,290), calculating the percentage of users with mental disorders (0.5342) and multiplying this by the figure in column (4).

The annual operating cost per user was highest for visiting care for persons with severe disabilities at 66 million yen per user. This is thought to be because of the relatively high number of provider establishments (16,760) and the relatively low number of users (7,985). The next most expensive services were the following: consultation support, which cost 7.16 million yen; activity support, 5.67 million yen; and rehabilitation service (functional training), 4.53 million yen. On the other hand, the annual operating cost per user was lowest for home-visit nursing, which cost 37,355 yen per user. The service persons with mental disorders made the most use of group home with care for people with dementia, which had 170,700 users. This was followed by outpatient nursing care for people with dementia, which had 75,700 users. When the per-user operating cost was multiplied by the number of users with mental disorders, the most expensive service was group home with care for people with dementia, which cost 59,043 million yen. This was followed by consultation support at 15,837 million yen and group home with aid at 13,091 million yen.

The annual out-of-pocket cost per user was highest for support for residential care, which cost 320 thousand yen[34]. This was followed by visiting care for persons with severe disabilities, which cost 260 thousand yen, and ambulatory vocational aid center at 230 thousand yen. When the per-user out-of-pocket cost was multiplied by the number of users with mental disorders, the most expensive service was group home with aid, which cost 1,955 million yen, followed by group home with care for people with dementia at 1,588 million yen.

(7) Results

Of the national government's expenditure on welfare for disabled people, the approximate cost of welfare care for those with mental disorders was 57,514 million yen. At the prefectural level, the cost was 749,864 million yen, and at the municipal level it was highest of all at 924,182 million yen. Police call-outs resulting from reports of incident cost 276 million yen and transportation by ambulances cost 71 million yen (Table III-2–2). The total cost for mental health service providers was 211,517 million yen and the total out-of-pocket cost for

persons with mental disorders using social services was 5,972 million yen.

Table III–2–2: Approximate Calculation of Costs Related to Social Services for People with Metal Disorders

Cost item	Millions of Yen
National Expenditures Related to Welfare for Disabled People	
Securing good welfare services for disabled people	57,514
Steady implementation of local livelihood support projects	17,375
Promotion of employment assistance for disabled people	6,679
Promotion of support project for five-year plans to double wages	159
Observation of mental health in accordance with the Act on Medical Care and Treatment for Persons Who Are Under the Condition of Insanity	244
Establishment of a system to provide medical treatment as per the Act on Medical Care and Treatment for Persons Who Are Under the Condition of Insanity	11,904
Relocation and local livelihood support for persons with mental disorders	489
Enhancement of the psychiatric emergency medical service system	1,434
Implementation of comprehensive suicide prevention measures	5,072
Prefectural Expenditures	
Mental health costs	44,109
Social welfare costs	749,864
Municipal Expenditures	
Social welfare costs	924,182
Health costs	199,271
Health care center costs	25,024
Police call-outs resulting from reports of incident	276
Transportation by ambulances	71

Costs for mental health service providers	211,517
Out-of-pocket costs for personswith mental disorders who used social services	5,972
Total amount	2,261,156

3. Estimate of Informal Care Costs

(1) Analysis Model

The following informal costs were also calculated: (1) the cost of care given by the family, (2) the cost of commuting to hospitals and facilities (traveling expenses), and (3) the cost of nursing care supplies.

Thus: (1) the cost of care given by the family = the caregiver's hourly wage × the average number of hours spent caregiving in one week × 52 weeks × the number of persons with mental disorders living at home × the percentage at which the patient receives family care.

In addition, (2) the cost commuting to hospitals and facilities = the average monthly traveling expenses of one person × the number of persons with mental disorders living at home × the percentage of people with mental disorders who make outpatient visits to the hospital. Finally, (3) the cost of nursing supplies = the costs of nursing supplies for one person × the number of persons with mental disorders living at home × the percentage at which persons with mental disorders receive family care.

A report by Francis et al. (2009)[1)] states that it is preferable to multiply by the home caregivers' labor rate. Therefore, for the purposes of this report, we multiplied the hourly wage of home caregivers by the number of hours spent caregiving. Regarding the hourly wage of home caregivers, the *Basic Survey on Wage Structure, 2008* lists home caregivers' average monthly wage at 211.7 thousand yen and average official working hours at 165 hours. Therefore, 211.7 thousand yen／165 = 1,283 yen.

The number of people with mental disorders living at home was calculated as 278,537 people, which was derived by dividing the 232.3 thousand estimated outpatients listed in the *Patient Survey, 2008* by 0.834, which is the percentage at which patients living at home receive outpatient medical care (as mentioned later in this report). Other items have also made use of study results that are mentioned later in this report. Francis et al. (2009)[1)] did not view reading or cleaning while watching over a patient to represent a loss of time, and thus their report does not include such time as time spent caregiving. However, we asked for opinions from the National Alliance on Mental Illness in Japan when compiling our survey questionnaire, and a common complaint was that time spent watching over a patient cannot be structured at will and that there are times when the caregiver's time cannot be used freely (e.g., leave the house). Therefore, one-half of the time spent attentively watching over a patient was appropriated as time spent caregiving.

(2) Survey Method

With the cooperation of the National Alliance on Mental Illness in Japan (Minnanetto) as well as the NPO Caregiver Support Network Center: Aladdin, we surveyed family caregivers to quantify the burdens they face. The protocol for this study was approved by the ethics board at Juntendo University Faculty of Medicine (Approval Number 20110007). The survey questionnaire (included at the end of this document) was distributed by mail from December 2010 through January 2011 to 5,891 people, and respondents remained

anonymous. 1,958 (33.2%) responses were received by February 7, 2011, and a sample of 1,785 surveys whose results were input by January 20 was used for analysis.

The survey asked respondents about the following: the person with the mental disorder's age, gender, type of disorder, treatment status, and employment status, the number of caregivers and their ages, genders, relation to the person with the mental disorder, changes in their job due to caregiving, period of caregiving, expenses other than caregiving, use of social services, and weekly hours spent caregiving.

The survey conformed to the methods for measuring time spent caregiving used in the report by Francis et al. (2009)[1]. Specifically, respondents gave information based on journals and recollection. While Wimo et al. (2004)[3] had respondents keep a journal over a period of one month, our survey used a one-week time period in order to increase the percentage of returned surveys. This was because, according to the *Survey of the NPO Nationwide Mental Health Welfare Association (2009)*[4], the average age of a family caregiver is quite high at 66.7 years old.

Francis et al. (2009)[1] stated a need to separate time spent on daily housework from time spent caregiving. Therefore, we had survey participants record their 7-day journal based on 5 separate categories for the 24 hours in each day: direct care, watching attentively, regular housework, time caregivers spent sleeping, and time spent outside of the house (e.g., at work). In addition to primary caregivers, time spent by secondary caregivers was also included.

(3) Results

Of the people that responded to the survey, 1091 (61.2%) were primary caregivers, and responses were collected nationwide from 42 of Japan's 47 prefectures (Tables III-3–1 and III-3–2).

Table III–3–1: Survey Respondents

Survey Respondents	Frequency	Percent
Primary caregiver	1091	61.2
Secondary caregiver	210	11.8
Third caregiver	18	1.0
Forth caregiver	2	.1
Other	84	4.7
No response	379	21.2
Total	1784	100.0

Table III–3–2: Survey Respondents' Places of Residence

	Frequency	Percent		Frequency	Percent
Aichi	67	3.8	Niigata	53	3.0
Ehime	17	1.0	Kanagawa	48	2.7
Ibaraki	36	2.0	Aomori	52	2.9
Okayama	15	.8	Shizuoka	62	3.5
Okinawa	1	.1	Ishikawa	42	2.4
Gifu	41	2.3	Chiba	17	1.0
Miyazaki	26	1.5	Osaka	54	3.0
Miyagi	38	2.1	Nagasaki	40	2.2
Kyoto	49	2.7	Nagano	35	2.0
Kumamoto	31	1.7	Tottori	19	1.1
Gunma	61	3.4	Shimane	24	1.3
Hiroshima	15	.8	Tokyo	53	3.0
Kagawa	30	1.7	Tokushima	29	1.6
Kochi	17	1.0	Tochigi	37	2.1
Saga	51	2.9	Nara	49	2.7
Saitama	58	3.3	Toyama	34	1.9
Mie	21	1.2	Fukui	27	1.5
Yamagata	14	.8	Fukuoka	61	3.4
Yamaguchi	45	2.5	Hyogo	38	2.1
Yamanashi	28	1.6	Hokkaido	1	.1
Shiga	24	1.3	Wakayama	32	1.8
Akita	20	1.1	No response	272	15.2
			Total	1784	100.0

Of the people with mental disorders, 1095 (61.3%) were male, 616 (34.5%) were female, and the average age was 43.8 years old. The most common disorders were, in order: schizophrenia, 1537 people (86.1%); mood disorders such as depression and bipolar disorder, 145 people (8.1%); anxiety disorder, 52 people (2.9%); mental retardation, 49 people (2.7%); dementia, 27 people (1.5%); personality disorder, 24 people (1.3%); and eating disorder, 11 people (0.6%) (Table III-3–3).

Table III–3–3: Types of Disorders (That Received Multiple Responses)

	Frequency	%
Schizophrenia	1537	86.1
Mood disorders such as depression and bipolar disorder	145	8.1
Anxiety disorder	52	2.9
Mental retardation	49	2.7
Dementia	27	1.5
Personality disorder	24	1.3
Eating disorder	11	0.6
Other	96	5.4
	N=1785	

Of the people with mental disorders, 205 (11.5%) had been hospitalized for medical treatment and 1,489 (83.4%) were commuting to a hospital as outpatients (Table III-3–4). Regarding employment status, 816 people (45.7%) were not working, 635 people (35.7%) were going to a rehabilitation facility (e.g., a community workshop), 93 people (5.2%) were working a side job or other part-time work, and 25 people (1.4%) were working a full-time job (Table III-3–5).

Table III–3–4: The Treatment Status of Patients

	Frequency	%
Hospitalized	205	11.5
Commuting to the hospital as an outpatient	1489	83.4
Undergoing a suspension of treatment	13	.7
Not receiving treatment	8	.4
Recovered	4	.2
Other	39	2.2
No response	27	.0
Total	1785	100.0

Table III–3–5: The Employment Status of Patients

	Frequency	Percent
Working a full-time job	25	1.4
Working a side job or other part-time work	93	5.2
Rehabilitation facility (e.g., a community workshop)	635	35.6
Not working	816	45.7

Other	140	7.8
No response	76	4.3
Total	1785	100.0

Table III–3–6: Use Percentages for Each Service (That Received Multiple Responses)

	Frequency	Percent
Hospitalization	443	24.8
Outpatient hospital visits	1223	68.6
Outpatient day-care	325	18.2
Consultation at mental health welfare center	188	10.5
Consultation at public health center	210	11.8
Home guidance by public health nurse	80	4.5
Outpatient nursing care for people with dementia	13	.7
Group home with care for people with dementia	9	.5
Functional training at a medical institution	9	.5
Care for daily life (day services)	51	2.9
Nighttime care, etc. at support facilities for persons with disabilities	15	.8
Group home with care (i.e., nursing home)	13	.7
Rehabilitation service (e.g., functional training)	103	5.8
Transition support for employment	84	4.7
Support for continuous employment (types A and B)	274	15.4
Group home with aid	53	3.0
Movement support	18	1.0
Community activity support centers	332	18.6
Welfare homes	11	.6
Home-visit bathing service	10	.6
Volunteer nursing care	13	.7

N = 1779

Looking at the use of social services over the last year, we see that there were many users of medical institutions with 68.6% of people with mental disorders using outpatient services, 24% hospitalized, and 18% using outpatient services and day-care. Looking at health and welfare, 18.6% of people with mental disorders used community activity support centers, 15.4% used support for continuous employment, and 10.5% received consultation at mental health and welfare centers (Table III-3–6).

Regarding informal caregivers, 52.6% of people with mental disorders did not have a caregiver (e.g., a family

member providing care), and of the 47.4% who did have a caregiver, the average number of family caregivers was 1.65 people (Table III-3–7). The average ages of primary and secondary caregivers were 67.2 and 66.5 years old, respectively. The average time period spent providing care was 17 years, 2 months (Table III-3–8). 65.4% of primary caregivers were female, and 39.8% of secondary caregivers were female. Regarding the relation of caregivers to people with mental disorders, 70.7% of primary caregivers were a parent and 5% were a sibling. 47.5% of secondary caregivers were a parent of the patient and 6.8% were a sibling (Table III-3–9). 330 (18.5%) of caregivers had quit their jobs, and 695 (38.9%) had received a medical exam (Table III-3–10).

Looking at these results, it is clear that the average person with a mental disorder who lives at home is in his or her 40s, suffers from schizophrenia, and receives outpatient medical treatment. He or she may or may not live alone, and receives nursing care from his or her mother, aged around 67 years old, as the primary caregiver and his or her father as the secondary caregiver. He or she either does not work or works at a community workshop.

Table III–3–7: Number of Caregivers

	Frequency	%
0	937	52.6
1	377	21.2
2	399	22.4
3	56	3.1
4	8	.4
6 or more	3	.1
Total	1780	100.0

Table III–3–8: Average Ages of Patients and Caregivers, and Time Spent Caregiving

	Frequency	Mean	Standard Deviation	Minimum	Maximum
Patient's age	1745	43.84	12.026	16	98
Primary caregiver's age	1558	67.23	9.120	19	94
Secondary caregiver's age	1113	66.47	18.631	20	559
Third caregiver's age	250	55.56	17.991	21	92
Fourth caregiver's age	88	61.03	16.079	20	92
Fifth caregiver's age	23	48.17	20.225	21	89
Years spent caregiving	1475	17.04	9.525	0	60
Months spent caregiving	1475	2.37	3.475	0	12

Table III–3–9: Caregiver Gender and Relation to Patient

	Primary caregiver		Secondary caregiver		Third caregiver		Fourth caregiver		Fifth caregiver	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Male	341	19.1	404	22.6	116	6.5	24	1.3	12	.7
Female	1167	65.4	711	39.8	124	7.0	60	3.4	10	.6
No response /other	277	15.5	670	37.5	1545	86.6	1701	95.1	1763	98.768
Total	1785	100.0	1785	100	1785	100	1785	100	1785	100
Spouse	63	3.5	34	1.9	0	0	1	.1	0	0
Child	87	4.9	49	2.7	13	.7	4	.2	2	.1
Parent	1262	70.7	848	47.5	83	4.7	36	2.0	9	.6
Grandparent	6	.3	16	.9	16	.9	6	.3	0	0
Grandchild	1	.1	1	.1	3	.2	1	.1	0	0
Sibling	90	5.0	122	6.8	90	5.0	25	1.4	8	.4
Living nearby	1	.1	3	.2	1	.1	3	.2	1	.1
Volunteer	1	.1	31	1.7	3	.2	1	.1	2	.1
Other	19	1.1	4	.2	18	1.0	7	.4	0	0
No response	255	14.3	677	37.9	1558	87.1	1701	95.1	1763	98.768
Total	1785	100.0	1785	100.0	1785	100.0	1785	100	1785	100

Table III–3–10: Changes in the Employment Status of Caregivers

	Frequency	%
Quit their job	330	18.5
Changed their place of employment or working hours	175	9.8
No change in their job	586	32.8
Was already not working when they began caregiving	432	24.2
Other	5	.1
No response	257	14.4
Total	1785	100.0

Table III–3–11: The Undergoing of Medical Examinations by Caregivers

	Frequency	%
No response	203	11.4
Underwent a medical exam	695	38.9
Did not undergo a medical exam	882	49.4
Other	5	.3
Total	1785	100.0

The nursing care-related out-of-pocket expenses required for visits to hospitals and day care centers were mean of 4,283 (standard deviation 9,144) yen per month.

The cost for nursing care products was 579 yen of which 297 (standard deviation 2,371) yen per person per month was for diapers and 282 (standard deviation 7,245) yen was for other nursing care equipment such as leases for beds, wheelchairs, ramps and walking frames. The caregivers' transportation costs to and from hospital during the entire nursing period came to 76,966 yen.

Table III-3-12 Nursing care-related Out-of-pocket Expenses

	Frequency	Mean	Standard Deviation	Minimum	Maximum
Transportation costs	1780	4,283	9,144	0	151,000
Diapers	1780	297	2,371	0	60,000
Other Nursing care products	1780	282	7,245	0	300,000
Caregivers medical costs during nursing period	572	101,318	284,463	0	5,172,000
Caregivers' Transportation costs to and from hospital and day care centers	521	76,966	539,355	0	11,000,000

Many responses cited incorrect answers regarding the amount of time a family gave to nursing in a week, such as a total exceeding 200 hours. Accordingly, only responses with total living hours of 168 hours in one week were included in analyses. The primary caregiver spent a mean of 15.2 hours (9.1%) providing direct care and 26.6 hours (15.8%) in indirect care (such as watching attentively). The secondary caregiver spent a mean of 0 hours (0%) providing direct care and 13.1 hours (7.8%) in indirect care. A third caregiver spent 5.6 hours (8.3%) providing direct care and 8.8 hours (7.8%) in indirect care.

Table III-3-13 Time Spent Nursing by the Family

	Frequency	Mean	Standard Deviation	%	Minimum	Maximum

Primary caregiver	Hours of direct care	573	15.2	15.6	9.1%	0	103
	Hours of indirect care	573	26.6	19.1	15.8%	0	160
	Hours of housework	573	26.5	15.9	15.8%	0	160
	Hours of sleep, etc.	573	62.5	17.7	37.2%	0	168
	Hours at work/ out	573	37.2	26.5	22.1%	0	154
Secondary caregiver	Hours of direct care	103	.0	.0	0.0%	0	0
	Hours of indirect care	103	13.1	16.6	7.8%	0	69
	Hours of housework	103	12.9	13.7	7.7%	0	59
	Hours of sleep, etc.	103	70.7	17.9	42.1%	0	125
	Hours at work/ out	103	71.2	28.3	42.4%	0	168
Other caregiver	Hours of direct care	58	5.6	8.3	3.3%	0	38
	Hours of indirect care	58	8.8	11.0	5.3%	0	41
	Hours of housework	58	10.2	9.6	6.1%	0	35
	Hours of sleep, etc.	58	64.1	23.7	38.1%	0	161
	Hours at work/ out	58	79.3	29.1	47.2%	0	162

(4) Estimate for each expense

The data necessary for estimating nursing care costs was obtained in the following manner.

1) Average time spent nursing in one week (total): 32.56

Average time spent nursing by primary caregiver 15.0 (Table III-3-13) + indirect care 26.6 (same) x 0.5 = 28.3

Average time spent nursing by secondary caregiver 0.0 (same) + indirect care (same) 13.1 x 0.5 x 0.65* = 4.26

2) Number of patients with psychiatric disorders living at home:

Patient Survey 2008: Estimated number of outpatients (232,300) ÷ percentage of outpatient visits by patients living at home (0.834) (Table III-3-4) = 278,537 people

3) Percentage of patients being cared for by family: 0.474 (Table III-3-7)

* Among the 1.65 caregivers per patient (Table III-3-7), 1 person was considered the primary caregiver and 0.65 a secondary caregiver.

Therefore, caregiving costs = caregivers' wages (1,283 yen) x average hours of nursing care in one week (28.3+4.26) x 52 weeks x the number of patients with psychiatric disorders living at home (278,537) x percentage of patients being cared for by family (0.474) = 286,797,678 thousand yen.

Costs for visits to hospital and day care centers came to the following: the average transportation fee per person per month (4,283 yen) (Table III-3-12) x the number of patients with psychiatric disorders living at home (278,537) x percentage of visits to hospital, etc. by patients living at home (0.834) x 12=11,939,284

thousand yen.

The cost of nursing care products such as diapers and other nursing related costs came to 579 yen (Table III-3-12), so this became the cost per person. And, when calculated with the number of patients with psychiatric disorders living at home and the percentage of patients being cared for by family, this came to 76,443 thousand yen.

The total annual costs for informal care came to 298,813,405 thousand yen.

4. Estimate of Lost Productivity

(1) Loss of productivity

For those being affected with mental disorders and receiving treatment for a mental disorder not only the cost of medical treatments but also the effect of illness on the ability to work must be considered. Estimates for the loss of productivity due to illness were based both on the lost opportunity to work due to time taken for medical consultations and on diminished productivity on days with no medical consultation. First, the loss due to diminished productivity on days with no medical consultation was estimated. Data used for this estimate includes the published Survey of Medical Care Activities in Public Insurance, the Patient Survey FY2008 to estimate the medical costs of psychiatric disorders, as well as the Labor Force Survey published by the Ministry of Internal Affairs and Communications. The productive age range was set at 20 to 69 years old. People aged younger than 20 and older than 70 may work, however the data published in the Patient Survey is collated in groups of 5 years so there is one figure for the group 15 to 19 years old there is also no category for employment over 70 years old in the Labor Force Survey, so the range was set at 20 to 69 years old.

The procedure for estimation is detailed below.

The earnings lost per day by a patient were calculated for each mental disorder listed in the Ministry of Health, Labour, and Welfare's "middle classification" illnesses and the annual total was used to estimate productivity lost through illness.

The equation for estimation is as follows.

Productivity lost through illness = (daily earnings) x (annual total number of patients – total days of medical treatment) x (employment rate) x (employment rate decrease) x (productivity coefficient)

1) Daily earnings

The average daily wages by gender and age group were gathered from the Basic Survey on Wage Structure published by the Ministry of Health, Labour and Welfare.

2) Annual total number of patients

The Patient Survey estimates the total number of patients according to disorder regardless of a medical consultation on the day of the survey. The total number of patients was presumed to exist every day and the total for the year was calculated by multiplying by 365.

3) Total days of medical treatment

The estimated number of patients is calculated from the Patient Survey (Estimated number of patients who received medical treatment at a hospital or clinic on the day of the survey), those in hospital were multiplied by 365, outpatients were multiplied by 313 days (=365 x 6/7) to give the annual total days of

medical treatment for the year. Here, the 6/7 is the adjustment factor used to estimate the total number of patients in the Patient Survey.

4) Employment rate (Percentage of employment)

The average employment rate for gender and age group was taken from the Labor Force Survey FY2008.

5) Employment rate decrease, productivity coefficient

The assumption was made that the employment rate of people suffering from psychiatric disorders would decrease to half (0.5) that of the general public and also that even if employed, productivity would decrease to half (0.5) (productivity loss due to attending work while sick, presenteeism). These coefficients were used to calculate productivity lost through illness.

Results

Using the statistics from FY2008 productivity loss on days without medical consultations came to an estimated total of approximately 4.3 trillion yen. This figure is more than twice that of annual medical expenses and from a social perspective, illustrates that there is a greater economic cost than the cost of medical fees for illness. This estimate presumes that the employment rate of patients with a mental disorder is half that of the general public and also that even if labor is possible, then productivity is reduced to only half that of the general public. These assumptions were set in consultation with specialists; however, scrutiny of the labor productivity of patients with psychiatric disorders is required.

Table III-4-1 Estimate of Losses due to Reduced Productivity

(million yen)

Middle Classification of Illness	Male	Female	Total
Mental and Behavioural Disorders	2,713,446	1,622,974	4,336,420
Vascular and unspecified dementia	2,498	1,520	4,018
Mental and behavioural disorders due to psychotropic substance use	96,394	13,584	109,978
Schizophrenia, schizotypal and delusional disorders	889,523	409,116	1,298,639
Mood [affective] disorder	1,062,682	701,499	1,764,181
Neurotic, stress-related disorder and somatoform disorder	546,926	431,093	978,019
Mental retardation	24,813	13,950	38,763
Other psychoses and disorders of action	90,610	52,213	142,823

(2) Cost of loss of labor productivity due to medical consultation

Next, the cost of not being able to work due to medical consultations was estimated. The estimate was based on the presumption that no work could be done on a day in hospital or having medical treatment.

The procedure for estimation is detailed below.

The earnings lost per day by a patient were calculated for each mental disorder listed in the Ministry of Health, Labour and Welfare's "middle classification" of illnesses and the annual total was used to estimate productivity lost through illness.
The equation for estimation is as follows.

Productivity lost through illness= (daily earnings) x (total days of medical treatment) x (employment rate)

1) Daily earnings
The average daily wages by gender and age group were gathered from the Basic Survey on Wage Structure published by the Ministry of Health, Labour and Welfare.

2) Total days of medical treatment
The estimated number of patients is calculated from the Patient Survey (Estimated number of patients who received medical treatment at a hospital or clinic on the day of the survey), those in hospital were multiplied by 365, outpatients were multiplied by 313 days (=365 x 6/7) to give the annual total days of medical treatment for the year. Here, 6/7 is the adjustment factor used to estimate the total number of patients in the Patient Survey.

3) Employment rate (Percentage of employment)
The average employment rate for gender and age group was taken from the Labor Force Survey FY2008.

Results
Using the statistics from FY2008, productivity loss due to medical consultations came to an estimated total of approximately 1.7 trillion yen, which is a figure equivalent to the cost of medical expenses. This estimate presumes that no work can be done even on a day of an outpatient consultation; however, if the presumption is that work can be done with shortened working hours then the loss will be less than this estimate.

Table III-4-2 Estimate of Loss due to Medical Consultations

(million yen)

Middle Classification of Illness	Male	Female	Total
Mental and Behavioural Disorders	1,218,561	480,320	1,698,882

Vascular and unspecified dementia	11,575	2,634	14,208
Mental and behavioural disorders due to psychoactive substance use	75,832	5,596	81,428
Schizophrenia, schizotypal and delusional disorders	753,523	251,777	1,005,300
Mood [affective] disorder	215,758	124,941	340,699
Neurotic, stress-related disorder and somatoform disorder	85,375	66,891	152,267
Mental retardation	33,132	10,858	43,990
Other psychoses and disorders of action	43,367	17,622	60,989

(3) Cost of the loss of work productivity for one month or more due to sick leave

The cost of the loss of work productivity for one month or more due to sick leave by patients with psychiatric disorders was obtained using the following equation.

Cost of the loss of productivity due to sick leave = number of employed x percentage of sick leave by patients with psychiatric disorders x period of leave x average monthly income x percentage of temporary disability compensation

The number of employed was taken from the Labor Force Survey 2008 [1)], the percentage of sick leave taken by patients with psychiatric disorders was inferred from the Workplace Survey on Sick Leave due to Psychiatric disorders [2)], the average sick leave period due to psychiatric disorders was presumed to be one month, the average monthly income was taken from the Basic Survey on Wage Structure 2008 [3)] and the percentage of temporary disability compensation was presumed to be two thirds in accordance with the Health Insurance Act.

The result of calculating the cost of the loss of work productivity for one month or more due to sick leave by patients with psychiatric disorders was estimated to be approximately 46,497million yen. The figures used for this estimation are as follows.

Cost of the loss of productivity due to sick leave: 46,496,525,268 yen = number of employed: 63,850,000 x percentage of sick leave by patients with psychiatric disorders: 1,594/507,974 x period of leave: one month x average monthly income: 348,100 yen x percentage of temporary disability compensation: 2/3

(4) Cost of loss of future income due to suicide

The cost of the loss of future income due to suicide of patients with psychiatric disorders was obtained using the following equation.

Cost of loss of future income due to suicide = Σ [number of suicides by illness, gender and age x (Net Present Value: NPV) by gender and age]

The number of suicides by illness, gender and age was inferred from the Summary of Suicides in 2008[4)] and Crime in 2008[5)] and NPV was calculated as follows.

$$NPV_q = \sum_{n=q}^{100} \frac{P_q(n) X_n W_n}{(1+i)^{n-q}}$$

q is the age an individual committed suicide, n is the age the individual would be if alive, $P_q(n)$ is the probability an individual would live from age q to age n taken from the Life Table 2008[6], X_n is the employment rate of an age demographic (age bracket of n) taken from the Labor Force Survey 2008[1], W_n is the average annual income of an age demographic (age bracket of n) taken from the Basic Survey on Wage Structure 2008 [3], and i is the discount rate presumed to be 3% or 6%.

The result of calculating the loss of future income due to suicide by patients with psychiatric disorders came to approximately 702,998 million yen at a discount rate of 3% and approximately 515,257 million yen at a discount rate of 6%. The main figures used are shown in the table.

Table III-4-3：Number of Suicides by Illness, Gender and Age

	Number of suicides		Percentage of suicide by illness (%)		Estimated number of suicides	
Age	Male	Female	Male	Female	Male	Female
			Depression			
<= 19	381	230	10.5	27.1	40	62
20-29	2373	1065	23.9	44.7	567	476
30-39	3396	1454	25.5	50.6	864	736
40-49	3852	1118	22.4	47.9	863	535
50-59	4986	1377	18.1	48.0	905	660
60-69	4096	1639	18.1	46.1	742	755
>= 70	3543	2515	17.8	34.5	631	867
			Schizophrenia			
<= 19	381	230	5.4	8.4	21	19
20-29	2373	1065	7.9	11.6	187	123
30-39	3396	1454	8.7	13.1	296	191
40-49	3852	1118	5.3	13.1	203	146
50-59	4986	1377	3.8	10.8	189	149
60-69	4096	1639	2.4	6.2	99	102
>= 70	3543	2515	1.6	2.0	57	51
			Alcoholism			
<= 19	381	230	0.0	0.0	0	0
20-29	2373	1065	0.2	0.3	4	4
30-39	3396	1454	0.9	1.7	32	24
40-49	3852	1118	1.8	2.1	71	23

50-59	4986	1377	2.4	0.9	118	13
60-69	4096	1639	2.3	0.2	95	4
>= 70	3543	2515	0.8	0.3	30	8

Drug abuse

<= 19	381	230	0.4	0.6	1	1
20-29	2373	1065	0.4	0.5	8	5
30-39	3396	1454	0.4	0.4	14	6
40-49	3852	1118	0.2	0.6	10	6
50-59	4986	1377	0.1	0.1	7	1
60-69	4096	1639	0.0	0.0	1	0
>= 70	3543	2515	0.0	0.1	1	1

Other illness or disorder

<= 19	381	230	8.6	11.4	33	26
20-29	2373	1065	5.6	11.2	132	120
30-39	3396	1454	4.7	11.0	158	159
40-49	3852	1118	2.8	7.7	106	87
50-59	4986	1377	3.1	5.6	153	76
60-69	4096	1639	2.8	6.7	116	110
>= 70	3543	2515	4.6	6.3	162	159

Table III-4-4: Net Present Value by Gender and Age

	Employment rate (%)		Average income (yen)		Net Present Value (yen) (Discount rate = 6%)		Net Present Value (yen) (Discount rate = 3%)	
Age	Male	Female	Male	Female	Male	Female	Male	Female
<= 19	14.5	15.2	2,543,800	2,170,200	59,756,810	33,065,944	107,335,781	55,077,399
20-29	76.6	68.5	3,715,178	3,125,215	75,137,456	37,032,940	118,043,158	55,778,471
30-39	92.9	62.0	5,261,250	3,727,233	81,270,247	35,429,070	113,374,656	48,882,634
40-49	94.1	70.7	6,666,623	3,899,014	69,004,130	28,383,960	87,724,153	36,032,288
50-59	90.8	64.3	6,634,004	3,614,117	40,246,018	15,861,448	48,050,639	19,093,163
60-69	60.9	34.4	4,211,588	2,837,217	15,086,102	5,890,094	17,824,732	7,085,858
>= 70	20.2	8.5	4,028,200	3,042,500	3,779,883	1,496,110	4,289,125	1,742,306

NB) Discount rate is the percentage used to calculate present values from future values

Table III-4-5: Cost of the loss of future income by suicide by illness, gender and age

	Cost of the loss of future income (yen) (Discount rate = 6%)	Cost of the loss of future income (yen) (Discount = 3%)

Age	Male	Female	Total	Male	Female	Total
			All illnesses			
Total	385,463,628,621	129,793,014,870	515,256,643,491	525,684,676,625	177,303,233,209	702,987,909,834
			Depression			
<= 19	2,390,272,400	2,050,088,528		4,293,431,240	3,414,798,738	
20-29	42,602,937,552	17,627,679,440		66,930,470,586	26,550,552,196	
30-39	70,217,493,408	26,075,795,520		97,955,702,784	35,977,618,624	
40-49	59,550,564,190	15,185,418,600		75,705,944,039	19,277,274,080	
50-59	36,422,646,290	10,468,555,680		43,485,828,295	12,601,487,580	
60-69	11,193,887,684	4,447,020,970		13,225,951,144	5,349,822,790	
>= 70	2,385,106,173	1,297,127,370		2,706,437,875	1,510,579,302	
All ages	224,762,907,697	77,151,686,108	301,914,593,805	304,303,765,963	104,682,133,310	408,985,899,273
			Schizophrenia			
<= 19	1,254,893,010	628,252,936		2,254,051,401	1,046,470,581	
20-29	14,050,704,272	4,555,051,620		22,074,070,546	6,860,751,933	
30-39	24,055,993,112	6,766,952,370		33,558,898,176	9,336,583,094	
40-49	14,007,838,390	4,144,058,160		17,808,003,059	5,260,714,048	
50-59	7,606,497,402	2,363,355,752		9,081,570,771	2,844,881,287	
60-69	1,493,524,098	600,789,588		1,764,648,468	722,757,516	
>= 70	215,453,331	76,301,610		244,480,125	88,857,606	
All ages	62,684,903,615	19,134,762,036	81,819,665,651	86,785,722,546	26,161,016,065	112,946,738,611
			Alcoholism			
<= 19	0	0		0	0	
20-29	300,549,824	148,131,760		472,172,632	223,113,884	
30-39	2,600,647,904	850,297,680		3,627,988,992	1,173,183,216	
40-49	4,899,293,230	652,831,080		6,228,414,863	828,742,624	
50-59	4,749,030,124	206,198,824		5,669,975,402	248,211,119	
60-69	1,433,179,690	23,560,376		1,693,349,540	28,343,432	
>= 70	113,396,490	11,968,880		128,673,750	13,938,448	
All ages	14,096,097,262	1,892,988,600	15,989,085,862	17,820,575,179	2,515,532,723	20,336,107,902
			Drug abuse			
<= 19	59,756,810	33,065,944		107,335,781	55,077,399	
20-29	601,099,648	185,164,700		944,345,264	278,892,355	
30-39	1,137,783,458	212,574,420		1,587,245,184	293,295,804	

40-49	690,041,300	170,303,760		877,241,530	216,193,728	
50-59	281,722,126	15,861,448		336,354,473	19,093,163	
60-69	15,086,102	0		17,824,732	0	
>= 70	3,779,883	1,496,110		4,289,125	1,742,306	
All ages	2,789,269,327	618,466,382	3,407,735,709	3,874,636,089	864,294,755	4,738,930,844

Other psychiatric disorders

<= 19	1,971,974,730	859,714,544		3,542,080,773	1,432,012,374	
20-29	9,918,144,192	4,443,952,800		15,581,696,856	6,693,416,520	
30-39	12,840,699,026	5,633,222,130		17,913,195,648	7,772,338,806	
40-49	7,314,437,780	2,469,404,520		9,298,760,218	3,134,809,056	
50-59	6,157,640,754	1,205,470,048		7,351,747,767	1,451,080,388	
60-69	1,749,987,832	647,910,340		2,067,668,912	779,444,380	
>= 70	612,341,046	237,881,490		694,838,250	277,026,654	
All ages	40,565,225,360	15,497,555,872	56,062,781,232	56,449,988,424	21,540,128,178	77,990,116,602

NB) Discount rate is the percentage used to calculate present values from future values

5. Others

The cost of institutionalizing patients with psychiatric disorders in a correctional facility was calculated as follows.

Cost of institutionalization of patients with psychiatric disorders = number of new inmates with psychiatric disorders x daily expense per inmate x type of sentence x period of sentence

The number of new inmates with psychiatric disorders was taken from the Survey on Correction FY2008[1)], the daily expense per inmate was taken from Penal Institutions in Japan FY 2007[2)], also taken from the Survey on Correction FY2008[3)] was the percentage of new inmates whose sentence was one year or less and the percentage of inmates whose sentence was more than one year to give the type of sentence and the period was presumed to be183 days for one year or less and 366 days for more than one year. The result of estimating the cost of institutionalizing patients with psychiatric disorders in a correctional facility came to approximately 751 million yen. The following figures were used to conduct the calculation.

Cost of institutionalization of patients with psychiatric disorders: 750,599,425 yen = [number of new inmates with psychiatric disorders: 1,759 x daily expense per inmate: 1,310 yen] x [type of sentence (one year or less): 0.22 x period of sentence (one year or less): 183 days + type of sentence (more than one year): 0.78 x period of sentence (more than one year): 366 days]

6. Summary and Conclusion

The following authors contributed to Chapter III.

1. Estimate of medical costs: Takashi FUKUDA
2. Estimate of social service costs: Sachiko IIJIMA
3. Estimate of informal care costs: Sachiko IIJIMA
4. Estimate of lost productivity: Takashi FUKUDA (Diminished productivity), Hiroto ITO and Yasuyuki OKUMURA (Loss of labor)
5. Others: Hiroto ITO and Yasuyuki OKUMURA

The result of this study shows that the annual social cost of patients with psychiatric disorders in Japan is estimated to be approximately 11 trillion yen. In particular, this study shows that, in addition to medical costs, the cost of the loss of productivity and to social services is also very high. As far as we know, this is the first study to estimate costs of informal care for persons with mental disorders. However, there are other costs not taken into consideration in this report, including work productivity lost as a result of absenteeism and presenteeism. Further, economic losses due to caregivers' quitting their jobs, etc. have not been fully evaluated in the present study. In addition, the difference in standards of psychiatric treatment and general medical treatment created as a result of the Psychiatric Service Exception places a burden on those concerned, and the

costs of that difference are probably also worth calculating. Quantification of ‘invisible’ burdens on patients with mental disorders and their families will also be an issue in the future.

Finally, we thank everybody including all of the National Alliance on Mental Illness in Japan for their cooperation in making this report.

IV References and Appendix

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Appendix

III-2

Appendix 1 Definition of expenditure in the White Paper on Local Public Finance

【Prefectural: Social Welfare Costs】

・Social welfare personnel costs

・Aid expenditure for the physically and intellectually challenged

・Expenditure in accordance with the Services and Supports for Persons with Disabilities Act

・Expenditure for Women's Protection (Spending in accordance with the Act on the Prevention of Spousal Violence and the Protection of Victims, etc.)

・Expenditure required for universal social welfare such as costs of new-life movement

【Prefectural: Mental Well-being Costs】

・Psychiatric health personnel costs (includes compensation, etc. for certified psychiatrists, etc.)

・Expenses relating to psychiatric hospitals and mental health and welfare centers

・Other spending in accordance with laws relating to mental health and welfare for people with psychiatric disorders

【Municipal: Social Welfare Costs】

(a) Social welfare personnel costs

(b) Welfare office expenditure

(c) Aid expenditure for the physically and intellectually challenged

(d) Expenditure in accordance with the Services and Supports for Persons with Disabilities Act

(e) Spending in accordance with the Act on the Prevention of Spousal Violence and the Protection of Victims

(f) Expenditure for the protection of girls in accordance with the Anti-Prostitution Act

(g) Expenditure for human rights education and antidiscrimination measures

(h) Expenditure required for universal social welfare such as costs of new-life movement

(i) Loans and funds transfers to National Health Insurance Accounts such as special operations and Mutual Aid Traffic Accident Insurance Plan accounts (contributions, subsidies and investment, transfer of funds, etc., same hereinafter)

(j) Expenditure for reimbursements and funds for Widow Welfare Fund

【Municipal: Health Costs】

(a) Health personnel costs

(b) Expenditure on measures for health, mental health, mother and child health, and adult diseases

(c) Expenditure on the prevention of infectious diseases

(d) Expenditure environmental health measures such as food sanitation, and pollution

(e) Expenditure on the services other than medical services such as health education, health consultation, health checks and functional training in accordance with the laws relating to assurance of medical care for elderly people, as well as home-based guidance by medical enterprises

(f) Loans and funds transfers to National Health Insurance Accounts such as accounts of clinics directly-managed by national insurance, medical enterprise accounts, abattoirs, water supply, waterworks, sewerage works, specified sewerage treatment facilities and individual sewerage treatment enterprises

(g) Expenditure on other health policies in accordance with laws and regulations

V Activity of the Exploratory Committee

First Exploratory Committee meeting

Date: Monday, August 30 2010, 15:30 to 17:00

Place: Department of Epidemiology and Environmental Health, Juntendo University School of Medicine

Attendees: Hiroto Ito (committee member), Hideo Iwanari (committee member), Yasuyuki Okumura (expert opinion), Kazuhito Yokoyama (project director), Sachiko Iijima (project staff), Fumihiko Kitamura (project staff), Michiko Kurosawa, (project staff)

Second Exploratory Committee meeting

Date: Saturday, October 30 2010, 13:30 to 15:30

Place: Department of Epidemiology and Environmental Health, Juntendo University School of Medicine

Attendees: Takashi Fukuda (member), Yasuyuki Okumura (expert opinion), Kazuhito Yokoyama (project director), Sachiko Iijima (project staff), Fumihiko Kitamura (project staff), Michiko Kurosawa (project staff)

Third Exploratory Committee meeting

Date: Saturday, January 8 2011, 13:30 to 15:00

Place: Department of Epidemiology and Environmental Health, Juntendo University School of Medicine

Attendees: Hideo Iwanari (member), Takashi Fukuda (member), Yasuyuki Okumura (expert opinion), Mitsuhiro Sado (expert opinion), Kazuhito Yokoyama (project director), Fumihiko Kitamura (project staff), Sachiko Kurosawa (project staff)

Fourth Exploratory Committee meeting

Date: Saturday, March 5 2011 13:30 to 15:30

Place: Department of Epidemiology and Environmental Health, Juntendo University School of Medicine

Attendees: Takashi Fukuda (member), Yasuyuki Okumura (expert opinion), Kazuhito Yokoyama (project director), Sachiko Iijima (project staff), Fumihiko Kitamura (project staff), Sachiko Kurosawa (project staff)

Minutes of the first Exploratory Committee meeting

1. Plan overview
2. Estimate model

(1) The committee decided to estimate social costs using typical service costs multiplied by the number of patients to give a total cost.

(2) The number of patients will be taken from the Patient Survey.

(3) Ms. Iijima explained the following cost estimates

1. Medical consultations (medicine, tests, equipment, personnel fees)
2. Social services

3. Informal care (family, volunteer, etc.)
4. Other expenditure such as transportation for consultations
5. Productivity cost
(1) Cost due to illness (diminished productivity, loss of labor, etc.)
(2) Cost due to demise (loss of productivity due to suicide)

(4) Upon consideration the committee decided to make the following additions particularly for social services: (1) rehabilitation facilities and intermediate facilities, (2) welfare benefits and (3) items relating to Article 24 of the Act Related to Mental Health and Welfare of the Persons with Mental Disorder (emergency, police, etc.). Further items will be listed by Mr. Okumura and Mr. Ito.

(5) The necessity of survey with a focus on costs of government agencies (Mental Health Centers, Public Health Centers, municipalities, and the police) and burdens on people with mental disorders and their families using interview and questionnaire was confirmed. Ms. Iijima will lead organizing items and carrying out a survey by the end of the year. Mr. Iwanari and Mr. Nishida will help request information from the agencies, patients and families.

(6) Mr. Yokoyama and Ms. Kurosawa will apply to the Juntendo University Ethics Committee for approval of the research project.

3. The next meeting will be held on Saturday, October 10 2010 in the Department of Epidemiology and Environmental Health, Juntendo University School of Medicine at 13:30 to 15:30.

Minutes of the second Exploratory Committee meeting

The following points were considered.

1. Estimate model of social costs

(1) Estimate of patient numbers

(2) Cost estimate

1. Medical consultation (medicine, tests, equipment, personnel fees, etc.)
2. Social services
3. Informal care (family, volunteer, etc.)
4. Other fees for consultations such as transportation
5. Productivity cost
(1) Cost due to illness (diminished productivity, loss of labor)
(2) Cost due to demise (loss of productivity due to suicide)

(3) Patient and family survey

(4) Survey of government agencies

3. Other

Minutes of the third Exploratory Committee meeting

(1) Estimation of social service costs for people with psychiatric disorder (handout by Sachiko Iijima project staff)

Mr. Yokoyama explained the document. Indicated as estimates of social services for people with psychiatric disorders were; the sources and methods of calculating (1) services in accordance with the Services and Supports for Persons with Disabilities Act (prefectural, municipal), (2) expenditure by Mental Health Centers etc., (3) expenditure by Public Health Centers, (4) police protection fees and (5) fees for transportation by ambulance. The total came to 2.8703 trillion yen.

(2) Medical expenses and loss of productivity for a patient with psychiatric disorders (Mr. Fukuda)

Explanation based on the handout. Totals by middle classification patients with psychiatric disorders and gender were shown for hospital treatment expenses, in and outpatient expenses, and loss of productivity. The total medical fees were approximately two trillion yen; the loss of productivity was approximately six trillion yen giving a total estimate of eight trillion yen. A sensitivity analysis will be carried out on the cost of the loss of productivity.

(3) Mr. Okumura presented information on the calculation method of and a previous study of "presenteeism", Criminal Justice System Costs based on the handout. There has been no study in Japan on presenteeism in patients with psychiatric disorders. Therefore, results of studies carried out in Europe and in the United States were presented. The total cost (Criminal Justice System Costs) of detaining a patient with psychiatric disorders for one year was estimated at 885,869,474 yen.

(4) Mr. Sado explained research undertaken at Keio University.

The studies overlap in some areas however, it will be difficult to make adjustments during this financial year, so agreement has been made to send manuscript of the report to him and share results and each other's thoughts.

(5) Next steps

Write up the report by the end of February, and send to the printers by early March. Mr. Yokoyama will take care of the first part. The fourth meeting will be held on Saturday, March 5 2011 from 13:30 at Department of Epidemiology and Environmental Health, Juntendo University School of Medicine (Motomachi Elementary School)

Minutes of the fourth Exploratory Committee meeting

Review of the report manuscript.

(1) The report prepared by Ms. Iijima was checked and a few revisions made to the estimate of informal care costs and the final figure confirmed.

(2) The report prepared by Mr. Okumura was checked.

(3) With the addition of Mr. Fukuda's report the final report will be sent to the printers on March 9 2011.
(4) The presentation of this research will be made on Tuesday, July 19 2011 in the amphitheater, Building 2, Juntendo University from 18:00 to 20:00. Mr. Sado from Keio University will present in addition to project director Mr. Yokoyama and other committee members. Further presentations will be made both internally and externally.

VI Presentation of Results to the Public

1. The outcome of this study will be sent to the National Alliance on Mental Illness in Japan and the Associations of Dementia Family Caregivers in each prefecture, Mental Health and Welfare Centers nationwide, the Office for Mental Health Measures, the National Center of Neurology and Psychiatry, the Japanese Association of Psychiatric Hospitals, researchers and political party officials.

2. The outcome will be published on the Department of Epidemiology and Environmental Health, Juntendo University homepage and the Patients Association homepage, etc.

3. This research will be presented on Tuesday, July 19 2011 in the amphitheater, Building 2, Juntendo University from 18:00 to 20:00.