**Supplementary Material**

**Costs and Resource Use Associated with Community-Dwelling Patients with Alzheimer’s Disease in Japan: Baseline Results from the Prospective Observational GERAS-J Study**

**Supplementary Table 1. Unit Costs and Source of Resource Utilization Items**

| **Unit cost item** | **Unit of measure-ment** | **Unit cost (JPY 2016 values)** |  **References** |
| --- | --- | --- | --- |
| **Work loss** |
| Work loss for working caregivers | hour | 1,937 | Basic Survey on Wage Structure in Japan (2016) Average wage of all ages<http://www.e-> stat.go.jp/SG1/estat/GL08020103.do?\_toGL08020103\_&tclassID=000001062211&cycleCode=0&requestSender=estat |
| Loss of leisure-time for non-working caregivers (35% of hourly wage)  | hour | 678 |
| **Accommodations** |
| Intermediate accommodation (non-dementia specific) | day | 6,525 | ・Survey of Long-term Care Benefit Expenditures (April 2017) http://www.e-stat.go.jp/SG1/estat/List.do?lid=000001183343・Instruction on long-term care fees (April 2017) |
| Dementia-specific accommodation | day | 9,196 |
| Long-term institutional care (nursing home)  | day | 6,386 |
| Other | day | 7,369 | The cost of other is calculated as the average of all subcategories |
| **Hospitalization** |  |  |  |
| Geriatrics, internal medicine, surgery, neurology, general ward | night | 17,010a | Instruction on medical care fee points (April 2017)・Basic hospitalization fee (General ward)・Additional fee according to length of stay (General ward)・Basic hospitalization fee (Psychiatric ward)・Additional fee according to length of stay (Psychiatric ward)・Hospitalization fee for dementia care unit |
| 14,430b |
| Psychiatry  | night | 14,594c |
| 13,562d |
| 13,519e |
| 11,412f |
| Other ward | night | 16,607c | The cost of other is calculated as the average of all categories |
| 16,435d |
| 14,278e |
| 13,927f |
| **Healthcare visits** |  |  |  |
| Emergency room visit (<24 h) | visit | 11,320 | Instruction on medical care fee points (April 2017)・First consultation fee・Additional fee for medical services on holiday (First visit)・Administrative fee for emergency transportation on holiday and nighttimeStatistics of Medical Care Activities in Public Health Insurance (2016)http://www.e-stat.go.jp/SG1/estat/List.do?lid=000001186905 |
| Geriatrician, neurologist, psychiatrist | visit | 2,152 | Instruction on medical care fee points (April 2017)・First consultation fee・Follow-up consultation fee・Additional fee for outpatients administration・Prescription feeStatistics of Medical Care Activities in Public Health Insurance (2016)http://www.e-stat.go.jp/SG1/estat/List.do?lid=000001186905 |
| Physical therapist, occupational therapist | visit | 2,400 | Instruction on medical care fee points (April 2017)・Rehabilitation fee for patients with dementia |
| Social worker | visit | 0 |  |
| Psychologist | visit | 800 | Instruction on medical care fee points (April 2017)・Cognitive function tests and other psychological tests |
| Other | visit | 1,722 | The cost of other is calculated as the average of all categories |
| **Community care services** |  |  |  |
| District nurse | time | 4,545 | ・Survey of Long-term Care Benefit Expenditures (Data April 2017) http://www.e-stat.go.jp/SG1/estat/List.do?lid=000001183343 |
| Home-aid/orderly | time | 2,817 |
| Daycare  | time | 10,210 |
| Food delivery service | time | 488 | ・The Japan Research Institute, Limited “Survey of the actual condition of life support services” （March 2014）https://www.jri.co.jp/MediaLibrary/file/column/opinion/pdf/14070801.pdf |
| Transportation service | time | 1,816 |
| Other | time | 3,975 | The cost of other is calculated as the average of all categories |
| **Medications associated with AD treatment** |
| Donepezil | day | 337 | ・Nihon-iyakuhinsyu DB version 2017.4, JIHO・Medical package insert・Japan Medical Data Center (JMDC) Claims Data Base“Average cost per mg (JPY, 2017)” was calculated as the average of all “medicine cost per mg” based on generic name and ATC/DDD was calculated from claims database by JMDC. |
| Galantamine | day | 368 |
| Memantine | day | 389 |
| Rivastigmine | day | 472 |
| Yokukansan | day | 0.07 |
| Other | day | 391 | Average across subcategories except for Yokukansan, as no description of “other” |
| **Psychiatric/hypnotic medications** |
| Antidepressants | day | 220 | ・Nihon-iyakuhinsyu DB version 2017.4, JIHO・Medical package insert・JMDC Claims Data BaseThe top 3 drugs per drug class were identified using JMDC in 2016 which is claims database in Japan; ATC/DDD was calculated from JMDC data.  |
| Antipsychotics | day | 572 |
| Anxiolytics | day | 20 |
| Benzodiazepines | day | 48 |
| Hypnotics and sedatives | day | 48 |
| Mood stabilizers | day | 41 |
| **Medications associated with comorbidities** |
| Depression | day | 222 | ・Nihon-iyakuhinsyu DB version 2017.4, JIHO・Medical package insert・JMDC Claims Data BaseThe top 3 drugs per comorbidity were identified using JMDC in 2016 which is claims database in Japan; ATC/DDD was calculated from JMDC data.  |
| Epilepsy | day | 30 |
| Stroke | day | 157 |
| Ischemic cardiac | day | 48 |
| Hypertension | day | 84 |
| Diabetes mellitus | day | 78 |
| Hypercholesterolemia | day | 81 |
| Cancer | day | 272 |
| Urinary tract disorder | day | 141 |
| COPD | day | 166 |
| Anxiety | day | 22 |
| Insomnia | day | 48 |
| Pain | day | 159 |
| Alcoholism | day | 122 |

a Duration 14 days or less. b Duration 15-30 days. c Duration 14 days or less for patient. d Duration 14 days or less for caregiver. e Duration 15-30 days for patient. f Duration 15-30 days for caregiver. AD, Alzheimer’s disease; ATC/DDD, Anatomical Therapeutic Chemical/Defined Daily Dose; DB, database; JMDC, Japan Medical Data Center; JPY, Japanese Yen.

**Supplementary Table 2. Medical Resource Use by Patients and Caregiver in Last 30 days from the Baseline Visit.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Overall(N=553) | Mild AD(N=156) | Moderate AD (N=209) | Moderately Severe /Severe AD(N=188) | p1 |
| **Patient, n (%)**  |  |  |  |  |  |
| Patients admitted to hospital  | 12 (2.2%) | 7 (4.5%) | 5 (2.4%) | 0 (0.0%) | 0.008 |
| Patients visited hospital emergency room  | 11 (2.0%) | 0 (0.0%) | 4 (1.9%) | 7 (3.7%) | 0.040 |
| Patients with outpatient HCP visit  | 475 (85.9%) | 133 (85.3%) | 174 (83.3%) | 168 (89.4%) | 0.200 |
| **Caregiver, n (%)** |  |  |  |  |  |
| Caregivers admitted to hospital  | 4 (0.7%) | 2 (1.3%) | 0 (0.0%) | 2 (1.1%) | 0.202 |
| Caregivers visited emergency room  | 1 (0.2%) | 0 (0.0%) | 1 (0.5%) | 0 (0.0%) | 1.00 |
| Caregivers with outpatient HCP visit  | 304 (55.0%) | 90 (57.7%) | 105 (50.2%) | 109 (58.0%) | 0.223 |

1 p-value is from Fisher's Exact Test. AD, Alzheimer’s disease; HCP, health care provider; N, population size; n, number in group.

 **Supplementary Table 3. Average Monthly Costs. Mean and 95% CI for the mean are shown.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Cost Type, mean (95% CI) | Overall (N=553) | Mild AD, (N=156) | Moderate AD (N=209) | Moderately Severe /Severe AD (N=188) |
| Patient Direct Medical (Health Care), JPY | 26,744(25,001; 28,971) | 27,441(22,800; 34,141) | 26,309(23,962; 29,510) | 26,649(24,979; 28,518) |
| Patient Direct Non-Medical (Social Care), JPY | 69,179(62,576; 76,455) | 42,906(32,347; 55,914) | 68,503(57,772; 81,293) | 91,731(80,625; 103,461) |
| Caregiver Indirect Non-Medical (Informal Care), JPY | 128,661(116,188; 142,264) | 88,107(70,022; 109,873) | 116,488(98,598; 137,495) | 175,845(150,743; 202,611) |
| Total Societal Costs, JPY1 | 224,584 (209,139; 240,855) | 158,454(133,747; 186,824) | 211,301(188,291; 235,995) | 294,224(265,861; 323,041) |
| Total Societal Costs, USD | 2,101(1,957; 2,254) | 1,483(1,252; 1,748) | 1,977(1,762; 2,208) | 2,753(2,488; 3,023) |

The bootstrap method was used to calculate the 95% CI for the mean. Exchange rate used to convert JPY to USD: 0.0093572 (source: https://www.bloomberg.com/quote/USDJPY:CUR; date 06-APR-2018). AD, Alzheimer’s disease; CI, confidence interval; JPY, Japanese Yen; N, population size; USD, United States dollars.