**Supplementary Table S1. The use of LTC claims in health services research (*n* = 47)**

| Authors/years | Sample/ study years | Outcome | Main Exposure | Main results | *Ref.* |
|---|---|---|---|---|---|
| Adomi M *et al*. (2019) | 32,617 people aged ≥ 75 years living at home who used medical services between October 2012 and September 2013 | Long-term urinary catheterization | Urinary tract infection | ↑Incidence of urinary tract infection | (*28*) |
| Kuroda N *et al.* (2019) | 25,919 people aged ≥ 75 years between October 2012 and September 2013 | Antipsychotic use | Sociodemographics and diseases | ↑Lower cognitive function, antidementia drug use, and institutional LTC service use<br>↓Older age was associated with lower odds | (*29*) |
| Hashimoto H *et al.* (2010) | 415,341 people aged 65 from 2000 to 2004 | LTC expenditure and medical expenditure | Age, time to death survivorship, and use of LTC | Age is a contributing factor to the rising expenditures on LTC, and the contribution of aging to rising medical care expenditures should be distinguished according to survivorship | (*30*) |
| Naruse T *et al.* (2017) | 2,641 disabled elderly people in October 2010 | Home visit nursing (HVN) service use | Proportion of elderly people living within 10 minutes' travel of HVN agencies. | ↑Municipalities with a higher reachable proportion of elderly residents | (*31*) |
| Morita K *et al.* (2018) | 342,758 individuals newly admitted to 3,459 geriatric intermediate care facilities between April 2012 and March 2014 | Discharge to home | Sociodemographics and diseases | ↓Older age, higher level of care needs, having several medical conditions, private ownership of the facility, more beds in the facility, and more LTC facility beds per1,000 adults aged 65 and older in the region | (*13*) |
| Koike S *et al.* (2013) | 3,006 non-institutionalized elderly persons as of October 2009 and 2010 | Care-needs level deterioration | LTC service use | ↓Any LTC service use | (*32*) |
| Hamada S *et al.* (2019) | 30,872 people aged ≥ 75 years between April 2012 and September 2013 | Physician visit frequency, length of hospital stay, and medical and LTC expenditures | Household income level | Older people with lower income had fewer consultations with physicians but increased use of inpatient services | (*33*) |
| Fu R *et al*. (2019) | 1,478,081 LTC beneficiaries aged ≥ 65 years from January 2006 to December 2015 | Service use | Copayment | ↑Insured individuals with no copayments | (*34*) |

| | | | | | |
|---|---|---|---|---|---|
| Akiyama N *et al.* (2018) | 4,029 LTC recipients aged ≥ 65 years from 2007 to 2009 | LTC and medical expenditure | Season and sociodemographics | MC costs significantly decreased and LTC costs significantly increased among subjects living alone during winter. Income level was also a positive determinant of MC costs, while eligibility level was a positive determinant of LTC costs | (*35*) |
| Ishimaru M *et al.* (2019) | 3,377,998 LTC recipients who used home care services between April 2012 and March 2014 | Receiving domiciliary dental care | Sociodemographics and service use | ↑ Higher level of care needs, exemption from out-of-pocket payment, living in a group home,using other domiciliary services such as physician visits, and a large number of dental clinics providing domiciliary dental care in their municipality. ↓Living alone and dementia | (*36*) |
| Mori T *et al.* (2018) | 120 hip fracture patients aged ≥ 75 years between April 2012 and September 2013 | LTC and medical expenditure | Sociodemographics, diseases, and service use | ↑ Longer duration of hospital stay, higher care-needs level post-hip fracture, and usage of institutional care services ↓Higher Charlson Comorbidity Index scores | (*37*) |
| Jin X *et al.* (2018) | 358,886 LTC facility residents between 2012 and 2013 | Care-needs level deterioration | Structural characteristics | ↑Older age and lower care-needs level ↓Metropolitan facilities, unit model, higher proportion of registered nurses among all nurses, higher proportion of registered dietitians among all dietitians | (*12*) |
| Sato M *et al.* (2006) | 261 LTCI beneficiaries aged ≥ 65 years living in the community | Utilization of community care services | Interim subsidy policy | Subsidized beneficiaries used 1.53 times as much home help service and spent 0.70 times as much on out-of-pocket copayments, but fewer adult daycare services than did the non-subsidized beneficiaries | (*38*) |
| Mori T *et al.* (2019) | 29,915 adults ≥ 75 years between October 2012 and September 2013 | LTC and medical and expenditure | Multimorbidity | ↑Greater CCI scores | (*8*) |
| Jeon B *et al.* (2018) | 2,023 people aged ≥ 75 years and residing in either special nursing homes or geriatric health service facilities between October 2012 and September 2013 | Potentially avoidable hospitalizations,non-potentially avoidable hospitalizations, in-hospital deaths | Facility type, diseases, service provision | Artificial nutrition was positively associated with potentially avoidable hospitalizations and non-potentially avoidable hospitalizations, and males was positively associated with non-potentially avoidable hospitalizations and in-hospital deaths. | (*39*) |
| Lin HR *et al.* (2017) | LTCI beneficiaries between October 2010 and September 2011 | Care-needs level deterioration | Dementia, living alone | ↑Dementia, older age, being female, and lower level of care needs | (*14*) |
| Yoshioka Y *et al.* (2010) | 309 community-dwelling frail elderly people in 2000 | Private care management agencies | Service use | ↑Private care management agencies | (*40*) |

| | | | | | |
|---|---|---|---|---|---|
| Moriyama Y *et al.* (2018) | 2,454 participants aged 65 years or older who entered residential care between April 2006 and March 2012 | Months from home to residential care admission | Short-stay service use | In the low-care needs group<br>↓Use of short-stay services<br>In the high-care needs group<br>↑ Use of short-stay services | (*41*) |
| Mori H *et al.* (2020) | 9,386 people aged ≥ 65 years who died between September 2006 and October 2009 | LTC and medical expenditure | Approaching death | ↑ Severe LTC needs and approaching death, rather than advancing age | (*42*) |
| Kashiwagi M *et al.* (2013) | 1,276 users of community-based services | Use of home-visit nursing services | Sociodemographics and diseases | ↓Management by non-medical care management agencies, caregivers being around, or a low-income household | (*43*) |
| Jin X *et al.* (2020) | 3,876,068 LTCI recipients in the fiscal year 2016 | LTC expenditure | Sociodemographics | ↑Female, higher level of care needs, a lower-income (0% copayments) or a facility service user; municipalities located in metropolitan areas, with a higher proportion of single elderly households, more doctors per 1,000 citizens, more nursing homes per 100,000 LTC benefit users, or more outpatient medical spending per citizen ≥75 years old | (*11*) |
| Tsuchiya-Ito R *et al.* (2020) | 3,770 non-institutionalized LTC beneficiaries between April 2012 and August 2013 | Home-based rehabilitation and home help service utilization | Household income (low income) | ↓Home-based rehabilitation services<br>↑Home help services than middle/high-income subjects | (*44*) |
| Tsuboi H *et al.* (2020) | 10,998 patients aged ≥ 65 who were discharged from LTC wards between April 2012 and March 2016 | Hospital readmission | Sociodemographics and diseases | ↓Hospital discharge support | (*45*) |
| Soga Y *et al.* (2020) | 771 LTC beneficiaries between August 2014-July 2016 | LTC service use | Copayment rate policy change | After adjusting for care needs levels and age, the copayment rate increase was associated with reductions in monthly LTC insurance charges | (*46*) |
| Lin HR *et al.* (2019) | LTC beneficiaries between August 2014 and July 2015 | LTC and medical care expenditure | Copayment policy changes | The policy implementation caused significant differences in the number of days of hospitalization, medical care expenditures, and total expenditures | (*47*) |
| Sado M *et al.* (2018) | Aged 40 years and older | Cost of dementia | - | The societal costs of dementia in Japan in 2014 were estimated at JPY 14.5 trillion. The cost per person with dementia appeared to be JPY5.95 million | (*48*) |

| | | | | | |
|---|---|---|---|---|---|
| Ono S *et al.* (2017) | 338,420 LTC facility residents from 2009 to 2012 | Discharge to home | Enhanced oral care | ↑Residents with enhanced oral care | (*49*) |
| Tomita N *et al.* (2010) | 565 non-hospitalized or non-institutionalized at the time of the first certification; between April 2000 and February 2008 | Hospitalization and Institutionalization | LTC service use | ↓Respite care, rental services for assistive devices, and daycare | (*50*) |
| Sato M *et al.* (2020) | 1,247,868 Japanese decedents (65 years) who had used LTC services and died between April 2007 and March 2014 | In-hospital deaths | Incentivization program to increase end-of-life care outside of hospitals | ↓Incentivization program to increase end-of-life care outside of hospitals | (*38*) |
| Itoh S *et al.* (2020) | 45,330 whose care level is 3; received LTC services between April 2009 and March 2014 | Care-needs level deterioration | Advanced care management | ↓Advanced care management | (*51*) |
| Ueshima H *et al.* (2017) | LTC beneficiaries who were certified as CL4 or CL5 between April 2007 and March 2014 | Length of stay at home | - | Length of stay rate could be calculated as an indicator of evaluating the Community-based Integrated Care System | (*52*) |
| Kawamura A *et al.* (2016) | 68,225,566 LTC facility residents between April 2006- March 2015 | Tube to oral feeding | Facility type | The implementation of the tube to oral feeding was different from the LTC facility type | (*53*) |
| Maruta M *et al.* (2019) | 18,209 LTCI beneficiaries between 2014 and 2016 | Care-need level deterioration | Behavioral and psychological symptoms | ↑"Own medications," "daily decision-making," and "handling finances' | (*54*) |
| Miyahara Y *et al.* (2019) | 5,231 people whose care level is lower than 3 between 2014 and 2016 | ADL decline | Sociodemographics and health service use | Day rehabilitation services had an effect on functional sustainment for service users whose ADL scores were J2, A1, and A2 at baseline | (*55*) |
| Horiguchi M *et al.* (2017) | 121 LTC beneficiaries who renewed certification from 2010 to 2011 | Cognitive functional decline | Sociodemographics | ↑Individuals who were at a higher level of dependency at the time of initial certification | (*56*) |
| Fukuda T *et al.* (2010) | 31 LTCI beneficiaries living in the community during May-June 2008 | Care-needs level deterioration | Touch panel-type dementia assessment | ↑A decline in cognitive functions | (*57*) |
| Yokozuka M *et al.* (2010) | 55 LTCI beneficiaries who conducted home improvement between April 2006 and February 2009 | Care level improvement | Home improvements | ↑Home improvements | (*58*) |
| Shimizu U *et al.* (2010) | 1,000 LTCI beneficiaries | ADL | Chronic dialysis | ↑Chronic dialysis | (*59*) |

| | | | | | |
|---|---|---|---|---|---|
| Sato M *et al.* (2019) | 2,188,397 LTCI beneficiaries living in a community | Duration of formal LTC | Care level | The overall average duration of formal care per diem per capita for men and women were 97.4 and 112.7 minutes for care level 1, 118.3 and 149.1 for care level 2, 186.9 and 246.4 for care level 3, 215.2 and 273.2 for care level 4, and 213.1 and 261.4 for care level 5, respectively | (*60*) |
| Kikuzawa S *et al.* (2013) | 334,731 LTCI beneficiaries in April 2004 | Health services utilization | Community characteristics | there are differences in service supply levels among cities, towns, and villages, which are especially evident in relatively popular services | (*61*) |
| Olivares-Tirado P *et al.* (2011) | Aged 65 years; received LTC services | LTC expenditure | Sociodemographics | ↑the increased utilization rate of benefits, the decline in functional status, higher care needs level, and institutional care | (*62*) |
| Olivares-Tirado P *et al.* (2012) | Aged 65 years or over; newly certified as being eligible for CL1 benefits | Care-needs level improvement | Sociodemographics | ↑women, use of "one service", the amount of services utilized (days/month) | (*15*) |
| Taniguchi Y *et al.* (2019) | 1,736 adults aged ≥ 65 years who were free of disabling dementia completed annual assessments from 2002 to 2014 | LTC and medical expenditure | Sociodemographics and diseases | The risk of death from cardiovascular disease was higher in the two lower trajectory groups in cognitive function, and they showed higher healthcare costs during the first 5 years of follow up | (*63*) |
| Abe K *et al.* (2020) | 2,035,657 LTCI beneficiaries who died between 2008 and 2013, excluding those who were using residential services at their time of death. | Home death | Home and community-based services | ↑The use of in-home services, day services, and short-stay services | (*64*) |
| Abe K *et al.* (2019) | 1,613,391 LTCI beneficiaries who died between January 2010 and December 2013 | Home death | Home care service offered by certified care workers | ↑ The use of certified care workers' home care service before death | (*65*) |
| Kato G *et al.* (2009) | 624 LTCI beneficiaries who used home care services between April 2005 and February 2006 | Care-needs level sustainment or improvement | Home care service use | There were no home-based services significantly related to sustaining or improving the users' care needs level | (*66*) |
| Lin HR *et al.* (2015) | 50,268 LTC beneficiaries who had utilized LTC services between 2010 and 2011 | Care-needs level deterioration | Dementia | ↑Dementia, facility care services, being male, older age, and lower baseline care-needs levels were associated with care-needs level deterioration | (*67*) |

↑: predictive factors of outcome; ↓: protective factors of outcome; LTC: long-term care.