

Outpatient antineoplastic prescribing trends following policy implementation during COVID-19 in Japan

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Conflict of Interest: Takehiro Ishida is an employee of Daiichi Sankyo Company, Limited. Satoshi Yamaguchi is an employee of Accenture.

This research was conducted independently of these institutions.



INTRODUCTION

【Background】

- Cancer is a major global health issue, and Japan has the fourth-highest number of new cancer cases worldwide.
- Japan also has one of the world's most rapidly aging populations, with approximately 20 million people aged ≥ 75 years.
- Expanding outpatient cancer treatment may reduce healthcare burden and support patients' daily lives.

【Cancer Policy and the COVID-19 pandemic in Japan】

- In April 2022, the Ministry of Health, Labour and Welfare (MHLW) increased the outpatient antineoplastic treatment incentive from 6,000 to 7,000 JPY.
- In March 2023, MHLW published the 4th Basic Plan to Promote Cancer Control, which emphasized the enhancement of outpatient cancer treatment.
- The state of emergency was declared in April 2020, and COVID-19 was reclassified to the same category as seasonal influenza in May 2023.

AIM

To evaluate nationwide trends in outpatient antineoplastic drug use, focusing on differences by age and sex, drug category, and changes in drug expenditure.

METHODS

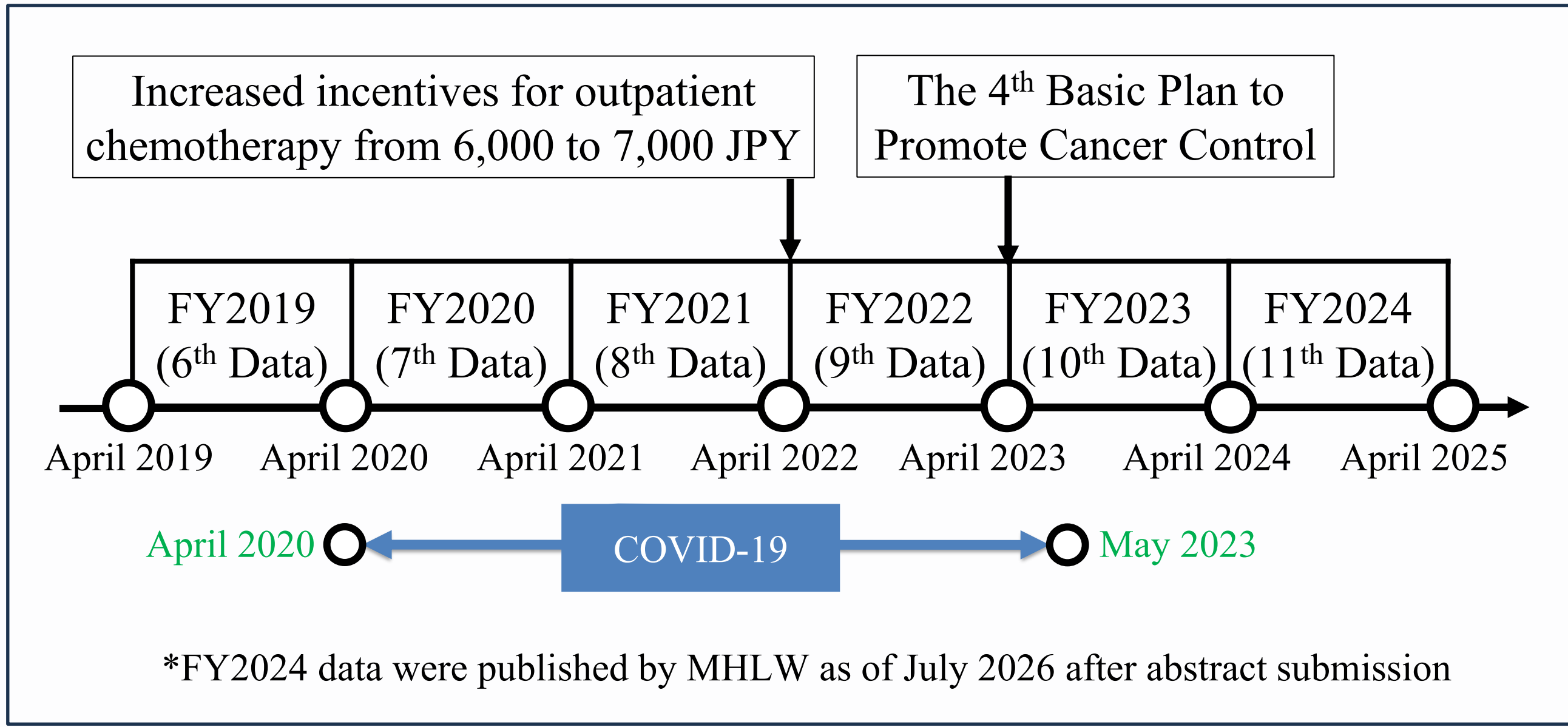
【Study Design】 Nationwide Serial Cross-Sectional Study (FY2019–FY2024)

【Data Source】 NDB Open Data, a publicly available aggregated national claims dataset published by MHLW covering nearly all health-insurance claims in Japan.

	NDB	NDB Open Data
Data type	Individual-level insurance claims & health-checkup data	Aggregated statistical data (by age, sex, drug, etc.)
Access	Strict expert review & approval required	Publicly available; no restriction
Personal info	Included (anonymized)	Individuals cannot be identified; no hospital-level data

【Drug Classification】 Antineoplastic agents were classified as below in this study

- Traditional agents: antimetabolites, antitumor antibiotics, alkylating agents, and plant-derived agents.
- New agents: MHLW category 429, including platinum-based, immunotherapeutic, and molecular-targeted agents.



【Outcome】

- Prescribing trends: Annual prescribed units per 100,000 population, stratified by sex and age (<75 vs ≥ 75 years).
- Drug-category trends: Prefecture-level prescribed units per 100,000 population for traditional and new antineoplastic agents.
- Drug expenditure: Annual expenditure, prescribed units, and average expenditure per prescribed unit.
 - Annual expenditure: $\sum \{(\text{Prescribed units}) \times (\text{Official drug price} / \text{unit})\}$
 - Average expenditure / unit: $(\text{Annual expenditure}) \div (\text{Annual units})$

【Statistical Analysis】 Prefecture-level means and 95% CIs were calculated across all 47 prefectures. FY2019 and FY2024 values were compared using paired t-tests; two-sided $p < 0.05$ was considered statistically significant.

RESULTS

Table 1. Nationwide trend of prescribed units per 100,000 population

Prescribed units per 100,000 population	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	Increase FY2019–FY2024
Total (injectable)	10,973	11,454	12,066	12,478	12,869	12,854	17.1%
Male (<75 years)	9,053	9,526	10,019	10,130	10,153	9,726	7.4%
Male (≥ 75 years)	23,063	24,636	26,779	29,262	31,090	32,035	38.9%
Female (<75 years)	10,500	10,779	11,222	11,381	11,635	11,342	8.0%
Female (≥ 75 years)	10,894	11,547	12,373	13,521	14,691	15,347	40.9%
Total (oral)	316,961	328,000	345,112	360,260	374,983	401,738	26.7%
Male (<75 years)	164,393	167,341	174,909	176,019	173,242	178,955	8.9%
Male (≥ 75 years)	1,303,485	1,323,484	1,360,273	1,385,785	1,389,143	1,421,706	9.1%
Female (<75 years)	303,025	317,853	336,997	352,244	372,355	401,039	32.3%
Female (≥ 75 years)	472,534	494,648	526,424	555,512	586,554	639,736	35.4%

Key finding: Injectable units increased more among adults aged ≥ 75 years in both sexes, whereas oral units increased more among females regardless of age.

Table 2. Prefecture-level Prescribed Units per 100,000 population by drug category

Mean (95%CI) n=47	FY2019	FY2024	Difference FY2019–FY2024	Change FY2019–FY2024
Total (injectable)	10,099 (9,619–10,579)	12,119 (11,592–12,647)	2,020 (1,839–2,201) $P < 0.001$	20.5% (18.4–22.6)
Traditional agents	5,537 (5,237–5,837)	6,005 (5,712–6,298)	468 (360–576) $P < 0.001$	9.1% (6.9–11.3)
New agents	4,562 (4,366–4,757)	6,114 (5,862–6,366)	1,552 (1,436–1,668) $P < 0.001$	34.4% (31.8–37.1)
Total (oral)	324,815 (315,288–334,341)	410,941 (399,474–422,407)	86,126 (82,652–89,601) $P < 0.001$	26.6% (25.6–27.7)
Traditional agents	93,419 (89,346–97,493)	92,177 (88,275–96,079)	-1,242 (-2,542–57) $P = 0.061$	-1.2% (-2.6–0.1)
New agents	231,395 (224,939–237,852)	318,764 (310,475–327,052)	87,368 (84,140–90,597) $P < 0.001$	37.9% (36.5–39.3)

Key finding: New antineoplastic agents accounted for most of the increase in outpatient prescribed units in both oral and injectable formulations.

Table 3. The outpatient antineoplastic drug expenditure

	Annual Expenditure (million JPY)	Annual Prescribed Units (million)	Average Expenditure Per Prescribed Unit (JPY)
	FY2019→FY2024 (change %)	FY2019→FY2024 (change %)	FY2019→FY2024 (change %)
Oral	552,062 → 798,854 (+44.7%)	399.9 → 497.4 (+24.4%)	1,380 → 1,606 (+16.3%)
Injectable	683,960 → 954,819 (+39.6%)	13.8 → 15.9 (+14.9%)	49,404 → 60,002 (+21.5%)
Total	1,236,023 → 1,753,673 (+41.9%)	413.7 → 513.3 (+24.1%)	2,987 → 3,417 (+14.4%)

Key finding: Total outpatient antineoplastic drug expenditure increased substantially, accompanied by increases in both prescribed units and average expenditure per unit.

CONCLUSION

- Prescribed units of outpatient antineoplastic agents increased nationwide in Japan, with larger increases for new agents than traditional agents.
- Total drug expenditure also increased substantially during a period that included the COVID-19 pandemic and policies promoting outpatient cancer treatment.



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