Poster #679

Geographical analysis of Antimicrobial Consumption Surveillance using the National Database of Health Insurance Claims and Specific Health Checkups of Japan (NDB JAPAN) 2011-2013

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BACKGROUND

Although monitoring antimicrobial use (AMU) in medical institutions is important for countermeasures against antimicrobial resistance (AMR), there has been little data regarding AMU in Japan based on the prefecture unit. Accordingly, our objective was to assess whether AMU monitoring through the National Database of Health Insurance Claims and Specific Health Checkups of Japan (NDB), which archives the e-claim data, could be useful.

METHODS

The quantities and patterns of oral and parenteral AMU from 2011 to 2013 in Japanese medical institutions in 47-prefecture units were analyzed using NDB collected through the Ministry of Health, Labor and Welfare of Japan, which accounted for 98% of total claim data in Japan. The data were analyzed in accordance with the Anatomical Therapeutic Chemical (ATC) classification using the defined daily dose (DDD) as a measurement unit, as recommended by the WHO Collaborating Centre for Drug Statistics Methodology. The AMU data was normalized and reported as DDDs per 1,000 inhabitants in each prefecture per day (DID). Trend of DID from 2011 to 2013 in each prefecture was analyzed and inter-regional comparison was performed.

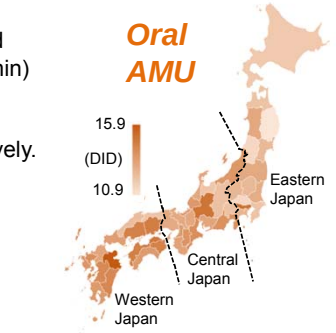
RESULTS

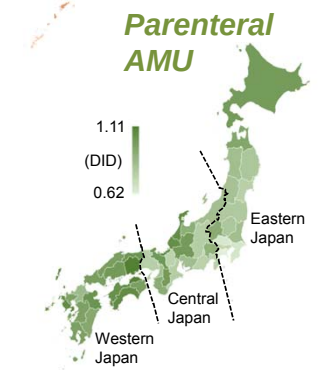
Oral and Parenteral AMU in 47 prefectures of Japan.

All prefectures demonstrated increased trends in both oral and parenteral AMU (DID) from 2011 to 2013. The median (max, min) AMU (DID) for oral and parenteral AMUs in 2011, 2012, 2013 were 12.7 (15.3, 10.1), 13.2 (15.9, 10.8), 13.2(15.9, 10.9), and 0.84 (1.04, 0.54), 0.89 (1.05, 0.57), 0.92 (1.11, 0.62), respectively.

	Prefecture	Oral AMU				Parenteral AMU			
		2011	2012	2013	Δ	2011	2012	2013	Δ
Eastern Japan	Hokkaido	11.3	11.6	11.9	0.6	0.89	0.95	0.99	0.10
	Aomori	11.7	12.1	12.1	0.4	0.84	0.89	0.94	0.10
	Iwate	10.1	10.8	10.9	0.8	0.70	0.76	0.80	0.10
	Miyagi	11.4	13.0	12.5	1.0	0.65	0.71	0.76	0.11
	Akita	12.7	13.1	13.1	0.4	0.74	0.79	0.83	0.09
	Yamagata	10.6	11.2	11.4	0.8	0.72	0.79	0.82	0.10
	Fukushima	11.7	13.5	13.0	1.3	0.69	0.75	0.79	0.10
	Ibaraki	12.0	12.9	12.9	0.8	0.74	0.80	0.83	0.09
	Tochigi	11.7	12.4	12.5	0.8	0.73	0.75	0.80	0.07
	Gunma	12.2	12.7	12.6	0.4	0.84	0.89	0.92	0.07
	Saitama	11.0	11.5	11.4	0.4	0.58	0.61	0.65	0.07
	Chiba	11.4	12.0	12.0	0.7	0.56	0.61	0.66	0.11
	Tokyo	14.6	15.1	15.0	0.4	0.65	0.68	0.73	0.08
	Kanagawa	12.1	12.7	12.6	0.5	0.54	0.57	0.62	0.08
Central Japan	Niigata	13.1	13.6	13.6	0.5	0.75	0.81	0.83	0.08
	Toyama	11.8	12.2	12.0	0.2	0.84	0.87	0.91	0.07
	Ishikawa	12.8	13.0	13.0	0.3	0.96	1.01	1.05	0.09
	Fukui	13.2	13.6	13.6	0.4	0.96	0.98	1.04	0.08
	Yamanashi	11.7	12.4	12.1	0.4	0.84	0.87	0.89	0.05
	Nagano	11.8	12.3	12.2	0.4	0.68	0.72	0.77	0.09
	Gifu	14.6	15.2	14.9	0.3	0.84	0.93	1.00	0.16
	Shizuoka	13.1	14.0	13.8	0.7	0.66	0.70	0.75	0.09
	Aichi	12.9	13.5	13.2	0.3	0.75	0.78	0.84	0.09
	Mie	13.1	13.7	14.0	0.8	0.67	0.73	0.77	0.10
	Shiga	12.7	13.0	13.0	0.3	0.64	0.70	0.75	0.10
	Kyoto	12.1	12.6	13.0	0.8	0.91	0.94	1.01	0.10
	Osaka	12.7	13.2	13.5	0.7	0.70	0.75	0.82	0.13
	Hyogo	12.5	12.8	13.0	0.5	0.66	0.70	0.76	0.10
	Nara	13.3	13.7	13.7	0.5	0.86	0.91	0.99	0.13
	Wakayama	12.6	13.2	13.2	0.7	0.85	0.91	0.91	0.06
Western Japan	Tottori	11.4	11.9	12.1	0.7	0.94	0.97	1.02	0.08
	Shimane	11.8	11.8	12.3	0.5	0.87	0.91	0.98	0.11
	Okayama	13.9	14.4	14.6	0.7	0.99	1.03	1.11	0.12
	Hiroshima	14.4	14.6	14.4	0.1	0.93	0.96	1.00	0.07
	Yamaguchi	12.8	13.5	13.4	0.6	0.87	0.93	0.98	0.11
	Tokushima	13.8	14.4	14.4	0.6	0.91	0.95	0.97	0.06
	Kagawa	14.3	14.7	14.8	0.4	1.04	1.05	1.10	0.06
	Ehime	13.5	14.3	14.5	1.0	0.95	1.00	1.04	0.08
	Kochi	12.5	13.5	13.5	1.0	0.91	1.03	1.05	0.15
	Fukuoka	13.0	13.1	13.2	0.1	0.77	0.78	0.85	0.09
	Saga	13.4	13.7	13.9	0.6	0.83	0.90	0.96	0.13
	Nagasaki	13.4	13.5	13.7	0.3	0.91	0.95	1.06	0.14
	Kumamoto	13.0	13.6	14.1	1.1	0.83	0.89	0.96	0.14
	Oita	15.3	15.9	15.9	0.6	0.93	0.96	1.02	0.09
	Miyazaki	13.7	14.0	14.2	0.5	0.87	0.91	0.93	0.06
	Kagoshima	12.7	13.2	13.5	0.8	0.88	0.91	0.97	0.08
	Okinawa	11.2	11.0	11.5	0.3	0.83	0.86	0.98	0.16

Data show defined daily dose (DDD) per 1,000 inhabitants per days, DID.
Delta (Δ) values show the difference between 2013 and 2011 values.

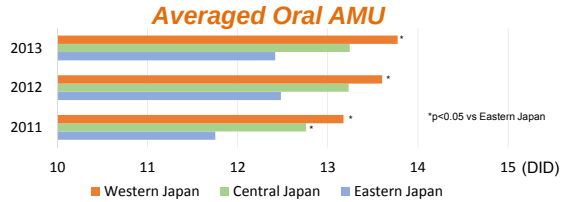


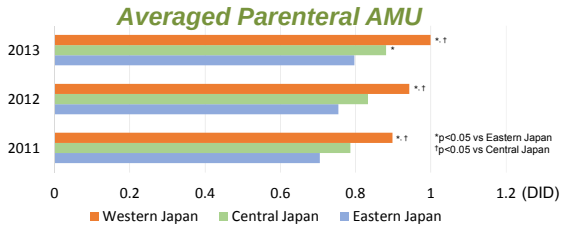


AMU measured by NDB in 47 prefectures of Japan. Data are for 2013.

Regional differences of AMU in Japan

When the data was analyzed based on dividing Japan into three regions (Eastern, Central, and Western Japan), there were significant geographical difference in both oral and parenteral AMU, with the highest values in the Western Japan.





CONCLUSIONS

AMU has increased from 2011 and 2013 regardless of the dosage form in all prefectures in Japan. Geographical analysis demonstrated regional characteristics of AMU in Japan.

ACKNOWLEGEMENT

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