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＜Review＞

Evaluation of demand for medical care services, quality of health care and health policy by using electronic claims data

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Abstract

The primary purpose of receipts are for use in insurance claims, and recently electronic health insurance receipts are being used for insurance claims. Electronic claims data include personal information such as the patient's name, gender, and date of birth, patient health insurance information, the name of the medical institution sending the bill, the department, the name of the disease, and points on medication, injection, procedures, surgeries, examinations, imaging, rehabilitation, and so on. It is technically possible to evaluate demand for medical care services by the field, quality of health care, and health policy by using electronic claims data. Although such infrastructure needs to be systematic and efficient to be capable of supporting linkages among data sources and to provide appropriate protection of the privacy and confidentiality of health information, we have to embrace the new electronic big data in order to promote evidence-based health policies and planning and to improve the quality of health care.

keywords: electronic claims date, big date, demand for medical care services, guality of health care, health policy

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I. The Japanese Health Care System and Health care policy

The central concerns of the Japanese health care system immediately after the end of World War II in 1945 were infections and other acute diseases, and the Medical Service Act was therefore passed in 1948. The initial aim of this law was to ensure the existence of a sufficient number of hospitals, especially public hospitals and other public medical institutions [1].

The Japanese health insurance system was established in 1961 with a free-access system, allowing anyone with insurance to be examined and treated at any medical institution in Japan. In addition, the payment rate of Japan's national health insurance increased (i.e. the proportion of medical expenses that people had to pay themselves decreased), facilitating examination and treatment at medical institutions. The system also allowed medical institutions to be opened freely. At the same time as these developments, the Japanese economy greatly expanded, and there was therefore a great increase in the numbers of both public and private medical institutions [1].

In 1973 a policy of free health care provision for elderly people was established, and the rate of treatment of elderly people then greatly increased, which, together with the aging of society, has resulted in a marked increase in the proportion of Japanese medical expenses taken up by the elderly. The nursing care system for supporting elderly people to lead independent lives is quantitatively insufficient, and furthermore, nursing care is provided in accordance with a placement system; as a result of this, between 1975 and 1985 the number of hospitals and clinics treating elderly people whose families found it difficult to

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look after them, including people for whom hospital treatment was not really necessary, increased.

Despite the marked increase in the number of hospitals, no system previously existed to control the location of hospitals, and there was a tendency for hospitals to be concentrated in prefectural capitals and other large cities. However, in the first reform of the Medical Service Act in 1985, a prefectural health care planning system was introduced, including a hospital-bed regulation system. In this system, in principle, new hospitals could not be opened in regions that already had more than a specified number of hospital beds. This put an end to the previous frantic rush to increase the number of hospital beds and has acted as a brake on the increase in the number of hospitals and hospital beds.

The second, third, and fourth reforms of the Medical Service Act, in 1992, 1997, and 2000, respectively, extended the specialization of and cooperation between health care functions. The second reform involved establishment of a specific-function hospital system as well as long-term care wards; the third reform involved abolition of the general hospital system and establishment of the regional-medicine-support hospital system; and the fourth reform involved categorization of hospital beds as being for either general use or long-term care. In addition, on the basis of changes in Japanese people's ideas about medical treatment, the rules about advertising have been relaxed, and issues such as the relationship to laws about informed consent have been reconsidered from patients' points of view.

The WHO's *World Health Report* adopted "The Health System" as its theme for 2000. The report compared and ranked health systems in 191 WHO member nations using five criteria: (1) healthy life expectancy and (2) regional difference in the infant mortality rate, concerning "Health Attainment," (3) health care satisfaction level and (4) fairness in access, concerning "Responsiveness to Public Expectation," and (5) fairness in financial contribution. Japan's health system won first place in the overall ranking of 191 WHO member nations [2].

The fifth reform of the Medical Service Act in 2006 involved reevaluation of the health care planning system in order to progress with the liaison system for regional health care, and it also involved disclosure of information relating to the functions of medical institutions. There is no doubt from a global perspective that the Japanese health care system and health care policy had efficiently achieved significant results in the late 20th century (see fig. 1).

II. Characteristics of the Japanese health care system

The health care system is divisible into two structures: finance (the medical insurance system), for resourcing costs and making payments; and delivery (the medical service regime), for delivering services [3].

The medical finance system of major nations is broadly divided into three systems: First, the type in which medical costs are covered by a social insurance system; Japan, Germany, and France fall into this category. Second, the type in which the public sector directly delivers medical services financed by taxes; the United Kingdom and Sweden are in this category. Third, the type in which the dispersion of medical-cost risk is basically covered by a private insurance system; a prime example of this is the

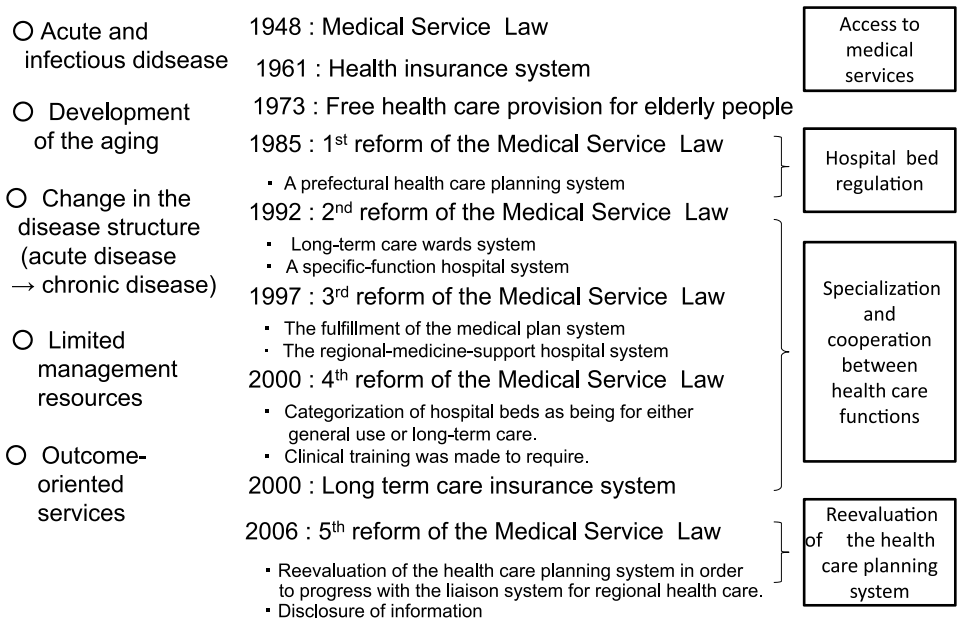

Fig. 1 Japanese Health Care System and Health care policy

United States. In the United States, they do not have a publicly operated health care cost security plan, except for Medicare, which is for the elderly, and Medicaid, for low-income earners [4].

In Japan, the health-insurance system that covers all citizens is put into practice in a dual system: employees' health insurance and regional social insurance. The country's system works this way: under the National Health Insurance Act, anyone who resides in a municipality must take out National Health Insurance on a mandatory basis, and their insurer is their municipal government; people who can be insured by employees' insurance are exempted [3, 5].

Most medical institutions in Japan consist of private-sector corporations. Publicly operated institutions, such as national and public hospitals and public medical facilities, account for only 30.3% of all the beds for patients and 14.6% of all the facilities as of 2011 [6]. European and American hospitals are generally large in scale, and the clinics usually do not have beds, but in Japan the scale of facilities varies in a continuous manner-large hospitals, small and medium-size hospitals, clinics with beds, and clinics with no beds [6]. Another special characteristic of the Japanese health care system is an unrestrained private-practice system for doctors, a free-access system with no gatekeepers for patients, and a fee-for-service system [7].

Each factor of the characteristics of the Japanese health care system works toward the direction of expansion and the spread of medical costs: universal health insurance coverage, an unrestrained private-practice system, a free access system to any health care facility, and a fee-for-service system. Nevertheless, the portion of GDP accounted for by medical costs has been small among the advanced nations. The OECD average of total medical expenditure as a percentage of GDP was 9.5%, and in 2010 that of Japan was the same, 9.5% [8, 9]. This is due to universal health insurance coverage and the medical service fees system.

Medical service fees are the fees received by medical institutions and pharmacies serving an insured person as the price of insured medical services. Those are determined by the Minister of Health, Labour, and Welfare based on discussions of the Central Social Insurance Medical Council (appointed by the Minister of Health, Labour, and Welfare). Contents of medical service fees are an evaluation of technologies and services and an evaluation of the price of materials [10]. In Japan, 99% of the health care facilities are authorized insurance medical institutions, and in particular most private hospitals depend solely on the medical services fees paid by the insurance system for their management funds. Therefore, revising the rate of an amount paid for a medical service fee can make it possible to control the overall sum of health care costs. This is a kind of quasi-budgetary system.

III. Evaluation of demand for medical care services by using electronic claims data

The City of Sapporo had a population of 1,904,903 as of April 2010, of whom 461,426 are beneficiaries of the city's National Health Insurance program of the city (those under age 75), and 183,772 of whom are beneficiaries of the Health Care System for the Elderly, who are either age 75 or older plus those age 65 to 74 with a disability (such as

Table 1 Number of the patients visited medical institutions (April, 2010)

A-Wards		B-Wards		C-Wards		D-Wards		E-Wards	
Hypertension	4938	Hypertension	7365	Hypertension	3694	Hypertension	9088	Hypertension	7128
Diabetes(Ⅱ)	1833	Hyperlipidemia	2305	Diabetes(Ⅱ)	1217	Hyperlipidemia	3160	Hyperlipidemia	2456
Hyperlipidemia	1622	Diabetes(Ⅱ)	1827	Hyperlipidemia	1179	Diabetes(Ⅱ)	2493	Diabetes(Ⅱ)	2128
Prostatic hypertrophy	856	Cerebral infarction	1335	Prostatic hypertrophy	672	Cerebral infarction	1881	Gastric ulcer	1303
Acute hemorrhagic gestritis	819	Acute hemorrhagic gestritis	992	Unstable angina	641	Unstable angina	1473	Unstable angina	1285
Knee osteoarthritis	781	Gastric ulcer	931	Hyperopia	638	Gastric ulcer	1323	Asthma	1272
Unstable angina	763	Asthma	879	Cerebral infarction	604	Asthma	1174	Acute hemorrhagic gestritis	885
Hyperopia	741	Unstable angina	841	Osteoporosis	560	Acute hemorrhagic gestritis	1073	Cerebral infarction	878
Spinal canal stenosis	686	Diabetes(Ⅰ)	665	Gastric ulcer	535	Diabetes(Ⅰ)	995	Hyperopia	858
Gastric ulcer	629	Prostatic hypertrophy	596	Knee osteoarthritis	527	Knee osteoarthritis	757	Knee osteoarthritis	780
F-Wards		**G-Wards**		**H-Wards**		**I-Wards**		**J-Wards**	
Hypertension	8818	Hypertension	7450	Hypertension	8315	Hypertension	6931	Hypertension	11147
Diabetes(Ⅱ)	3177	Hyperlipidemia	2654	Diabetes(Ⅱ)	2802	Diabetes(Ⅱ)	2462	Hyperlipidemia	4268
Hyperlipidemia	2640	Diabetes(Ⅱ)	2034	Hyperlipidemia	2269	Hyperlipidemia	2322	Diabetes(Ⅱ)	3325
Unstable angina	2154	Gastric ulcer	1343	Gastric ulcer	1204	Unstable angina	1257	Unstable angina	2323
Cerebral infarction	1865	Unstable angina	1245	Unstable angina	1116	Gastric ulcer	1184	Acute hemorrhagic gestritis	2152
Gastric ulcer	1637	Cerebral infarction	1047	Cerebral infarction	1090	Cerebral infarction	1059	Cerebral infarction	1978
Asthma	1566	Acute hemorrhagic gestritis	1024	Asthma	976	Acute hemorrhagic gestritis	1024	Gastric ulcer	1587
Knee osteoarthritis	1483	Knee osteoarthritis	1012	Acute hemorrhagic gestritis	922	Asthma	923	Asthma	1571
Acute hemorrhagic gestritis	1349	Asthma	990	Cataract	806	Knee osteoarthritis	843	Knee osteoarthritis	1338
Spinal canal stenosis	935	Cataract	951	Knee osteoarthritis	796	Prostatic hypertrophy	838	Schizophrenia	1076
Cataract	873	Diabetes(Ⅰ)	803	Schizophrenia	640	Spinal canal stenosis	602	Spinal canal stenosis	1034

renal failure). There were a total of 13,835 hospitalization episodes reimbursed by DPC and 96,206 hospitalization episodes of non-DPC (these counts overlap because some people are hospitalized more than once in a year). There were a total of 685,300 unique numbers of beneficiaries who visit hospitals or clinics at least once in a year.

Electronic outpatient medical claims were analyzed using the diagnostic records (SY records). Since health insurance claims typically contain multiple diagnoses, one insurance claim contains more than one SY record. SY records also contain flags for primary diagnoses and rule-out diagnoses. In this analysis, rule-out diagnoses were excluded, and those designated as primary diagnoses were used. Only one primary diagnosis should be assigned in a claim. However, there were some claims in which more than one diagnosis were designated as primary diagnoses. Hence the number in the table has duplicate counts. Sapporo has 10 wards. Table 1 shows the number of patients who visited medical institutions in April 2010 according to area [11].

The situation within the medical care cooperation area in the region (within a city, ward, etc.), that is, the areas where people live and where medical institutions that people visit and are located, along with an indication of the satisfaction with the service (self-sufficiency rate) within the area where patients live, can be presented by integrating and analyzing medical institution information (the medical institution's address), insurer information (the patient's address), and treatment information, which are included in electronic claims.

Figure 2 shows the medical institution's address, the patient's address, and self-sufficiency percentage for pediatric patients who were admitted to hospital, and figure 3 shows those for pediatric patients who were visited as outpatients in April 2010. The same table can be created for other different diseases [11]. This study was conducted by contract with the City of Sapporo in accordance with its Privacy Protection Ordinance. Personal identifiers were coded by the city and released to the authors under a security agreement.

Patients' address

Location of Medical Institutions	A	B	C	D	E	F	G	H	I	J	Total
A	5		2						2		9
B	1		4	8	3	7	1	13	6	11	54
C	1	8	1	8		3			1	4	26
D			1								1
E				1						3	4
F		1	1	23	28	14	1	4	1	10	83
G	1			2	1	18			2	9	33
H							9		2		11
I	3		3		1	1	2	15	4	4	33
J	1	2	7		2	3	13	12	23	3	66
K					5	2		1	1	6	15
Total	12	11	19	42	40	48	26	45	42	50	
Self-sufficiency percentage	41.7%	72.7%	5.3%	2.4%	70.0%	37.5%	34.6%	33.3%	54.8%	12.0%	

Fig. 2 Admission to hospitals of pediatric patients (April, 2010)

Patients' address

Location of Medical Institutions	A	B	C	D	E	F	G	H	I	J	Total
A	1102	2	232	2	14	18		310	25	8	1713
B	36	95	68	367	121	535	49	147	99	244	1761
C	34	1570	59	242	66	117	47	90	34	316	2575
D	127		1292	1		4	11	43	137	1	1616
E		119		1445	136	21	13	20	8	88	1850
F	91	43	71	344	3043	305	188	256	284	263	4888
G	13	33	9	53	87	2895	41	185	50	649	4015
H			7	7	36	13	1673	12	121	5	1874
I	89	3	139	16	172	136	48	2310	419	17	3349
J	15	4	73	13	175	44	395	162	1852	33	2766
K		67	3	184	48	431	17	27	19	3333	4129
Total	1507	1936	1953	2674	3898	4519	2482	3562	3048	4957	
Self-sufficiency percentage	73.1%	81.1%	66.2%	54.0%	78.1%	64.1%	67.4%	64.9%	60.8%	67.2%	

Fig. 3 Outpatient visits of pediatric patients (April, 2010)

IV. Evaluation of the quality of health care by using electronic claims data

The October 2010 Meeting of Health Ministers and Forum on Health Care Quality included discussion of the importance of well-functioning national information infrastructure to improve indications of health care quality. In December 2010 the health committee endorsed further work to support development of health information systems to provide internationally comparable measures of health care quality.

In May 2011 the HCQI Expert Group agreed to undertake two studies. The first explored the potential, the barriers, and good practices in the linkage of personal health data for public health and health service research. The second explored national electronic health record (HER) systems designs and implementation that enable HER data to produce health care quality indicators [12].

Six indicators of the quality of prescribing in primary care are proposed: 1 (a) overall volume of antibiotics prescribed, 1 (b) volume of cephalosporins and quinolones as a proportion of all antibiotics prescribed, 2 (a) adequate use of cholesterol-lowering treatments in diabetic patients, 2 (b) use of recommended antihypertensives in diabetic patients, 3 (a) chronic use of benzodiazepines in adults over age 65, and 3 (b) use of long-acting benzodiazepines in adults over age 65 [13].

The overall volume of antibiotics prescribed and the volume of cephalosporins as a proportion of all antibiotics prescribed were evaluated by using electronic claims data of the City of Mishima in Shizuoka Prefecture. The City of Mishima had a population of 112,000 as of April 2012, of whom 32,500 are beneficiaries of the city's National Health Insurance program (those under age 75).

Drug records (designated as IY, for *iyakuhin*) and dispensing records (designated/as CZ, for *chozai*) of pharmacy claims covering 12 months (November 2011-October 2012) were used. IY records contain drug codes and dosage, and CZ records contain the number of days dispensed for one prescription. For example, in the case of oral medication, for a prescription that 3 tablets of drug A should be taken daily for two weeks, IY records contain the drug code of drug A and "3" as the dosage, and CZ records contain "14" as the number of days dispensed. IY records and CZ records were merged for the same patient and the same prescription, and the number of days was totaled. For example, if a patient gets two series of the same prescription from the same pharmacy, the number of days dispensed were totaled as "28."

IY records are joined with the drug master file containing drug prices, the *Yakka Kijun* code (called YJ code). The first four digits of the YJ code-designated drug classification of the Japan Standard Commodity Classification system were used for analysis. Cephem antibiotics were designated "6132." The drug amount was calculated by multiplying the dosage by the number of days. In the case above, $3 \times 28 = 84$, the number of tablets the patient was dispensed by the pharmacy in a given month. Drug cost was calculated by multiplying the drug amount by the drug price taken from the drug master file. If the price of drug A is 10 yen per tablet, then the drug cost of this pharmacy claim is calculated as $84 \times 10 = 840$ yen. The drug amount and drug cost were calculated by adding the amount and cost by each drug class.

Table 2 and figure 4 show the overall volume of antibiotics prescribed and the volume of cephalosporins as a proportion of all antibiotics prescribed for one year in the City of Mishima. Table 3 and figure 5 show the overall cost of antibiotics prescribed and the volume of cephalosporins

Table 2 Overall volume of antibiotics prescribed

	Cephem	Antibiotics	%Cephem/AB
Nov-11	245,314	1,429,558	17.2%
Dec	271,448	1,179,825	23.0%
Jan-12	245,591	1,385,668	17.7%
Feb	311,998	1,288,631	24.2%
Mar	302,461	1,508,676	20.0%
Apr	227,913	1,067,361	21.4%
May	319,579	1,383,410	23.1%
Jun	233,232	1,203,022	19.4%
Jul	266,510	1,261,398	21.1%
Aug	245,877	1,353,413	18.2%
Sep	265,289	1,269,488	20.9%
Oct	296,293	1,491,941	19.9%

as a proportion of all antibiotics prescribed for one year in the City of Mishima. This study was conducted by contract with the City of Mishima in accordance with its Privacy Protection Ordinance. Personal identifiers were coded by the city and released to the authors under a security agreement.

Table 3 Overall cost of antibiotics prescribed

	Cephem	Antibiotics	%Cephem/AB
Nov-11	461,975	2,784,202	16.6%
Dec	544,960	2,364,598	23.0%
Jan-12	482,196	2,710,312	17.8%
Feb	577,487	2,910,876	19.8%
Mar	551,245	3,032,809	18.2%
Apr	420,503	2,204,858	19.1%
May	531,494	2,598,525	20.5%
Jun	394,939	2,443,219	16.2%
Jul	476,001	2,207,281	21.6%
Aug	420,280	2,512,736	16.7%
Sep	464,063	2,546,558	18.2%
Oct	567,038	2,794,437	20.3%

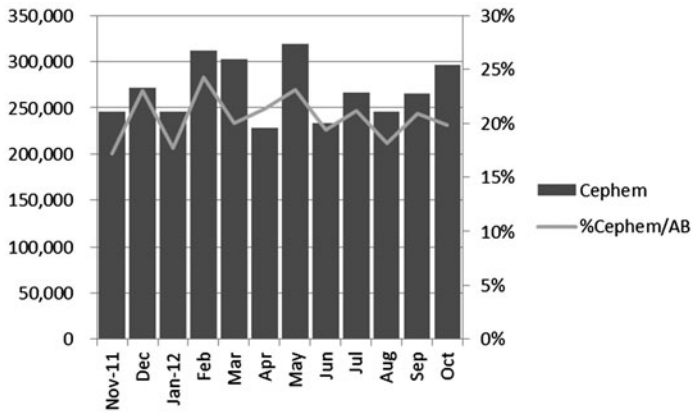

Fig. 4 Changes of the volume of the cephem antibiotic prescribed

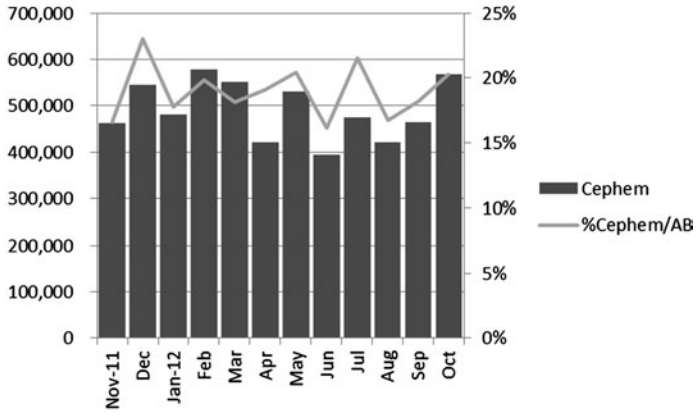

Fig. 5 Changes of the cost of the cephem antibiotic prescribed

V. Evaluation of health policy by using electronic claims data

For the purpose of reducing drug costs through encouraging generic prescriptions, the "generic name prescription surcharge" was introduced as part of the revision of the national uniform fee schedule in April 2012. Prescription by generic name is not mandatory. The premium is applicable when one of the drug items is prescribed with the generic name. The cost-effectiveness of the newly introduced generic name prescription surcharge was evaluated using electronic health insurance claims.

Drug records (designated as IY, for *iyakuhin*) and dispensing records (designated as CZ, for *chozai*) of pharmacy claims covering 12 months (November 2011-October 2012) were used. Table 4 shows the number of generic drugs prescribed, and figure 6 shows the changes in the number of generic drugs prescribed. Table 5 shows the cost of generic drugs prescribed, and figure 7 shows the changes in the cost of generic drugs prescribed.

Medical and pharmacy claims submitted to the City of Mishima for services rendered in March and April 2012 were matched by coded personal identifier as well as provider's ID. Patients for whom the generic name prescription surcharge was claimed and dispensing receipts based on prescriptions from medical institutions were compared between March and April 2012 to analyze cost-effectiveness. For the period of two months, March and April 2012, a total of 6,958 patients were treated at 135 medical institutions. The generic name prescription surcharge was claimed 7,954 times in 7,938 medical claims.

The submission date of receipts for treatment in the previous month is specified as the 5th or 10th of the

Table 4 Number of Generic drug prescribed

	Total	Generic	%GE
Nov-11	3,018,097	847,732	28.1%
Dec	3,195,455	923,118	28.9%
Jan-12	2,688,144	791,052	29.4%
Feb	2,808,098	824,628	29.4%
Mar	3,118,977	921,069	29.5%
Apr	3,064,671	972,270	31.7%
May	3,095,443	992,578	32.1%
Jun	2,942,333	956,343	32.5%
Jul	3,178,616	1,038,433	32.7%
Aug	3,174,958	1,036,265	32.6%
Sep	2,807,315	926,518	33.0%
Oct	3,414,062	1,120,559	32.8%

Table 5 Cost of Generic drug prescribed

	Total	Generic	%GE
Nov-11	172,386,453	15,895,786	9.2%
Dec	180,875,741	18,106,388	10.0%
Jan-12	153,040,019	16,180,068	10.6%
Feb	162,801,186	17,469,130	10.7%
Mar	183,152,613	20,064,931	11.0%
Apr	177,673,349	21,749,364	12.2%
May	177,901,939	22,348,410	12.6%
Jun	168,285,402	21,643,038	12.9%
Jul	183,737,081	23,665,115	12.9%
Aug	183,267,319	23,492,672	12.8%
Sep	159,755,605	21,282,155	13.3%
Oct	197,588,058	25,830,790	13.1%

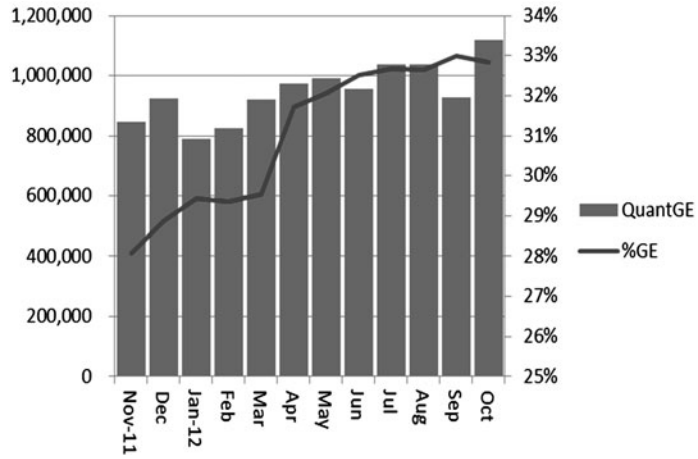

Fig. 6 Changes of number of Generic drug prescribed

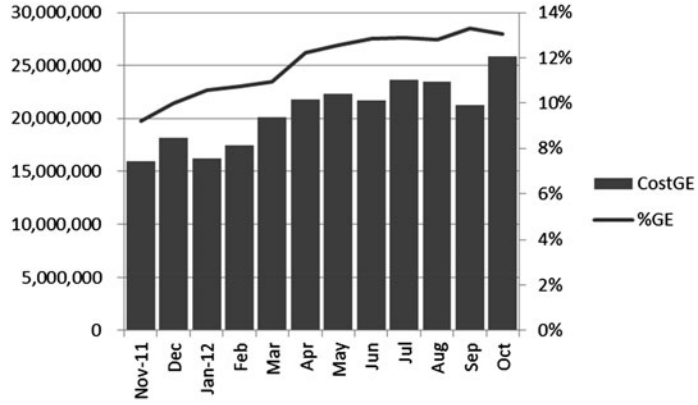

Fig. 7 Changes of cost of Generic drug prescribed

following month (the 10th for social insurance, and the 5th for the National Health Insurance Organization). The analysis of electronic claims in March and April 2012 enabled an accurate analysis in June of that year of the cost-effectiveness of the generic name prescription surcharge, which had been newly established in April 2012.

VI. Future deployment

The formulation of a medical care plan by prefectural governors was specified in the revision of the Medical Care Act in 2006, and the first medical care plan was formulated by prefectures in 2008. Prefectures must formulate the second medical care plan in 2013. With limited resources, they are required to review disaster countermeasures, reflect regional characteristics, and formulate a medical care plan that contributes to the optimization of medical expenses in Japan.

Medical care plans have so far been formulated utilizing information such as the population census, conducted every 5 years; patient surveys to clarify the actual conditions of illnesses and injuries of patients who use hospitals, clinics, and other facilities, conducted every 3 years; the Comprehensive Survey of Living Conditions, conducted every 3 years; and the statistics report on regional public health. However, accurately understanding regional characteristics from the above sources of information has been difficult.

Data in the national database of information on receipts (claims) and specific health checkups, managed by the General Affairs Division of the Health Insurance Bureau of the Ministry of Health, Labour, and Welfare, have experimentally been provided to prefectures, research institutions, and others from April 2011 to March 2013 [14]. These new data are updated monthly and are important information reflecting the characteristics of regional medical care. The utilization of their analysis results enables the formulation of a more workable medical care plan in a region.

This receipt (claim) information, provided experimentally, is aimed at investigations and analyses for planning the optimization of medical expenses, where it is used based on

the Act on Assurance of Medical Care for Elderly People. It is used by the General Affairs Division of the Health Insurance Bureau of the Ministry of Health, Labour, and Welfare as well as by the prefectures. Outside the Act on Assurance of Medical Care for Elderly People, it is used by (1) the Ministry of Health, Labour, and Welfare as well as other relevant ministries, agencies, and local governments, where it is aimed at promoting policies based on accurate evidence for improving the quality of medical services, for example to formulate policy based on understanding the actual conditions of diseases such as infections; and (2) research institutions, where it is aimed at academic research beneficial for the policies outlined above.

Basic procedures for handling the receipt information are also stipulated, including (1) use of the information at previously requested Japanese sites, (2) prohibition of connection to external networks, (3) prohibition of renting it to the third parties, etc., (4) locking the storage site, and (5) identification and certification of the users. Moreover, use of receipt information is limited during the experimental period because review by an expert committee on the provision of receipt information and related matters as well as the decision by the Minister of Health, Labour, and Welfare are needed to use the information.

The primary purpose of receipts is for use in insurance claims. An electronic medical receipt or claim is a bill of medical expenses for treatment to a patient that a medical institution sends to insurers (municipalities, health insurance associations, etc.). It includes personal information such as the patient's name, gender, and date of birth, patient health insurance information, the name of the medical institution submitting the bill, the department, the name of the disease, and points for medication, injections, procedures, surgeries, examinations, imaging, rehabilitation, and so on that were performed during the treatment month. It is created by medical institutions for each insured patient on a monthly basis. A remuneration point for medical treatment is defined for each medical practice. Medical institutions add up the points and then bill insurers. Points, valued at 10 yen per point and defined for examinations, treatment, and so on performed by medical institutions, are written on the medical bills.

The strength of electronic claims data is their comprehensiveness and the capacity for patient linkage [15]. Technically, it is possible to grasp the overall state of health care by linking health insurance electronic claims with health checkups, electronic guidance data, and long-term care insurance claims. Such infrastructure needs to be systematic and efficient; to be capable of supporting linkages among data sources; and to provide appropriate protection of the privacy and confidentiality of health information. However, we have to embrace the new big data in order to promote evidence-based health policies and planning and to improve the quality of health care.

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電子レセプト分析による医療サービス需要，医療の質，医療政策の評価

抄録

本来レセプトは保険請求のために使用することを目的としており，最近ではほとんどのレセプトが電子化された形で使われている．電子化されたレセプトデータには，患者氏名，性別，生年月日といった個人情報，患者の健康保険加入情報，請求元の医療機関名，診療科，病名，診療月に行った薬，注射，処置，手術，検査，画像診断，リハビリ等の情報が含まれている．これらの電子化されたデータを活用することにより，地域の医療サービス需要，医療の質，医療政策を評価することが技術的に可能である．そのようなインフラストラクチャーを構築するためには，データ間の連携支援，個人情報および健康情報を保護するための，体系的かつ効率的に実施することが求められる．その取組みは容易なことではないが，私たちは根拠に基づいた保健医療政策および計画を促進し，かつヘルスケアの質を向上するためには，新たに電子化されたビッグデータに積極的に挑戦しなければならない．

キーワード：電子レセプト，ビッグデータ，医療サービス需要，医療の質，医療政策

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