Information-seeking behaviour of community pharmacists during the COVID-19 pandemic: an ecological study

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ABSTRACT

Objective To evaluate the information-seeking behaviour of pharmacists during the COVID-19 pandemic and its relation to COVID-19 and related infections and deaths within the local prefecture.

Design Ecological study.

Setting Japan—47 prefectures.

Methods The number of accesses to a Japanese web page established by the Pharmacy Informatics Group to disseminate information about infection control and the number of infections and deaths in 47 prefectures were investigated from 6 April to 30 September 2020 using the access information on the web page and publicly available information.

Results During the first 6 months of the COVID-19 pandemic, the total number of accesses was 226 130 (range: 10 984–138 898 per month), the total number of infections was 78 761 (1738–31 857) and the total number of deaths was 1470 (39–436). The correlation between the total number of accesses and that of infections per 100 000 individuals in 47 prefectures was r=0.72 (95% CI 0.55 to 0.83, p<0.001), and between the total number of accesses and deaths per 100 000 individuals in 47 prefectures was r=0.44 (95% CI 0.17 to 0.65, p=0.002).

Conclusions The information-seeking behaviour of community pharmacists correlated positively with infection status within the community.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This nationwide ecological study assessed the relationship between the information-seeking behaviour of Japanese pharmacists and the local infection situation during the COVID-19 pandemic.
⇒ In this study, we attempted to use the web page access data with respect to its potential as an objective evaluation index for the information-seeking behaviour of Japanese pharmacists.
⇒ This study used the access data available from a web page containing infection control information for community pharmacists from the early stage of the COVID-19 pandemic.
⇒ The possibility of a bias in the accessed information cannot be over-ruled due to the access by users other than non-community pharmacists.

BACKGROUND

The COVID-19 pandemic has highlighted various problems in obtaining and using accurate information. Infodemics have become a problem owing to the large amount of information available, including rumours and false claims.[1] Language and other barriers to timely access to accurate information are also problematic.[2 3] To consider the handling of information in emergencies such as the COVID-19 pandemic, it is important to focus on both information providers and seekers.[4]

Pharmacists play an important role in providing pharmaceutical information in emergencies.[5] Based on the concept of the Seven-Star Pharmacist proposed by the World Health Organization, pharmacists are expected to play the role of 'Communicators' in the healthcare system.[6] Pharmacists working in community pharmacies should fill prescriptions issued by medical institutions and provide appropriate information to help patients achieve self-medication.[7] Therefore, even during the COVID-19 pandemic, pharmacists were expected to be proactive in providing correct and timely information to the community.[8–12]

In Japan, almost all pharmaceutical education is conducted in Japanese and, as in other countries where English is not the native language, many pharmacists have limited access to English information. In the early stages of the pandemic, there was a lack of infection control information in Japanese available to community pharmacists. Moreover, there was a delay in the provision of information in languages other than Japanese by the government. Many foreigners from Asian countries, such as China and Vietnam whose native languages are other than English, live in Japan.[13] Therefore, non-Japanese residents who were not fluent

in Japanese were unable to access reliable information, which increased their anxiety.[14] As the Japanese government does not refer to the Centers for Disease Control and Prevention (CDC), even native English speakers lack information in English compared with those living in English-speaking countries.

The Pharmacy Informatics Group (Kyoto University, Kyoto, Japan) was concerned about the spread of COVID-19 through pharmacies and consequently launched the COVID-19 Countermeasure Support Project (Project) for pharmacies and pharmacists. The Project launched a web page on 6 April 2020 and began disseminating infection control information in Japanese.[15] In general, many pharmacists working at community pharmacies, unlike hospitals, have limited opportunities to receive direct explanations from infectious disease specialists or to interact with other experts, making it difficult for them to obtain information. Therefore, posters and leaflets based on information from academic societies and infection control organisations were made available free of charge on the Project's web page. In cooperation with an infectious disease expert, several videos were created to help pharmacists combat COVID-19; they were distributed via social media.[16]

To date, little is known about the information-seeking behaviour of Japanese pharmacists during disasters such as the COVID-19 pandemic. A previous study has reported that pharmacists use web pages as a strategy to obtain information about COVID-19.[17] A previous public survey on social media[18] and a report on the effect of COVID-19-related information and communication on pharmacists used questionnaires to assess information-seeking behaviour.[19] However, it is burdensome and difficult to request frequent survey cooperation from healthcare professionals such as pharmacists. In this study, we focused on the number of accesses to a web page designed for community pharmacists, expecting that it can serve as an objective evaluation index for people accessing information.

COVID-19 situation in Japan

COVID-19 spread rapidly throughout Japan after the confirmation of the first case on 16 January 2020 (online supplemental table S1). The number of COVID-19 cases increased continuously, and on 7 April, a state of emergency was declared in areas with the highest number of COVID-19 cases (Tokyo, Kanagawa, Saitama, Chiba, Osaka, Hyogo and Fukuoka). The emergency was later extended to the entire country.[20 21] With the prohibition of unnecessary outings, the number of infections began to decline, and the declaration was cancelled on 25 May. The Japanese government announced a new lifestyle to prevent the spread of COVID-19, including a reminder to avoid the three Cs—Closed spaces, Crowded places and Close-contact settings. In addition, the use of masks and regular hand washing were recommended.[22]

Pharmacy Informatics Group

The Pharmacy Informatics Group was established in April 2019 with HO as its leader. The group examines the effectiveness of community pharmacists' interventions on patients with chronic diseases and their cost-effectiveness. The group is also involved in research activities aimed at improving communication with non-Japanese patients in pharmacies. In addition to these goals, the group tries to establish educational programmes for pharmacists.[23–25]

In March 2020, when there was an increase in apprehension regarding the spread of COVID-19 in Japan, the group recruited volunteers and launched the Project on 26 March (online supplemental table S1). The Project held frequent online meetings among members to determine the information to be posted on the web page. On 1 April, a survey was conducted among community pharmacists working on the front lines to collect their opinions. Based on the survey results, the required information was organised, and a web page was created to summarise the six areas (handouts, videos, links, blogs, infection control and support for non-Japanese). To prevent the spread of infection through pharmacies, the group prepared materials including a checklist in Japanese using the guidelines of the CDC (USA) as a reference. The group also compiled links to sources of information in Japanese and posted them on the web page (figure 1, online supplemental figures S1–S4). On 6 April, the web page was opened for the general public including community pharmacists. Publicity for the project was directed to professional associations and pharmacists in conjunction with the release of the web page.

Purpose of this study

To evaluate the information-seeking behaviour of community pharmacists during the COVID-19 pandemic by examining the relationship between the number of accesses to the Project's web page and the local infection situation.

MATERIALS AND METHOD

Study design

This was an ecological study comprising all 47 prefectures of Japan.

Data collection

The access data after 6 April 2020, when the web page was released, were obtained from Wix (Wix.com, Tel Aviv, Israel), the website manager. The number of infections and deaths in the 47 prefectures was available from the Japan Broadcasting Corporation (Nippon Hoso Kyokai).[26] The population of the 47 prefectures was based on information published by the online portal of official statistics of Japan (e-Stat) in 2018.[27]

Patient and public involvement

Patients and/or the public were not involved in the design, conduct, reporting or dissemination plans of this research.

Figure 1 Project web page (top).

Statistical analysis

Descriptive analysis

The number of pharmacists was sourced from information published by the Ministry of Health, Labour and Welfare in 2018.[28] The total number of accesses (TA) during the period (6 April to 30 September 2020) was determined. Accesses from outside the 47 prefectures were excluded after identification using code numbers. The total number of infections (TI), the total number of deaths (TD), TI per 100 000 individuals, TD per 100 000 individuals and the number of pharmacists per 100 000 individuals during the study period were calculated from publicly available information for the 47 prefectures. Each total number, and Pearson's correlation between TA and TI per 100 000 individuals and between TA and TD per 100 000 individuals, were calculated.

Map creation

The regional distribution of TA and TI per 100 000 individuals, TD per 100 000 individuals and the number of pharmacists per 100 000 individuals during the study period were displayed on a map of the 47 prefectures. For this purpose, we used the geographic information system QGIS V.3.16.2.

Multiple regression analysis

With TA as the objective variable and TI or TD per 100 000 individuals, the number of pharmacists per 100 000 individuals as the explanatory variables was assessed. The significance level was set at 5%, two sided. The analysis was performed using JMP Pro V.14.2.0 (SAS Institute, Cary, North Carolina, USA).

RESULTS

Descriptive analysis and map creation

Descriptive data are presented in table 1. There were 226 130 (range: 10 984–138 898 per month) TA, 78 761 (1738–31 857) TI and 1470 (39–436) TD. TA (figure 2), TI per 100 000 individuals (figure 3), TD per 100 000 individuals (figure 4) and the number of pharmacists per 100 000 individuals (figure 5) were mapped for the 47 prefectures. Detailed access data by 47 prefectures in Japan are presented (online supplemental table S2). The Pearson's correlation between TA and TI per 100 000 individuals was r=0.72 (95% CI 0.55 to 0.83, p<0.001) (figure 6A), and between TA and TD per 100 000 individuals was r=0.44 (95% CI 0.17 to 0.65, p=0.002) (figure 6B). The results accounting for outliers are shown in online supplemental figures S5a,b and S6a,b.

Multiple regression analysis

The regression coefficients in the multiple regression analysis with TA as the objective variable and TI or TD

Table 1 Number of accesses, infections and deaths (6 April to 30 September)

	Access	Infection	Death
April	138 898	10 327	364
May	34 958	2408	436
June	17 294	1738	75
July	12 744	17 418	39
August	11 252	31 857	281
September	10 984	15 013	275
Total	226 130	78 761	1470

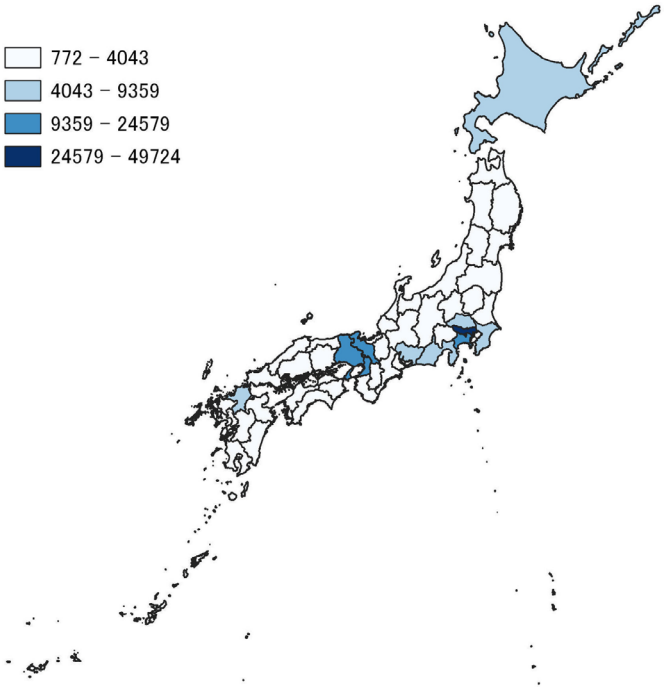

Figure 2 Total accesses (April to September 2020).

per 100 000 individuals and number of pharmacists per 100 000 individuals as explanatory variables were 1227 (95% CI 842 to 1611) for TI per 100 000 individuals and 87 (95% CI 49 to 124) for the number of pharmacists per 100 000 individuals (table 2), and 2314 (95% CI 230 to 4398) for TD per 100 000 individuals and 108 (95% CI 58 to 157) for the number of pharmacists per 100 000 individuals (table 3).

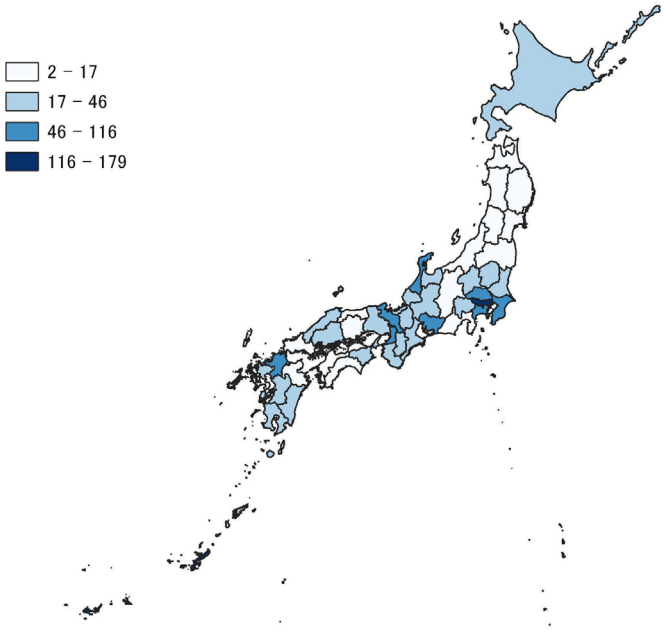

Figure 3 Total infections per 100 000 individuals (April to September 2020).

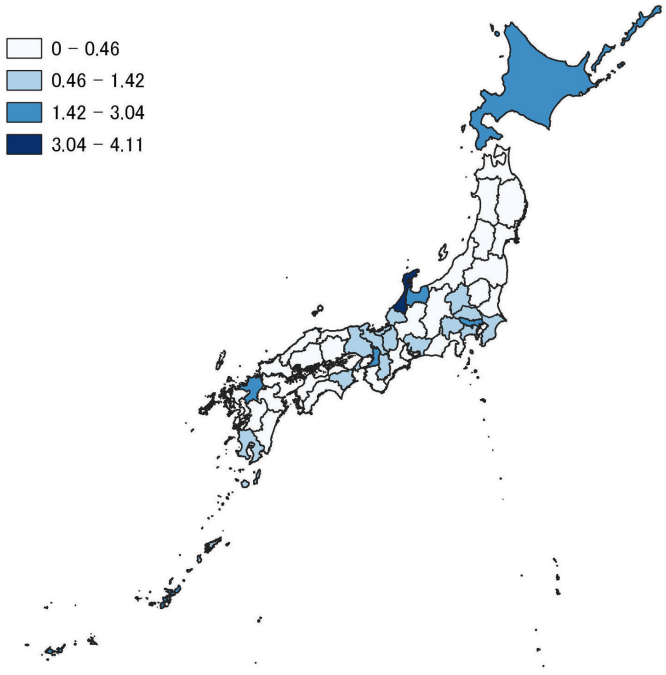

Figure 4 Total deaths per 100 000 individuals (April to September 2020).

DISCUSSION

Access to the COVID-19 web page, created for community pharmacists in Japan, was positively correlated with the number of infections and deaths in the 47 prefectures. The Project released the web page just before the declaration of the first state of emergency in Japan owing to an increase in the number of infections and deaths and concerns about the spread of infections. Although the website was created for community pharmacists, access was not restricted to the general public. The number of accesses to the web page was concentrated in April, immediately after the announcement. This may have been owing to the Project's publicity activities, which attracted

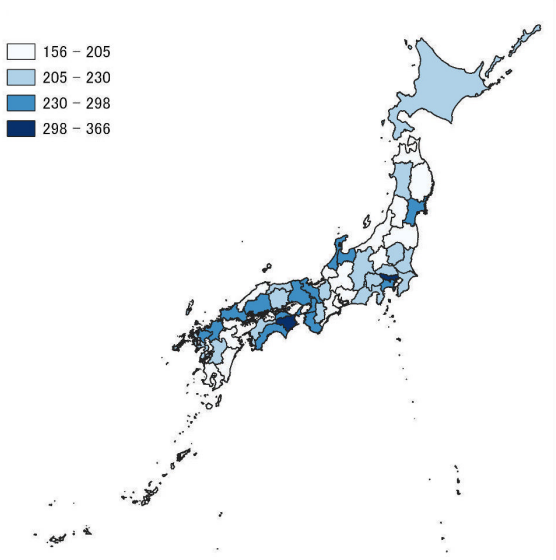

Figure 5 Number of pharmacists per 100 000 individuals.

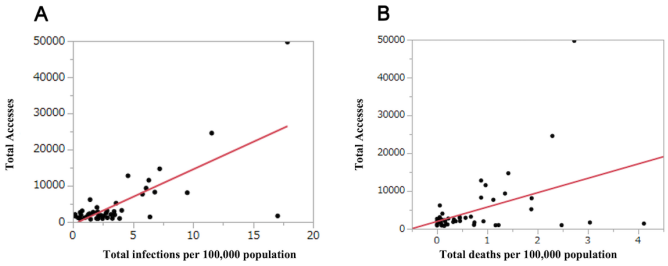

Figure 6 Correlation between total accesses and infections and deaths (6 April to 30 September). (A) Total number of infections per 100 000 individuals. A strong correlation was observed between total accesses and total infections (r=0.72, 95% CI 0.55 to 0.83). (B) Total number of deaths per 100 000 individuals. A weak correlation was observed between total accesses and total deaths (r=0.44, 95% CI 0.17 to 0.65).

the attention of pharmacists and professional associations.[29 30] A previous study reported that the information-seeking behaviour surrounding the COVID-19 pandemic relies on social media as an information source.[31] It is thought that the information disseminated using social media on the Project web page resulted in many accesses in a short period.

A visual map of TA, TI and TD showed that the spread of infection varied by prefecture, even after population correction. In terms of TA, the values for Tokyo and Okinawa differ from those of the other prefectures. In addition, there were several accesses from Kyoto and Osaka, where the main Project members reside. As for TI, even after adjusting for population, the metropolitan area where the state of emergency was declared had an outstandingly high number. The distribution was different from that of TD.

The infection control information disseminated on the Project's page may have led to infection control actions at community pharmacies. Prior to the project, a survey identified pharmacists' wishes. The web page was created to fulfil those wishes and provided information in six areas (handouts, videos, links, blogs, infection control and support for non-Japanese). The results of a questionnaire survey of pharmacies conducted jointly with the Kyoto Pharmaceutical Association in May 2020 revealed that the rate of implementation of infection control measures at pharmacies had rapidly increased since April, when the Project page began disseminating information.[32] The

Table 2 Total accesses, total infections per 100 000 individuals and the number of pharmacists per 100 000 individuals

Factor	Regression coefficient (95% CI) TA
TI per 100 000 individuals	1227 (842 to 1611)
Number of pharmacists per 100 000 individuals	87 (49 to 124)

TA, total number of accesses; TI, total number of infections.

Table 3 Total accesses, total deaths per 100 000 individuals and number of pharmacists per 100 000 individuals

Factor	Regression coefficient (95% CI) TA
TD per 100 000 individuals	2314 (230 to 4398)
Number of pharmacists per 100 000 individuals	108 (58 to 157)

TA, total number of accesses; TD, total number of deaths.

importance of infection was recognised worldwide in this period.[12] The contents based on careful consideration of the information needed by pharmacies were useful for infection control.

In Japan, the use of information in foreign languages, especially English, is not widespread. Many Japanese pharmacists have difficulty communicating in English. The language barrier may be one of the reasons why community pharmacists feel a lack of useful information on COVID-19 measures. The checklists for use in infection control published by the Project were created based on the CDC guidelines written in English, which were published in the early stages of the pandemic and were updated monthly. If pharmacists had no difficulty accessing CDC guidelines in English, they could have found it useful for infection control. The Project tried to disseminate information in Japanese, which was thought to match the information-seeking behaviour of a larger number of pharmacists.

The use of social media to disseminate information will be useful in the future for pharmacists and pharmacy professionals. The amount of information related to COVID-19 is rapidly increasing, and it is desirable to quickly access, review and use this information. In recent years in Japan, pharmacy students have had the opportunity to learn evidence-based medicine.[33] Pharmacists who receive such education have learnt how to critically analyse information by reading abstracts of research papers, but it is not common practice yet.[34] The project has prepared a web page that summarises the information for community pharmacists. Publicising the web page through Facebook, Twitter and other popular social media could be used to disseminate information and to serve as a forum for interactive discussion.

The number of accesses to the web page may be useful as an objective evaluation index of information-seeking behaviour.[35 36] Most previous reports used questionnaires to examine the information-seeking behaviour of the target population. Questionnaires offer insight into qualitative indicators of community pharmacists' behaviour. However, healthcare workers fighting on the front lines against COVID-19 infection may be exhausted; using questionnaires would be labour intensive and, thus, an unreasonable expectation. Indicators such as access

information that can be surveyed without burdening the medical staff are, therefore, highly useful.

Strengths of this study

In this nationwide ecological study, we explored the information-seeking behaviour of Japanese pharmacists during the COVID-19 pandemic. The study focused on the web page designed for community pharmacists and suggested that it could be used to assess objective information-seeking behaviour.

Limitations of this study

We evaluated a region-specific activity conducted in Japan and this raises some concerns about its generalisability.

First, this was an ecological study, and there may be an ecological fallacy in the relationship between the information-seeking behaviour of individual pharmacists and the infection status at the prefectural level. The information-seeking behaviour of individual pharmacists is likely to be influenced by infection status at the regional level rather than the prefectural level, which was used to assess infection status in this study. Second, data on the attributes of the accessors were not included. Because the web page was open to the general public, it is possible that the evaluation could not be truly limited to community pharmacists. In addition, this method does not provide information on the age of the accessor. We are concerned that we cannot adequately validate age bias, as younger generations are more likely to seek information via the internet and social media.

Third, the access information used in this study was obtained using the Wix analysis tool, and the accuracy of the data has not yet been verified. Finally, there is a potential for unmeasured confounding, which should be examined in the association between TA and COVID-19 infection status.

CONCLUSION

There was a positive association between the number of accesses to the web page for disseminating COVID-19-related information by community pharmacists and the number of infections and deaths caused by COVID-19 in the 47 prefectures during the target period (April to September 2020). Our findings indicate that information-seeking behaviour by community pharmacists was positively correlated with the local infection situation.

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Competing interests YN received personal fees from MRT, outside the submitted work. HO is employed in an industry-academia collaborative research course with I&H, Nakagawa Pharmacy and KRAFT. TN received personal fees from Otsuka Pharmaceutical, Dainippon Sumitomo Pharmaceutical, Ono Pharmaceutical, Chugai Pharmaceutical, Dentsu, Takeda Pharmaceutical, Novo Nordisk Pharma, Janssen Pharmaceutical, Boehringer Ingelheim International, Pfizer Japan, Nikkei Business Publications, Eli Lilly Japan, Baxter, Alexion, Mitsubishi Tanabe Pharma and Novartis Pharma; other from Japan Medical Data Center, I&H, Nakagawa Pharmacy and Toyota Tsusho All Life; and grants from Konica Minolta, outside the submitted work.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval The study design was approved by the Kyoto University Graduate School and Faculty of Medicine Ethics Committee (R2832) and adheres to the Ethical Guidelines for Medical and Health Research Involving Human Subjects. Anonymised data were used in this study.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. Data included in the study are available to the public from sources indicated in the paper and authors can provide more information on request.

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Supplement

Online Supplemental Table S1. Events related to COVID-19.

2020		World & Japan	Pharmacy Informatics Group
		Confirmation of pneumonia patient (Wuhan, China)	
January	6	MHLW[a] Alert (Japan)	
	16	Confirmation of the first case of infection (Japan)	
	20	Cruise Ship Departure (Yokohama, Japan)	
February	3	Cruise Ship Arrivals (Yokohama, Japan)	
	13	Confirmation of first death (Japan)	
	27	Request to close schools (Japan)	
March	9	MHLW[a], Three Cs Avoidance Alert (Japan)	
	11	WHO pandemic declaration	
	23	Tokyo 2020 Olympics and Paralympics postponed (Japan)	
	26		Project[b] start
April	1		Web survey of pharmacist front liner
	5		Publicity activities start
	6		Web page release
	7	Declaration of State of Emergency (Japan)	
	18	Number of infections 10 000 over (Japan)	

[a]MHLW: Ministry of Health, Labour and Welfare. [b]Project: COVID-19 Countermeasure Support Project.

Online Supplemental Table S2. Number of accesses, number of accesses (Unique), infections, and deaths (47 prefectures)

Prefecture	Accesses							Accesses (Unique)							Infections								Deaths						
	4	5	6	7	8	9	Total	4	5	6	7	8	9	Total	4	5	6	7	8	9	Total	4	5	6	7	8	9	Total
Hokkaido	2822	1150	359	375	279	219	5204	897	333	106	54	77	85	1552	586	312	172	165	353	326	1914	22	57	13	4	0	4	100
Aomori	921	280	195	41	103	96	1636	325	59	58	7	24	64	537	18	1	0	5	3	1	28	0	1	0	0	0	0	1
Iwate	1173	362	163	150	119	112	2079	381	117	41	24	30	35	628	0	0	0	4	15	4	23	0	0	0	0	0	0	0
Miyagi	1616	388	167	128	65	134	2498	536	121	58	26	28	44	813	81	0	6	66	48	199	400	0	1	0	0	1	0	2
Akita	715	155	43	45	29	217	1204	248	60	12	10	8	97	435	10	0	0	2	31	4	47	0	0	0	0	0	0	0
Yamagata	642	143	34	19	18	40	896	177	46	8	10	6	15	262	66	1	0	7	2	0	76	0	0	0	1	0	0	1
Fukushima	1103	472	221	69	67	128	2060	303	88	49	13	23	46	522	69	8	1	7	72	92	249	0	0	0	0	0	3	3
Ibaraki	1606	539	233	208	124	120	2830	565	170	75	37	61	46	954	139	5	6	120	251	112	633	7	3	0	0	1	4	15
Tochigi	1175	203	123	99	63	76	1739	403	75	31	22	21	37	589	40	11	14	116	108	127	416	0	0	0	0	1	0	1
Gunma	1041	323	129	231	111	168	2003	356	106	51	42	39	70	664	126	3	4	38	251	263	685	15	3	0	0	0	0	18
Saitama	5783	1264	922	627	430	334	9360	1924	400	227	125	167	189	3032	759	141	129	1181	1613	726	4549	31	14	17	9	15	13	99
Chiba	4977	1154	541	386	306	335	7699	1564	407	170	99	122	161	2523	663	64	58	691	1390	846	3712	31	13	0	4	13	9	70
Tokyo	30905	7361	3897	2445	2554	2620	49782	10181	2235	1072	577	813	1029	15907	3748	957	994	6466	8126	4921	25212	107	181	20	7	31	45	391
Kanagawa	9250	2271	1308	640	700	544	14713	3064	700	374	182	234	236	4790	881	344	133	983	2475	1936	6752	28	51	10	3	24	15	131
Niigata	1521	427	236	149	132	198	2663	473	129	80	57	53	64	856	44	7	1	28	32	27	139	0	0	0	0	0	0	0
Toyama	689	167	86	16	12	22	992	237	53	14	6	8	11	329	196	27	0	13	149	30	415	9	13	0	0	3	1	26
Ishikawa	847	206	122	71	87	78	1411	277	92	37	12	28	42	488	238	47	2	21	305	150	763	8	17	2	0	6	14	47
Fukui	594	151	49	62	69	35	960	185	44	10	8	12	13	272	102	0	0	17	89	16	224	8	0	0	0	0	3	11
Yamanashi	656	104	113	55	39	92	1059	202	34	29	8	10	24	307	47	11	11	22	76	14	181	0	1	0	0	3	2	6
Nagano	1455	271	125	76	149	125	2201	464	81	26	15	35	68	689	58	10	1	34	150	49	302	0	0	0	0	0	1	1
Gifu	1872	509	335	160	206	54	3136	571	146	63	19	43	27	869	123	1	6	179	222	69	600	6	1	0	0	3	0	10
Shizuoka	3699	934	517	286	325	442	6203	1096	271	114	63	81	115	1740	61	4	6	188	211	58	528	1	0	0	0	0	1	2
Aichi	4827	1418	928	476	359	266	8274	1580	468	224	101	118	139	2630	305	22	16	1277	2739	828	5187	14	1	0	1	30	21	67
Mie	1535	291	234	176	88	169	2493	497	108	72	38	39	56	810	34	0	0	55	279	129	497	1	0	0	0	0	5	6

Shiga	1744	376	225	176	175	236	2932	576	134	68	23	64	47	912	88	5	1	70	279	52	495	1	0	0	0	4	3	8
Kyoto	6199	2284	979	867	688	604	11621	1601	474	235	192	199	233	2934	251	38	23	406	665	310	1693	10	7	1	2	3	2	25
Osaka	16011	3568	1563	1383	1012	1092	24629	5083	1026	449	281	337	555	7731	1381	158	50	2223	4486	2051	10349	39	42	3	4	62	54	204
Hyogo	7592	2232	1028	782	595	586	12815	2308	693	336	183	196	230	3946	498	53	7	514	1055	442	2569	16	15	3	0	8	6	48
Nara	1858	624	213	260	187	83	3225	487	100	59	50	62	35	793	72	9	0	143	283	51	558	1	1	0	0	4	3	9
Wakayama	801	339	99	80	457	69	1845	228	126	30	26	53	20	483	44	1	1	86	80	12	224	1	1	0	0	1	0	3
Tottori	618	130	73	11	37	21	890	157	31	16	3	12	13	232	3	0	0	12	7	14	36	0	0	0	0	0	0	0
Shimane	598	110	44	47	49	63	911	213	32	15	8	8	8	284	23	1	0	5	108	3	140	0	0	0	0	0	0	0
Okayama	1945	463	251	184	142	123	3108	604	150	69	31	47	41	942	19	2	1	53	66	12	153	0	0	0	0	1	0	1
Hiroshima	2492	760	227	249	198	123	4049	785	228	78	50	57	48	1246	153	8	2	176	113	121	573	2	1	0	0	0	0	3
Yamaguchi	1720	180	82	48	92	185	2307	606	52	25	6	26	57	772	26	4	0	18	114	31	193	0	0	0	0	0	2	2
Tokushima	558	115	32	124	66	116	1011	195	50	18	16	25	49	353	2	0	1	20	107	15	145	1	0	0	0	3	5	9
Kagawa	858	136	30	33	49	70	1176	273	61	11	11	13	18	387	26	0	0	18	32	16	92	0	0	0	0	1	1	2
Ehime	1547	267	106	24	23	41	2008	462	92	30	11	10	19	624	38	35	0	10	22	0	105	3	1	0	1	1	0	6
Kochi	541	55	49	49	54	24	772	135	22	10	11	20	14	212	57	0	0	6	45	13	121	0	0	0	0	0	1	1
Fukuoka	5248	1071	440	477	297	580	8113	1715	338	137	131	118	326	2765	594	113	90	1075	2663	443	4978	20	8	5	1	27	36	97
Saga	863	147	46	53	47	50	1206	248	36	19	17	12	20	352	39	4	0	35	155	8	241	0	0	0	0	0	0	0
Nagasaki	1490	526	211	271	200	51	2749	527	120	63	47	30	19	806	15	0	0	72	143	6	236	1	0	0	1	1	0	3
Kumamoto	1401	319	108	103	96	70	2097	463	94	31	19	41	38	686	32	1	1	151	321	54	560	1	2	0	0	4	1	8
Oita	876	168	114	32	133	54	1377	300	60	24	6	14	24	428	31	0	0	6	79	13	129	1	0	0	0	0	1	2
Miyazaki	802	65	30	42	70	9	1018	228	23	13	12	12	8	296	14	0	0	140	202	6	362	0	0	0	0	1	0	1
Kagoshima	1107	218	113	141	37	88	1704	391	66	29	27	21	27	561	9	0	1	241	110	55	416	0	0	0	1	10	1	12
Okinawa	826	262	151	318	114	22	1693	282	101	41	65	30	18	537	133	0	0	253	1732	358	2476	5	1	1	0	19	18	44
Total	139119	34958	17294	12744	11252	10984	226351	44373	10452	4807	2781	3487	4580	70480	11942	2408	1738	17418	31857	15013	80376	390	436	75	39	281	275	1496

Unique Visitors (Unique), the number of people that visited the corresponding site. A visitor was considered unique when they connected from a different browser or device (IP address).

https://support.wix.com/en/article/wix-analytics-reports-glossary

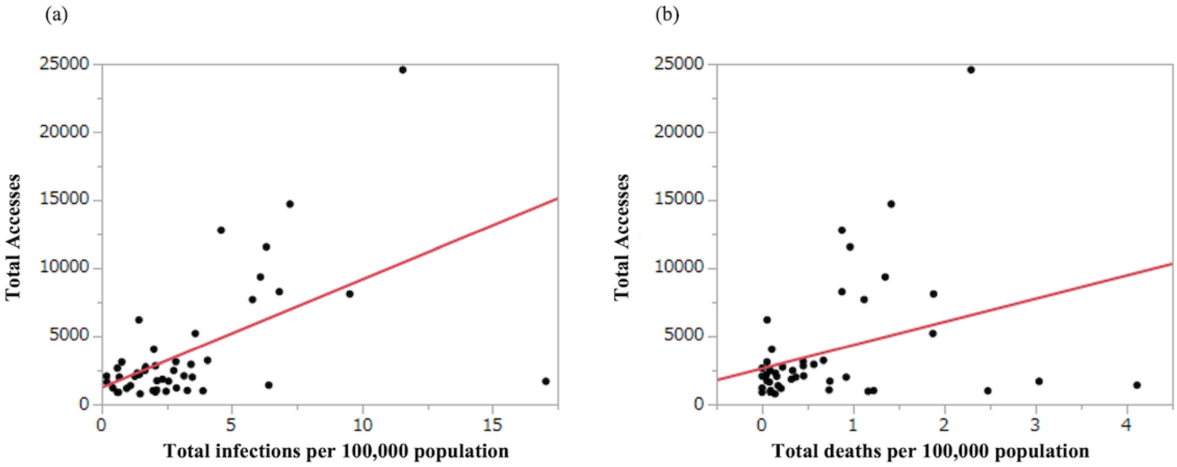
Supplement

Online supplemental Fig. S1 Screen image of the web page (Handouts)

Online supplemental Fig. S2 Screen image of the web page (Links)

Online supplemental Fig. S3 Screen image of the web page (Support for non-Japanese)

Online supplemental Fig. S4 Screen image of the web page (Annual record)



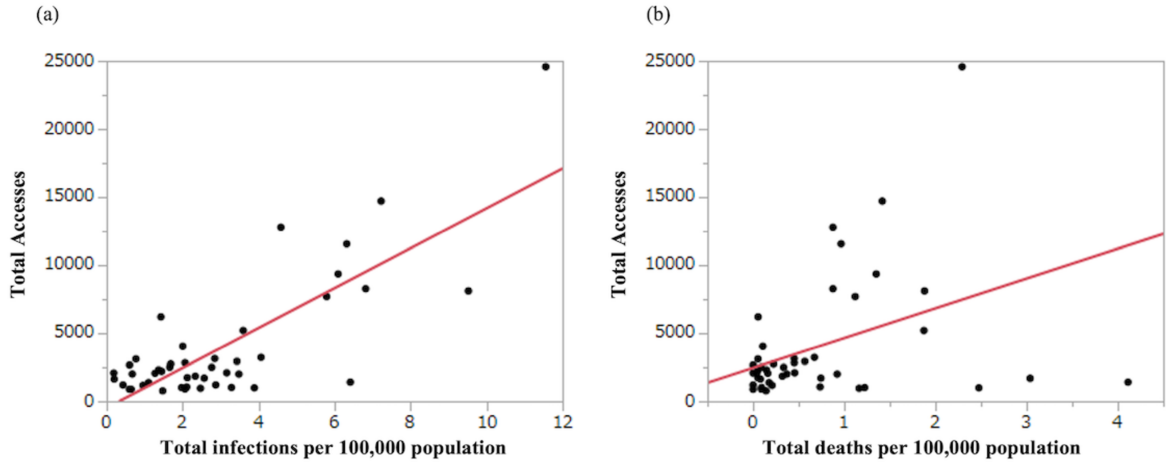
Online supplemental Fig. S5 Correlation between total accesses and infections and deaths excluding Tokyo Prefecture.

(a) Number of total infections per 100 000 individuals

A strong correlation was observed between total accesses and total infections (r = 0.56, 95% CI: 0.32–0.73)

(b) Number of total deaths per 100 000 individuals

A weak correlation was observed between total accesses and total deaths (r = 0.33, 95% CI: 0.05–0.57)



Online supplemental Fig. S6 Correlation between total accesses and infections and deaths excluding Tokyo and Okinawa Prefectures.

(a) Number of total infections per 100 000 individuals

A strong correlation was observed between total accesses and total infections (r = 0.79, 95% CI: 0.65–0.88)

(b) Number of total deaths per 100 000 individuals

A weak correlation was observed between total accesses and total deaths (r = 0.39, 95% CI: 0.11–0.62)