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ORIGINAL RESEARCH

Experience of receiving care by interns reduces psychological barrier of community residents to further care in Japan

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ABSTRACT:

Introduction: A uniform certified basic training program for interns started in Japan in 2004. Following this change, more interns chose to train in community settings, including in rural areas. Patients' experiences of and attitudes toward interns' practice might vary across communities. To examine the geographic and demographic variations linked to the new training system, a nationwide cross-sectional survey was conducted and analyzed.

Methods: Two years after the start of the new certified basic program, 2400 adults were randomly selected from all areas of Japan. Those who participated were asked about their experiences of and attitudes toward interns' practice.

The data were used to compare differences in geographic areas and by demographic factors.

Results: A total of 1109 (46%) people participated in the study. Of these, 10% (114/1109) had been treated by interns. In total, 37% (410/1084) of respondents were prepared to accept treatment from interns. Those with personal experience of receiving treatment from an intern were significantly more likely to be comfortable with the idea than those who had no personal experience (55%, $p<0.001$). This acceptance level did not vary by region or population (between urban and rural areas). People who were comfortable with interns providing treatment, and who had personal experience of care provision by interns (they or a family member had done so) were more likely to understand the importance of interns being able to practice as part of their clinical training (92% ($p<0.001$) vs 76% ($p=0.006$)). They were also more likely to believe that interns should be able to receive training at smaller hospitals (76% ($p<0.001$) vs 77% ($p=0.02$)).

Conclusions: Acceptance by patients of interns' practice was positively associated with experience of care provision by interns. However, there was no significant difference of acceptance among geographic conditions, and among the size of population. Community-based medical education could be implemented and developed independent of geographic and demographic elements in Japan.

KEYWORDS:

attitudes, community-based medical education, general public, interns, Japan, survey.

FULL ARTICLE:

Introduction

Patients often prefer to see an experienced doctor because they worry that inexperienced doctors will not be able to provide them with suitable treatment[1]. It can therefore be a challenge for junior doctors, also known as interns, to establish good relationships with patients while acquiring the necessary clinical skills through practice[2,3]. Some studies have suggested that patients' level of comfort with care provided by interns appears to differ with interns' level of involvement and competencies, as well as other factors[4-6]. It has also been reported that community-based medical education could play an important role in not only nurturing clinical skills but also understanding community health care for interns and medical students[7,8]. Recently, both urban and rural or remote communities internationally have had reported benefits in terms of medical education from community-based clinical training[9-11]. Previous investigations have shown the importance of active participation of communities in understanding not only community medicine but also the whole community itself[12]. Some past studies have also suggested that these programs can benefit in primary care settings in particular[8,13,14]. However, few studies in medical education have investigated purely geographic or demographic elements, and especially those with a community resident perspective. It is not known whether there is an association between demography or geographic region and patients' acceptance or attitudes toward care provided by interns[15].

A new internship system started in 2004 in Japan, in which interns had to complete 6 months of training in internal medicine; 3 months in emergency medicine; and at least 1 month in each of surgery, pediatrics, obstetrics and gynecology, and community medicine, in 2 years training curricula. Before this, almost 90% of interns were trained in tertiary hospitals. Since 2004, approximately 60% of interns have chosen to start their internships in community hospitals, including in rural or remote areas. Community awareness of clinical training among interns might therefore have changed in recent years.

To investigate the associated geographic elements of the practice by interns, a nationwide survey was carried out in Japan to focus on the relationships between attitudes toward care provided by interns, and patients' experience of this, and whether geographic and demographic variables affected acceptance or understanding of the need for intern training, especially following introduction of the new internship system.

Methods

Study design and participants

A nationwide survey was conducted using a representative sample of 2400 people (15–79 years) selected from the entire population of Japan in 2005. A custom research service (Nippon Research Center; http://www.nrc.co.jp/english/services/custom) was used and the inclusion criteria and sample size were fixed. Participants were selected by multistage stratified random sampling. Municipalities were selected, then specific areas within municipalities, and participants were then selected using the Japanese basic resident register. A total of 200 research assistants went door-to-door to conduct surveys with participants in March 2006. The research assistants visited each participant twice. During the initial visit, they asked participants to complete a paper questionnaire on their views on care from interns, plus demographic factors. They visited again to collect the questionnaire several days later. If the assistants could not contact the participants at the second visit, those people were considered to have declined to participate.

Questionnaire

The questionnaire was developed to measure the experience of and attitudes toward care provision by interns. Key questions addressed participants' experience with, impressions of and requirements associated with treatment by interns. Most of the questions had multiple-choice responses. Eight non-medically trained people reviewed the questionnaire prior to the survey to improve its clarity and brevity.

Measurements and statistical analysis

Data were obtained on participants' characteristics and opinions, including several on experience of and attitudes toward care provision by interns: experience of receiving care from an intern, willingness to accept care provided by interns and the reasons for this, and differences in acceptance of care from interns. Participants were also asked about the importance of nurturing the next generation of doctors and where interns should develop their clinical skills.

Anyone who had ever had a medical appointment with an intern, or whose family member had done so, was defined as having experienced care provided by an intern. Participants' spouses, parents, grandparents, siblings, children and grandchildren were included as family members. Anyone answering 'no/unsure' was defined as having no experience of care provided by interns. Acceptance of care provision by interns was classified into binary variables. Participants who answered 'I am indifferent about being seen by an intern', 'I want to be seen by an intern, if possible', or 'I would love to be seen by an intern' were considered to accept care provided by interns. Those who answered 'I absolutely do not want to be seen by an intern' or 'I do not want to be seen by an intern, if possible' were considered not to accept care from interns.

To examine whether location influenced experience and attitude toward care provision by interns, participants were gathered from almost all regions in Japan and divided into five areas (Hokkaido and Tohoku, 15.4%; Kanto, 30.8%; Chubu and Hokuriku, 20.1%; Kinki, 13.6%; Chugoku, Shikoku and Kyushu, 20.0%). The participants were from communities with a variety of population sizes: 19.2% were from the 14 most populated cities, 30.9% from municipalities with a population of more than 150 000, 22.5% from municipalities with a population of 50 000–150 000, 8% from municipalities with a population of less than 50 000 and 19.3% from rural areas. Participants were classified into age groups: 15–19 years, 20–29 years, 30–39 years, 40–49 years, 50–59 years and more than 60 years.

People who had been treated by interns were asked for their impressions, and all participants were asked the reasons for their acceptance of care from interns, and for suggestions about interns' clinical training. The data on geographic elements were analyzed against these responses.

Responses on the importance of nurturing the next generation of doctors were categorised as either 'I should be willing or am willing to be examined by interns because nurturing doctors is very important' or 'I don't want to be examined by interns, but I understand the importance of nurturing doctors'. Participants' responses about where interns should train were categorised as either 'only large tertiary hospitals' or 'smaller or community hospitals'.

All responses were coded as either binary or categorical variables. The details of both accepting and non-accepting participants were analyzed by grouping them based on their experience of receiving care from interns (experienced and

inexperienced groups). Impressions about interns' care provision among participants in the experienced group were classified as 'accepting' or 'non-accepting'. Participants' acceptance was also analyzed by participant past experience of having been treated by interns, their age group, the population of their municipality of residence, and region. The difference was assessed using χ^2 or Fisher's exact tests. Statistical analyses were conducted using SPSS v20 (IBM; http://www.spss.com). Observations with missing data were eliminated from analyses and two-tailed *p*-values less than 0.05 were considered statistically significant.

Ethics approval

This study was approved by the Ethics Committee of Kyoto University Graduate School and Faculty of Medicine (institutional review board number E160). Informed consent was obtained from each participant.

Results

Demographics

The sample data were representative of the Japanese population (128 million residents; mean age 43 years; 49% men (2005 census)). A total of 1109 (46%) participants completed the questionnaire. The gender ratio and mean age were consistent with the 2005 Japanese census (Table 1). In total, 10.2% (114/1109) of participants had received medical care from interns, of whom 4.5% (51 respondents) had direct experience. The other 5.7% (63) had experience of care provided by interns through a family member (indirect experience). Participants' responses indicated that the situations most commonly involved hospitalization (60.5%), outpatient clinics (32.4%) or emergency room visits (5.2%).

Table 1: Study participants' characteristics

Participant characteristic (*n*=1109)	*n* (%)
Sex	
Male	557 (50.2)
Age (years)	
15–19	58 (5.2)
20–29	138 (12.4)
30–39	181 (16.3)
40–49	172 (15.5)
50–59	226 (20.4)
≥60	334 (30.1)
Region	
Hokkaido and Tohoku	171 (15.4)
Kanto	342 (30.8)
Chubu and Hokuriku	223 (20.1)
Kansai	151 (13.6)
Chugoku, Shikoku & Kyushu	222 (20.0)
Population size	
14 biggest cities	213 (19.2)
>150 000	343 (30.9)
50 000–150 000	250 (22.5)
<50 000	89 (8.0)
Rural	214 (19.3)
Experience of interns' practice	
Participants themselves	51 (4.5)
Participants' family member	63 (5.7)
Clinical conditions experienced by participants (*n*=114)	
Practice situation	
Ambulatory	37 (32)
Emergency room	6 (5)
Ward (hospitalization)	69 (61)
Other	2 (2)
Content of interns' practice	
Interview and physical examination	72 (63)
Drawing blood	18 (16)
Injection and drop infusion	28 (25)
Non-invasive examination	22 (19)
Explanation	42 (37)

Attitudes toward care provision by interns

Overall, 37.0% (410/1109) of participants were comfortable receiving care from interns. Participants who had experience of care by interns were more likely to show acceptance than those with no experience (57% (65/114) vs 35.7% (344/964), $p<0.001$). Participants in larger cities were more likely to have experienced care by interns ($p=0.04$), but there was no significant difference by region ($p=0.98$). Neither population of municipality nor region was associated with satisfaction with care provision by interns ($p=0.3$ and $p=0.5$).

Acceptance of care provision by interns was not associated with region ($p=0.8$, Fig1a), population of municipality of

residence (p=0.9, Fig1b) or age group (45.6%, 15–19 years; 43.4%, 20–29 years; 36.6%, 30–39 years; 38.2%, 40–49 years; 33.0%, 50–59 years; and 38.9%, ≥60 years; p=0.3). Those who were willing to accept care from interns were statistically more likely than others to express understanding that interns needed experience of providing care (accepting 91.6% (207/226) vs non-accepting 41.4% (143/345), p<0.001; experience 76.0% (57/75) vs no experience 59.3% (293/494), p=0.006). Participants who were willing to accept care from interns were also statistically more likely to respond that interns would have more opportunities to be trained at smaller or community hospitals than at tertiary hospitals (p<0.001, p=0.02, Fig2). This tendency was consistent across municipalities, regardless of population (57.5% for larger cities, 60.2% for municipalities with populations of over 150 000, 65.3% for municipalities with populations of 50 000–150 000, 57.1% for municipalities with populations <50 000, and 56.3% for rural areas; p=0.8). Satisfaction with care provision by interns was highest among those who had been seen in ward settings (73.9%, 51/69) and lowest in those who had been seen in an emergency room (33.3%, 2/6).

Table 2 shows reasons given by both those with experience and no experience of care provision by interns for accepting or not accepting care from interns, and the population of their home municipalities, stratified by acceptance. In total, 52% of accepting participants responded ‘because interns should have more experience’ and 29% responded ‘to further the advancement of medical science’. Among participants who would accept care provided by interns, those with experience of such care were significantly more likely to feel that interns were ‘polite’ (p<0.001) and ‘kind’ (p<0.001) than those with no experience with interns. The most common reason for non-acceptance was fear of negative aspects of care, particularly medical errors (p=0.03). There was no significant difference of acceptance among the population of the home municipality, the location of the community and any of the reasons for non-acceptance.

Table 3 shows the relationships among acceptance of care from interns, the population of the home municipality and the impressions of participants who had experienced care from interns. The following responses were significantly more common among those who accepted care provision by interns: ‘interns were polite’ (p<0.001), ‘interns’ practice was thorough’ (p<0.001), ‘interns worked very hard’ (p<0.001), ‘interns’ explanations were easy to understand’ (p<0.001), and ‘the intern seemed kind’ (p<0.001) Only one response, ‘the intern spent a lot of time’, was not positively associated with participant acceptance (p=0.3) but was associated with participants who lived in larger cities (p=0.02).

Participants with no experience of care from interns, but accepting of the concept, were more likely to respond that ‘communication between senior doctors and nurses is very important for interns’ training’ (p=0.009; supplementary table). Participants with no experience of and who were non-accepting of care provision by interns were more likely to respond that ‘interns should be educated regarding medical errors’ (p=0.004). There was an association between the population of home municipality and the response ‘I want to know who the intern is’ (p=0.049) among participants who would accept care provision by interns. This tendency was stronger in larger cities than in smaller municipalities. Non-accepting participants were also associated with the population of the home municipality for responses including ‘interns should not examine first-time patients because of the risk of misdiagnosis’ (p=0.01), ‘senior doctors, not interns, should perform invasive procedures’ (p=0.02) and ‘a senior doctor should explain to patients before interns perform invasive procedures’ (p=0.03). Those negative answers were more common in participants from larger cities than from smaller municipalities. There was no significant association between these demands and the region.

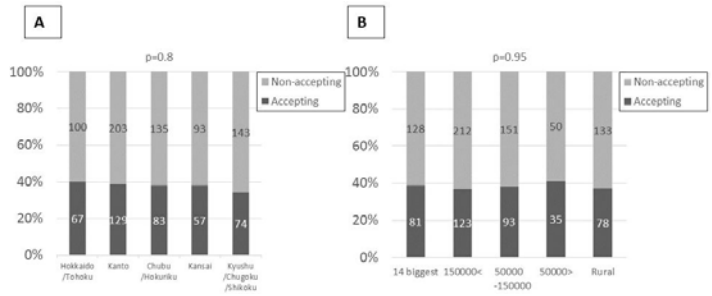

Figure 1: Acceptance of practice by interns in Japan by (a) region, (b) population of municipality.

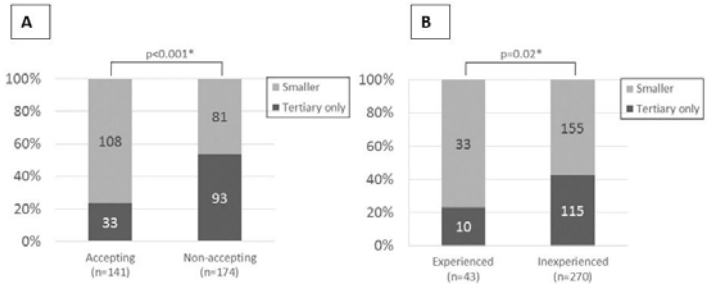

Figure 2: Perspectives of community residents on interns' training site according to (a) acceptance/non-acceptance, (b) experience/lack of experience.

Table 2: Acceptance or non-acceptance of care provision by interns, by reason

Reason for acceptance/non-acceptance	Experience with intern? (*n*)			Population size (*n*)					
	Yes	No	*p*-value†	14 biggest	>150 000	50 000–150 000	<50 000	Rural	*p*-value†
Reason (accepting)	(*n*=65)	(*n*=344)							
Interns' lack of knowledge	6	24	0.6¶	8	9	4	4	5	0.6¶
Interns' lack of skills	8	20	0.07¶	5	6	8	3	6	0.8¶
Fear of medical errors	4	14	0.5¶	5	6	2	1	4	0.7¶
It takes extra time	1	4	0.6¶	1	1	1	0	2	0.8¶
I worry whether senior doctors will examine me properly	7	14	0.06¶	7	6	4	0	4	0.4¶
Interns are unreliable	7	19	0.2¶	4	8	7	3	4	0.9¶
I feel anxious	7	32	0.7	8	10	8	7	6	0.3
My disease is too serious for interns	2	4	0.2¶	2	3	1	0	0	0.5¶
My disease is too mild for interns	9	14	0.005**¶	4	6	4	2	7	0.7¶
For further development of medical science	23	97	0.2	23	33	30	13	21	0.7
I want interns to experience more real practice	35	179	0.9	37	68	54	17	38	0.4
Interns are polite	14	14	<0.001***¶	8	5	6	4	5	0.4¶
Interns are kind	18	19	<0.001***	8	9	8	3	9	0.9
Interns examine thoroughly	18	36	0.001***	7	16	12	7	13	0.5
Interns explain thoroughly	12	30	0.03	5	13	9	5	10	0.6¶
I am being examined by a senior doctor too	16	42	0.02	14	17	13	2	13	0.5
I have never examined by interns before	1	111	<0.001***¶	25	36	28	5	19	0.4
Reason (non-accepting)	(*n*=49)	(*n*=620)							
Interns' lack of knowledge	17	308	0.05	69	94	77	22	65	0.4
Interns' lack of skills	24	326	0.7	75	110	79	23	65	0.5
Fear of medical errors	12	247	0.03	54	72	63	14	57	0.2
It takes extra time	7	52	0.2	8	22	11	5	13	0.7
I worry whether senior doctors will examine me properly	9	136	0.7	29	49	30	4	34	0.1
Interns are unreliable	20	248	1	58	81	54	21	54	0.6
I feel anxious	23	363	0.1	71	126	82	31	77	0.8
My disease is too serious for interns	3	23	0.4¶	4	8	4	1	9	0.4¶
My disease is too mild for interns	0	0	1	0	0	0	0	0	1
For further development of medical science	0	0	1	0	0	0	0	0	1
I want interns to experience more real practice	0	0	1	0	0	0	0	0	1
Interns are polite	0	0	1	0	0	0	0	0	1
Interns are kind	0	0	1	0	0	0	0	0	1
Interns examine thoroughly	0	0	1	0	0	0	0	0	1
Interns explain thoroughly	0	0	1	0	0	0	0	0	1
I am being examined by a senior doctor too	0	0	1	0	0	0	0	0	1
I have never examined by interns before	0	0	1	0	0	0	0	0	1

*$p<0.05$, **$p<0.01$, ***$p<0.001$
† Calculated by χ^2 test unless otherwise indicated.
¶ Calculated by Fisher's exact test.

Table 3: Impressions of participants who have experience of care provided by interns

Impression	Accepting of intern? (*n*)			Population size (*n*)					
	Yes (*n*=65)	No (*n*=49)	*p*-value†	14 biggest	>150 000	50 000–150 000	<50 000	Rural	*p*-value†
The intern did not introduce him/herself	7	13	0.8¶	4	10	2	3	1	0.1¶
The intern did not introduce him/herself as an intern	6	16	0.3¶	8	5	2	3	4	0.2¶
The intern was polite	31	9	<0.001***	8	12	4	7	9	0.09
The intern's appearance was inappropriate	1	0	0.2¶	1	0	0	0	0	0.4¶
The intern's examinations were thorough	32	8	<0.001***	11	11	4	3	11	0.2
The intern came every day	10	7	0.7¶	6	7	3	1	0	0.2¶
The intern was with me until late at night	3	0	0.03¶	0	2	0	1	0	0.2¶
The intern worked very hard	40	11	<0.001***	11	21	4	5	10	0.1
The intern's examinations were not smooth	4	11	0.4¶	4	6	2	2	1	0.5¶
The intern spent too much time	2	7	0.3¶	3	0	2	3	1	0.02¶
The intern's explanations were easy to understand	13	3	<0.001***¶	6	6	1	2	1	0.1¶
The intern's explanations were not easy to understand	4	13	0.2¶	5	7	3	2	0	0.2¶
The intern did not explain things	1	1	0.7¶	0	0	0	1	1	0.1¶
The intern's explanations were too long	1	1	0.7¶	1	0	1	0	0	0.6¶
The intern showed a lack of knowledge	1	6	0.2¶	3	2	1	0	1	0.6¶
The intern did not understand my explanations	0	0	1	0	0	0	0	0	1
The intern seemed kind	32	6	<0.001***	8	15	4	5	6	0.3
The intern seemed unkind	0	1	0.4¶	1	0	0	0	0	0.4¶
The intern seemed oppressive	0	1	0.4¶	1	0	0	0	0	0.4¶
The intern seemed nervous	10	8	0.1¶	6	6	1	1	4	0.4¶
The intern seemed unreliable	10	25	0.3	11	11	7	3	3	0.3
I felt anxious	6	15	0.4¶	6	6	4	3	2	0.5¶

*$p<0.05$, **$p<0.01$, ***$p<0.001$
† Calculated by χ^2 test unless otherwise indicated.
¶ Calculated by Fisher's exact test.

Discussion

Individuals' experiences of and attitudes toward care provision by interns were analyzed by geographic and demographic variables following a nationwide survey. The analysis showed that people who had experienced or whose family members had experienced care provided by interns were more likely to accept care from interns than those without experience. Acceptance of care provision by interns was not associated with geographic variables such as region or population of municipality. Participants who accepted and had experienced care from interns tended to respond that interns should train at both tertiary hospitals and smaller and community hospitals. People who had experience of care provided by interns, either personally or through family members, and were accepting of this, responded that interns were generally 'kind', 'polite' and 'thorough'. A few responses were associated with the population of the municipality of residence but, overall, geographic elements were not associated with the acceptance of care provision by interns.

In real-world settings, there are still sometimes difficulties in having interns examine patients, even when they have suitable qualifications[1,2]. It has been shown that patients participate in medical training largely out of altruism rather than obligation[13,16]. Several studies have shown that patients tend to accept treatment from medical students or interns when they are informed and give consent beforehand[17]. The significance of allowing interns to practice seemed to be understood by those participants who were prepared to accept medical care from interns. This suggests that dissemination of information about interns might be essential to improve patients' acceptance of interns. Training hospitals and medical schools should disseminate information about practice by interns in several ways, and provide explanations to patients before obtaining informed consent. This might increase acceptance of care provision by interns. This research shows that, in smaller communities or hospitals, the dissemination task might be easier than expected.

As in previous studies, participants in this study who had already experienced care provision by interns were more likely to accept care from them in future[18-20]. This suggests that, as more people experience care provision by interns, the overall level of acceptance will grow. There is little evidence from previous studies of any relationship between patients' acceptance of care provision by interns and geographic and demographic variables. There was a statistically significant association between the response 'the intern spent too much time' and participants who lived in larger cities, although this might vary with culture. The reason for this is still unknown but people in larger cities might tend to feel busy or feel interns are wasting their time if they take too long. If so, novice doctors might be able to take more time, and therefore benefit both themselves and the patients, in smaller cities. On most responses, the present study shows that variables such as region and population of the patients' home municipality were not important factors in patients'

acceptance and overall attitudes. These results might show that the benefits of medical education in communities result from the training content or the size of community health facilities. Participants who reported having experienced care provided by interns were more likely to live in large cities than smaller municipalities. This might be because in Japan there are more training hospitals in large cities than in smaller municipalities. Participants who were prepared to accept and had experience of care provided by interns tended to respond that they believed it was important to allow interns to provide care because of their need for clinical education.

Patients who accepted care provision by interns tended to respond that interns should be trained in both large tertiary hospitals and smaller community hospitals. This is one of the most important results because it informs medical educators in communities that residents might prefer interns to have a wider range of experience. They might therefore be ready to accept interns as a part of the advancement of community-based medical education, as a clinical educational resource. There are many smaller hospitals in smaller communities in Japan, so the use of smaller community hospitals for clinical education is a reasonable option.

Patients appreciated characteristics of interns such as being ‘kind’, ‘polite’ and ‘thorough’. Interns’ bedside manner and attitude are very important in ensuring that patients are prepared to be treated by them. However, patients are anxious about whether interns’ clinical skill or knowledge is sufficient. To increase the rate of acceptance of care provision by interns, it might therefore be helpful to inform patients that, under Japanese law, interns only practice under the supervision of senior staff. In contrast to the results in this study, several previous studies have reported that patients accepted medical students’ or interns’ involvement[15,21-24]. There are multiple issues related to care provision by interns, so further research is needed to improve acceptance. Studies should examine views of patients, interns and instructors, and those of staff in hospitals, medical schools and governments. It may also be helpful to examine factors of cultural, historical and geographic diversity.

The present study’s findings should be interpreted in light of the study limitations. First, this study did not verify whether participants or their family members had actually experienced care provision by interns. Second, as these data were gathered only in Japan, the results may be influenced by unique cultural and social factors, including aspects of the medical system. These results therefore cannot be generalized to other cultural settings. In addition, the limited sample size and response rate might result in the statistically non-significant association between attitude and geographic variation. However, because a random sample of adult Japanese living in almost all areas of Japan was surveyed, these data provide a reliable and generalizable account of the Japanese healthcare setting. Finally, this study was a cross-sectional study, so the findings were primarily based on the correlations of observations. To attest these findings, more proactive methods to assess associations between acceptance of resident practice and geographical area should be considered.

Conclusions

This study provided a comprehensive picture of the geographic and demographic factors associated with patients’ attitudes toward care provision by interns in Japan. There were no significant differences in responses on clinical education by region, population of municipality or age group, which suggests that community-based medical education could be provided anywhere in Japan. Participants who accept and have experience of care provision by interns were more likely to respond that interns would be trained better at smaller community hospitals than at tertiary hospitals. Clinical education in Japan mainly takes place in tertiary hospitals at present, but this study suggests that further research into differences in acceptance level by hospital size or role may be helpful to clarify the benefit of community- and primary care-based medical education.

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SUPPLEMENTARY CONTENT:

Conditions set for the acceptance of care provision by interns

Reason for acceptance/non-acceptance	Experience with intern? (*n*)			Population size (*n*)					
	Yes	No	*p*-value†	14 biggest	>150 000	50 000–150 000	<50 000	Rural	*p*-value†
Reason (accepting)	(*n*=65)	(*n*=344)							
I want to know who the intern is	39	222	0.5	57	78	66	20	40	0.049
I want to be asked for permission to be examined by intern beforehand	15	120	0.06	35	35	29	11	25	0.3
The communication between senior doctors and nurses is very important for interns' training	24	75	0.009**	21	29	25	4	20	0.4
The fee should be lower if I am examined by interns	2	31	0.1¶	7	10	6	3	7	0.98¶
I should be examined as a priority	1	5	0.96¶	1	1	3	0	1	0.6¶
Interns should accumulate more experience by seeing more patients	24	88	0.06	25	29	25	10	23	0.8
Interns should be trained in a primary care setting over longer periods of time	10	49	0.8	15	14	12	4	14	0.5
Interns should be trained in a specialty care setting over longer periods of time	0	1	0.6¶	1	0	0	0	0	0.4
Interns should not examine first-time patients	15	50	0.08	14	21	17	5	8	0.6
Interns should begin examining with easy tasks	18	69	0.2	22	19	23	11	13	0.1
Interns should examine patients under the supervision of a senior doctor	16	103	0.4	30	34	25	7	23	0.4
Interns should be checked after giving examinations by a senior doctor	22	129	0.6	36	50	28	8	29	0.1
A senior doctor should explain to patients before interns perform invasive procedures	23	110	0.6	33	43	26	11	20	0.2
Senior doctors, not interns, should perform invasive procedures	11	45	0.4	10	18	15	4	9	0.9
Interns should experience being examined as a patient	18	76	0.3	18	29	20	7	20	0.96
Interns should be educated regarding medical errors	9	35	0.4	14	9	12	3	6	0.2
The new training system for interns creates gaps and maldistribution of doctors in communities	23	91	0.1	29	29	23	10	23	0.4
Reason (non-accepting)	(n=49)	(n=620)							
I want to know who the intern is	30	431	0.03	89	148	100	36	93	0.9
I want to be asked for permission to be examined by intern beforehand	25	283	0.5	60	104	66	20	61	0.8
Communication between senior doctors and nurses is very important for interns' training	13	146	0.6	34	55	34	10	28	0.7
The fee should be lower if I am examined by interns	8	73	0.3	20	18	22	3	19	0.1
I should be examined as a priority	3	28	0.6¶	5	7	12	0	8	0.1¶
Interns should accumulate more experience by seeing more patients	8	77	0.4	20	27	16	9	14	0.5
Interns should be trained in a primary care setting over longer periods of time	7	81	0.8	17	30	19	7	16	0.98
Interns should be trained in a specialty care setting over longer periods of time	1	4	0.3¶	1	2	1	1	0	0.7¶
Interns should not examine first-time patients	14	126	0.2	35	46	17	12	32	0.012
Interns should begin examining with easy tasks	8	123	0.6	28	43	24	12	24	0.6
Interns should examine patients under the supervision of a senior doctor	19	203	0.4	49	77	38	16	43	0.1
Interns should be checked after giving examinations by a senior doctor	15	201	0.8	47	73	37	14	47	0.1
A senior doctor should explain to patients before interns perform invasive procedures	19	170	0.09	48	65	31	13	34	0.026
Senior doctors, not interns, should perform invasive procedures	9	136	0.6	41	48	25	9	24	0.018
Interns should experience being examined as a patient	9	101	0.7	23	41	17	8	22	0.3
Interns should be educated regarding medical errors	8	36	0.004**	10	14	9	5	7	0.8
The new training system for interns creates gaps and maldistribution of doctors in communities	8	141	0.3	33	45	26	12	35	0.3

*$p<0.05$, **$p<0.01$
† Calculated by χ^2 test unless otherwise indicated.
¶ Calculated by Fisher's exact test.