

Prevalence and Correlates of Smoking Among Japanese Physicians: Result from the 2012 survey on the smoking activities of Japan Medical Association members

JMAJ 56(4): 253–266, 2013

Yoshitaka KANEITA,*¹ Takashi OHIDA,*² Satoshi IMAMURA,*³ Maki IKEDA,*⁴ Osamu ITANI*⁴

Abstract

The World Health Organization has advocated that physicians, as models of a healthy lifestyle, should not smoke and that they should not give tacit approval to patient smoking. Moreover, physicians' guidance on smoking cessation has been reported to have a major effect on patients' smoking behavior, and physicians' stance on smoking prevention is regarded highly. Accordingly, the Japan Medical Association has been conducting a nationwide cross-sectional survey every four years to learn its members' smoking behavior and awareness and attitudes toward smoking.

In the four surveys conducted thus far, the smoking rate among male physicians underwent a statistically significant decline from 27.1% in 2000 to 21.5% in 2004, 15.0% in 2008, and 12.5% in 2012. The smoking rate among female physicians also underwent a statistically significant decline from 6.8% in 2000 to 5.4% in 2004, 4.6% in 2008, and 2.9% in 2012.

In terms of the transition in the smoking rate by medical specialty, the smoking rate among male physicians decreased significantly in all medical specialties. Among female physicians, a statistically significant decline was seen in the smoking rate among internists and pediatricians.

Key words Physicians, Smoking, Japan Medical Association, Nationwide cross-sectional survey, Smoking cessation

Introduction

In 1999, the World Health Organization (WHO) advocated that physicians, as models of a healthy lifestyle, should not smoke and that they should not give tacit approval to patient smoking.¹ Moreover, physicians' guidance on smoking cessation has been reported to have a major effect on patients' smoking behavior, and physicians' stance on smoking prevention is regarded highly.^{2,3}

Accordingly, in 2000 the Japan Medical Association (JMA) started conducting surveys on

smoking in order to learn its members' smoking behavior and awareness and attitudes toward smoking.^{4–6} Then, in 2003 the JMA announced the JMA Declaration on Anti-Smoking Initiatives and a policy on anti-smoking initiatives composed of seven items, including encouraging physicians and medical personnel to quit smoking.⁷ Further, in September 2008 the JMA announced an Anti-Smoking Proclamation listing five items as initiatives to promote going forward: (1) ensure a total smoking ban in medical institutions and medical associations; (2) develop tobacco with-

*1 Professor, Department of Public Health and Epidemiology, Faculty of Medicine, Oita University, Oita, Japan (kaneita.yoshitaka@gmail.com).

*2 Professor, Division of Public Health, Department of Social Medicine, Nihon University School of Medicine, Tokyo, Japan.

*3 Vice-President, Japan Medical Association, Tokyo, Japan.

*4 Division of Public Health, Department of Social Medicine, Nihon University School of Medicine, Tokyo, Japan.

This article is a revised English version of a paper originally published in the Journal of the Japan Medical Association (Vol. 141, No. 9, 2012, pages 1989–2002).

drawal treatment and a system to help people stop smoking; (3) promote smoking prevention education; (4) raise taxes on and the price of cigarettes to prevent smoking among the young and women; and (5) promote legal regulation of smoking in workplaces and public places.⁸ In February 2012, the JMA announced six initiatives, such as promoting the prevention of secondhand smoke in households with pregnant women and infants, in the JMA Declaration on No Secondhand Smoke: Protecting children from secondhand smoke.⁹

The JMA has thus far conducted a cross-sectional survey of smoking on its members four times—in 2000, 2004, 2008, and 2012—selecting survey subjects at random each time. The results of the fourth survey, conducted in 2012, have now been tallied and are reported here. In this report the results were analyzed with the primary purpose of elucidating the changes in the rate of smoking among JMA members.

Methods

The survey was conducted in cooperation between the JMA and the Division of Public Health, Department of Social Medicine, School of Medicine, Nihon University upon the request of the JMA. The survey methods for the previous three surveys have already been described elsewhere,^{4–6,10} and so this paper describes the survey methods for 2012 below.

Survey method

The survey subjects were 6,000 men and 1,500 women selected at random from among the 141,568 men and 24,227 women who were JMA members on December 1, 2011. On the previous three surveys 3,000 male members were selected, but that number was increased for this survey in the hope of enabling a more detailed stratification analysis. Data were collected by mailing four items to subjects—a self-report questionnaire, a letter requesting cooperation in the survey, a medium-sized return envelope, and a small envelope for the questionnaire form—and having subjects seal the filled out questionnaire into the small envelope, put the small envelope into the medium envelope, and mail it back to the JMA.

A label showing the subject's name and address was pre-affixed to the medium-sized return envelope in order to identify subjects who

did not return the questionnaire. The questionnaire form and the small questionnaire envelope, on the other hand, were anonymous. At the JMA, one survey member opened the medium-sized return envelopes, removed the small questionnaire envelopes and stored each size of envelopes separately. The collected small questionnaire envelopes were delivered all together to the Division of Public Health, Department of Social Medicine, School of Medicine, Nihon University, where they were opened for the first time and the questionnaires removed and tallied.

By adhering to this procedure, a situation in which personal information could not be linked to survey responses was created in an effort to protect the privacy of respondents. Subjects were informed that this procedure would be taken by explaining it on the questionnaire form. Subjects who did not return the questionnaire were identified by comparing the labels on the medium-sized return envelopes against the list of subjects. Subjects who had not returned the questionnaire were then resent the four items in the survey package and asked to participate in the survey. Survey packages were resent a maximum of three times until the questionnaire was returned, and including the initial mailing were sent a total of four times. The survey period was January to July 2012.

Survey items

The survey consisted of 40 questions on items such as: (1) past and current smoking situation; (2) attitude toward smoking; (3) Fagerstrom Tolerance Questionnaire (FTQ),¹¹ in Japanese translation of its eight items¹²; (4) smoking prevention measures in medical institutions; (5) guidance for patients on smoking cessation; (6) drinking habits; (7) work situation; (8) exercise habits; (9) sleeping habits; (10) stress and feelings of depression; and (11) gender, age, medical specialty, and employment situation. The validity of the FTQ has been demonstrated through the correlation between serum nicotine concentration and FTQ scores.¹³

Definitions

In this study, “smoking” refers to the inhalation of tobacco. Persons who indicated as their current smoking situation that they “smoke every day” or “smoke sometimes” were defined as current smokers. Persons who had previously a smoking

habit six or more months and who do not fall under the definition of current smoker were defined as past smokers. Persons who do not fall under the definitions of current smoker or past smoker were defined as non-smokers. Persons with an FTQ score of four or more were defined as nicotine dependent. These definitions are all the same as those for the past three surveys.

Statistical analysis

Firstly, the percentage of current smokers, past smokers, and non-smokers were calculated by gender. Taking the percentage of current smokers as the smoking rate, smoking rates were calculated by age group and medical specialty and compared to the results of the past three surveys. The nicotine dependence rate was also calculated by gender and compared to the past survey results. Secondly, factors relating to current smoking were considered using logistic regression analysis. The response variable was current smoking and the covariates were gender, age group, employment situation, type of work facility, average working hours, number of days off, frequency of night duty or being on-call, drinking habits, and exercise habits. Thirdly, replies to questions concerning attitude toward smoking, guidance for patients on smoking cessation, and obstacles to guidance on smoking cessation were tallied and compared to the results of the past three surveys.

A chi-squared test was used for the differences in category data between the four surveys and the Tukey method was used for multiple comparison. The significance level was set at 5% for all tests and SPSS 12.0 for Windows was used for the analytical processing.

Results

Response rate and number of valid responses

Out of the 7,500 subjects, 97 were omitted, such as persons who could not respond due to hospitalization, death, or study abroad and persons to whom the package could not be delivered because of a change of address. Thus, the survey form was actually delivered to 7,403 subjects. The final response rate after the initial mailing and the additional three re-mailings was 80.4%. Out of the 5,954 questionnaires collected, 100 with incomplete responses for age, gender or

questions relating to smoking situation were removed. The statistical analysis was conducted on the remaining 5,854 (4,627 men, 1,227 women) valid responses.

Transition in smoking rate

The smoking rate in 2012 was 12.5% for male physicians and 2.9% for female physicians. A statistically significant decline was confirmed in the transition in the smoking rate among male physicians, which went from 27.1% in 2000 to 21.5% in 2004, 15.0% in 2008, and 12.5% in 2012. The transition in the smoking rate among female physicians went from 6.8% in 2000 to 5.4% in 2004, 4.6% in 2008, and 2.9% in 2012, which, the same as for the men, was a statistically significant decline (**Table 1**).

The transition in the rate of nicotine dependence among male physicians was 13.0% in 2000, 12.0% in 2004, 6.7% in 2008, and 6.9% in 2012. A significant decline was found in the 2008 and 2012 surveys compared to the 2000 and 2004 surveys. The transition in the rate of nicotine dependence among female physicians was 1.6% in 2000, 1.9% in 2004, 1.3% in 2008, and 1.1% in 2012. There was no statistically significant change.

The transition in the smoking rate by age group among male physicians declined significantly in all age groups except the 20s, for which there was a small number of subjects (**Table 1**). A statistically significant decline was found in the smoking rate among female physicians in their 40s, 50s, and those aged 70 or older (**Table 1**).

Looking at the transition in the smoking rate by medical specialty over the 12 years, a significant decline was seen among male physicians in all medical specialties. Remarkably low smoking rates among male physicians were seen especially among pulmonologists, cardiovascular specialists, and dermatologists. A statistically significant decline was found in the smoking rate among female physicians in internal medicine and pediatrics (**Table 2**).

Factors relating to smoking among physicians

Based on the results of a multinomial logistic regression analysis, there were five factors significantly related to current smoking: gender, age group, frequency of night duty or being on-call, drinking habits, and exercise habits. Compared to

Table 1 Transition in the smoking rate by age group

| | | Age group (Age) | | | | | | Total |
|---------------|------------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | | 20–29 | 30–39 | 40–49 | 50–59 | 60–69 | 70– | |
| Male | | | | | | | | |
| 2000 | n | 23 | 264 | 662 | 577 | 476 | 498 | 2,500 |
| | Smoking rate (%) | 26.1 | 30.7 | 31.0 | 27.6 | 23.7 | 22.9 | 27.1 |
| 2004 | n | 21 | 214 | 616 | 634 | 399 | 548 | 2,432 |
| | Smoking rate (%) | 9.5 | 28.0 | 24.0 | 24.4 | 17.8 | 15.9 | 21.5 |
| 2008 | n | 12 | 132 | 503 | 700 | 407 | 544 | 2,298 |
| | Smoking rate (%) | 8.3 | 16.7 | 15.7 | 17.0 | 15.2 | 11.4 | 15.0 |
| 2012 | n | 36 | 247 | 859 | 1,426 | 1,034 | 1,025 | 4,627 |
| | Smoking rate (%) | 5.6 | 16.2 | 12.9 | 12.9 | 15.4 | 8.2 | 12.5 |
| | Chi-squared test | ns | <i>P</i> <0.01 | <i>P</i> <0.01 | <i>P</i> <0.01 | <i>P</i> <0.01 | <i>P</i> <0.01 | <i>P</i> <0.01 |
| Female | | | | | | | | |
| 2000 | n | 55 | 292 | 332 | 215 | 120 | 257 | 1,271 |
| | Smoking rate (%) | 1.8 | 5.5 | 7.8 | 7.4 | 5.8 | 8.2 | 6.8 |
| 2004 | n | 37 | 275 | 349 | 222 | 125 | 193 | 1,201 |
| | Smoking rate (%) | 2.7 | 6.9 | 5.7 | 6.8 | 0.8 | 4.7 | 5.4 |
| 2008 | n | 24 | 213 | 351 | 284 | 145 | 171 | 1,188 |
| | Smoking rate (%) | 0.0 | 5.2 | 6.3 | 3.5 | 5.5 | 2.3 | 4.6 |
| 2012 | n | 26 | 197 | 358 | 315 | 188 | 143 | 1,227 |
| | Smoking rate (%) | 0.0 | 3.0 | 2.5 | 2.9 | 5.3 | 1.4 | 2.9 |
| | Chi-squared test | ns | ns | <i>P</i> <0.05 | <i>P</i> <0.05 | ns | <i>P</i> <0.01 | <i>P</i> <0.01 |

Chi-squared test: 2 (currently smoking or not smoking) × 4 (2000, 2004, 2008, and 2012).

persons who are never on night duty or on-call, persons who are on night duty or on-call four or more times per month showed a significantly high adjusted odds ratio relating to current smoking. Likewise, compared to persons who never drink alcohol, persons who drink every day showed a significantly high adjusted odds ratio relating to current smoking. Persons with no exercise habit tended to show a high adjusted odds ratio relating to current smoking (Table 3).

Attitude toward smoking

Regarding attitudes toward smoking, the response that “patients should not smoke” increased significantly over the 12 years among both men and women. Regarding guidance for patients on smoking cessation, a marked increase was seen among both men and women in the response “I refer patients to a specialist.” In items relating

to obstacles to guidance on smoking cessation, a downward trend was seen among both men and women in the responses “I haven’t had sufficient education in the problem of smoking” and “It is pointless, since I have never seen a successful case” (Table 4).

Discussion

Features of this study

The survey on the smoking behaviors and attitudes towards smoking of JMA members has been conducted four times, including the current survey, and a common method has been used for data collection in all the surveys. The urging of subjects who did not return the questionnaire up to three times in order to increase the response rate was also a method used in the previous surveys. This resulted in a response rate of 80.4%

Table 2 Transition in the smoking rate by medical specialty

| | | Internal medicine | Respiratory department | Cardiology | Gastro-intestinal department | Surgery | Orthopedic surgery | Pediatrics |
|------------------|------------------|---------------------------|------------------------|----------------|------------------------------|----------------|--------------------|----------------|
| Male | | | | | | | | |
| 2000 | n | 1,156 | 159 | 260 | 399 | 403 | 238 | 293 |
| | Smoking rate (%) | 24.2 | 18.9 | 20.0 | 27.1 | 32.5 | 26.9 | 24.2 |
| 2004 | n | 1,112 | 161 | 251 | 395 | 431 | 234 | 282 |
| | Smoking rate (%) | 20.5 | 14.9 | 15.5 | 21.5 | 24.6 | 21.4 | 18.4 |
| 2008 | n | 1,027 | 110 | 199 | 351 | 339 | 243 | 254 |
| | Smoking rate (%) | 13.0 | 3.6 | 13.6 | 13.7 | 19.8 | 15.2 | 13.4 |
| 2012 | n | 2,127 | 208 | 412 | 690 | 659 | 424 | 462 |
| | Smoking rate (%) | 11.6 | 6.7 | 9.0 | 13.5 | 12.4 | 17.0 | 10.8 |
| Chi-squared test | | <i>P</i> <0.01 | <i>P</i> <0.01 | <i>P</i> <0.01 | <i>P</i> <0.01 | <i>P</i> <0.01 | <i>P</i> <0.01 | <i>P</i> <0.01 |
| Female | | | | | | | | |
| 2000 | n | 538 | 49 | 64 | 66 | 23 | 13 | 270 |
| | Smoking rate (%) | 6.9 | 2.0 | 3.1 | 9.1 | 13.0 | 7.7 | 8.1 |
| 2004 | n | 528 | 39 | 55 | 82 | 14 | 19 | 238 |
| | Smoking rate (%) | 4.4 | 0.0 | 5.5 | 2.4 | 7.1 | 10.5 | 1.7 |
| 2008 | n | 475 | 32 | 40 | 68 | 17 | 19 | 216 |
| | Smoking rate (%) | 4.0 | 3.1 | 0.0 | 5.9 | 0.0 | 10.5 | 1.4 |
| 2012 | n | 506 | 50 | 52 | 56 | 19 | 10 | 168 |
| | Smoking rate (%) | 2.4 | 2.0 | 3.8 | 0.0 | 10.5 | 10.0 | 2.4 |
| Chi-squared test | | <i>P</i> <0.01 | ns | ns | ns | ns | ns | <i>P</i> <0.01 |
| | | Obstetrics and gynecology | Psychiatry | Dermatology | Urology | Ophthalmology | Otolaryngology | Other |
| Male | | | | | | | | |
| 2000 | n | 187 | 101 | 128 | 75 | 88 | 84 | 250 |
| | Smoking rate (%) | 26.2 | 32.7 | 22.7 | 38.7 | 27.3 | 33.3 | 21.6 |
| 2004 | n | 179 | 113 | 139 | 84 | 86 | 108 | 263 |
| | Smoking rate (%) | 26.3 | 22.1 | 20.9 | 26.2 | 17.4 | 18.5 | 17.5 |
| 2008 | n | 152 | 91 | 114 | 68 | 94 | 102 | 280 |
| | Smoking rate (%) | 17.8 | 23.1 | 16.7 | 19.1 | 13.8 | 16.7 | 12.1 |
| 2012 | n | 263 | 198 | 205 | 134 | 211 | 228 | 500 |
| | Smoking rate (%) | 11.4 | 17.7 | 7.8 | 17.9 | 10.9 | 11.8 | 12.4 |
| Chi-squared test | | <i>P</i> <0.01 | <i>P</i> <0.05 | <i>P</i> <0.01 | <i>P</i> <0.01 | <i>P</i> <0.01 | <i>P</i> <0.01 | <i>P</i> <0.01 |
| Female | | | | | | | | |
| 2000 | n | 104 | 59 | 135 | 3 | 188 | 73 | 98 |
| | Smoking rate (%) | 3.8 | 3.4 | 5.9 | 0.0 | 8.5 | 6.8 | 7.1 |
| 2004 | n | 80 | 54 | 126 | 6 | 170 | 69 | 104 |
| | Smoking rate (%) | 7.5 | 5.6 | 7.9 | 33.3 | 5.9 | 2.9 | 4.8 |
| 2008 | n | 96 | 70 | 109 | 2 | 167 | 54 | 132 |
| | Smoking rate (%) | 12.5 | 5.7 | 2.8 | 0.0 | 6.6 | 1.9 | 4.5 |
| 2012 | n | 107 | 74 | 124 | 2 | 154 | 62 | 140 |
| | Smoking rate (%) | 4.7 | 5.4 | 1.6 | 0.0 | 4.5 | 0.0 | 2.9 |
| Chi-squared test | | ns | ns | ns | ns | ns | ns | ns |

Chi-squared test: 2 (currently smoking or not smoking) × 4 (2000, 2004, 2008, and 2012).

Table 3 Factors relating to current smoking

| | Adjusted odds ratio | 95% confidence interval | P value |
|------------------------------------------|---------------------|-------------------------|---------|
| Gender | | | <0.01 |
| Female | 1.00 | | |
| Male | 4.47 | 3.06–6.52 | |
| Age group | | | <0.01 |
| 20–39 | 1.30 | 0.82–2.05 | |
| 40–49 | 1.32 | 0.93–1.88 | |
| 50–59 | 1.37 | 0.99–1.89 | |
| 60–69 | 1.82 | 1.33–2.49 | |
| 70– | 1.00 | | |
| Frequency of night duty or being on-call | | | 0.01 |
| Never | 1.00 | | |
| About once every few months | 0.84 | 0.57–1.25 | |
| Once per month | 1.06 | 0.75–1.50 | |
| 2–3 times per month | 1.26 | 0.89–1.77 | |
| 4–7 times per month | 1.49 | 1.08–2.05 | |
| 8+ times per month | 1.75 | 1.22–2.50 | |
| Drinking habits | | | <0.01 |
| Never | 1.00 | | |
| No more than 6 times per week | 0.95 | 0.73–1.24 | |
| Every day | 1.58 | 1.18–2.11 | |
| Exercise habits | | | 0.02 |
| Never or hardly ever | 1.00 | | |
| Sometimes | 0.86 | 0.70–1.06 | |
| Frequently or every day | 0.72 | 0.57–0.90 | |

Multinomial logistic regression analysis.

Modulators: employment situation, type of work facility, working hours, number of days off.

for the current survey, which was a sufficiently high level, as was the case for the past three surveys. Worldwide there are few periodical surveys on the smoking rate among physicians, and therefore this study can provide important information for learning the smoking behavior of physicians and their attitudes toward guidance on smoking cessation.

Smoking rate

This survey confirmed that the smoking rate among both male and female JMA members has undergone a statistically significant decline from 2000 to 2012. What is notable is that the

smoking rate in both men and women in 2012 had dropped to less than half that seen at the time the survey started in 2000. According to a survey conducted on the general public aged 20 and older by Japan Tobacco Inc. (JT), the smoking rate among men fell from 53.5% in 2000 to 34.7% in 2012 while the smoking rate among women fell from 13.7% in 2000 to 12.1% in 2012.¹⁴ On the National Health and Nutrition Survey in Japan conducted by the Ministry of Health, Labour and Welfare (MHLW) of Japan, the smoking rate among men declined from 47.4% in 2000 to 32.2% in 2010 while the smoking rate among women declined from 11.5% in 2000 to

Table 4 Attitudes toward smoking by survey year

| | Male | | | | Chi-squared test |
|------------------------------------------------------------------------------------------------------------|-------------------|-------------------|-------------------|-------------------|------------------|
| | 2000 (n=2,500) | 2004 (n=2,432) | 2008 (n=2,298) | 2012 (n=4,627) | |
| Attitude toward smoking | | | | | |
| • Given their position, physicians should not smoke. | 71.9 | 74.5 | 77.2 | 75.9 | <i>P</i> <0.01 |
| • Patients should not smoke. | 42.8 | 49.4 | 52.4 | 54.5 | <i>P</i> <0.01 |
| Guidance for patients on smoking cessation | | | | | |
| • I explain to patients in concrete terms the dangers of smoking. | 62.4 | 61.2 | 60.4 | 59.3 | ns |
| • I set a specific goal date and offer care and guidance so that patients will quit smoking. | 4.4 | 6.0 | 6.5 | 6.2 | <i>P</i> <0.01 |
| • I give patients educational materials and offer guidance so that patients can quit smoking on their own. | 4.6 | 7.0 | 6.0 | 5.5 | <i>P</i> <0.01 |
| • I refer patients to a specialist. | 1.2 | 2.3 | 7.0 | 10.7 | <i>P</i> <0.01 |
| • I prescribe an antismoking agent. | 14.2 | 20.2 | 14.2 | 14.2 | <i>P</i> <0.01 |
| • I reserve exam days to periodically check the progress of smoking secession. | 0.8 | 1.4 | 2.5 | 3.4 | <i>P</i> <0.01 |
| Obstacles to guidance on smoking cessation | | | | | |
| • It takes time. | 46.9 | 50.6 | 48.0 | 51.3 | <i>P</i> <0.01 |
| • Counseling is not sufficiently guaranteed by medical fees. | 19.3 | 24.6 | 26.2 | 24.1 | <i>P</i> <0.01 |
| • The problem of smoking is not my (physician's) concern. | 6.7 | 6.8 | 4.3 | 4.4 | <i>P</i> <0.01 |
| • I haven't had sufficient education in the problem of smoking. | 20.6 | 19.5 | 13.5 | 12.8 | <i>P</i> <0.01 |
| • It is pointless, since I have never seen a successful case. | 7.6 | 5.3 | 4.0 | 2.8 | <i>P</i> <0.01 |
| • Patients refuse guidance from the beginning. | 20.7 | 22.1 | 17.3 | 16.5 | <i>P</i> <0.01 |
| Female | | | | | |
| | 2000 (n=1,271) | 2004 (n=1,201) | 2008 (n=1,188) | 2012 (n=1,227) | Chi-squared test |
| Attitude toward smoking | | | | | |
| • Given their position, physicians should not smoke. | 77.0 | 80.4 | 80.3 | 79.6 | ns |
| • Patients should not smoke. | 42.6 | 52.2 | 59.3 | 62.0 | <i>P</i> <0.01 |
| Guidance for patients on smoking cessation | | | | | |
| • I explain to patients in concrete terms the dangers of smoking. | 61.2 | 63.1 | 62.8 | 64.1 | ns |
| • I set a specific goal date and offer care and guidance so that patients will quit smoking. | 4.8 | 5.2 | 8.3 | 8.2 | <i>P</i> <0.01 |
| • I give patients educational materials and offer guidance so that patients can quit smoking on their own. | 5.0 | 7.0 | 6.8 | 6.3 | ns |
| • I refer patients to a specialist. | 1.6 | 4.7 | 9.6 | 18.2 | <i>P</i> <0.01 |
| • I prescribe an antismoking agent. | 12.8 | 18.4 | 14.1 | 11.0 | <i>P</i> <0.01 |
| • I reserve exam days to periodically check the progress of smoking secession. | 1.5 | 1.4 | 3.4 | 3.6 | <i>P</i> <0.01 |
| Obstacles to guidance on smoking cessation | | | | | |
| • It takes time. | 41.1 | 49.9 | 50.2 | 49.6 | <i>P</i> <0.01 |
| • Counseling is not sufficiently guaranteed by medical fees. | 17.2 | 21.4 | 26.9 | 22.9 | <i>P</i> <0.01 |
| • The problem of smoking is not my (physician's) concern. | 6.5 | 5.1 | 2.5 | 2.4 | <i>P</i> <0.01 |
| • I haven't had sufficient education in the problem of smoking. | 27.0 | 27.4 | 21.4 | 21.8 | <i>P</i> <0.01 |
| • It is pointless, since I have never seen a successful case. | 6.4 | 6.2 | 3.4 | 2.7 | <i>P</i> <0.01 |
| • Patients refuse guidance from the beginning. | 29.8 | 31.9 | 27.9 | 28.7 | ns |

Chi-squared test: 2 (applicable or not applicable) × 4 (2000, 2004, 2008, and 2012).

8.4% in 2010.¹⁵ However, the smoking rate did not reach the level of being halved among the general public in either the JT survey or the MHLW of Japan survey.

Considering the above, the smoking rate has declined considerably more among physicians than among the general public. Physicians' professional awareness and morals and greater cognizance of the health damage caused by smoking are some of the factors that may have contributed to this result. At any rate, it is presumed that smoking behavior among Japanese physicians is steadily heading in the direction of not smoking. It is conjectured that the various smoking prevention measures and antismoking campaigns implemented by the JMA, related associations, local authorities, the national government, and other organizations contributed to the decline in the smoking rate among Japanese physicians.

The analysis by medical specialty showed a statistically significant decline in smoking rates among male physicians in all fields considered. The smoking rates for male pulmonologists, cardiovascular specialists, and dermatologists in particular were low, below 10%. Pulmonologists and cardiovascular specialists are physicians who treat diseases such as lung cancer, chronic obstructive pulmonary disease (COPD), ischemic heart disease, and other conditions closely related smoking, and it is likely this becomes inhibitory to their own smoking. Moreover, societies related to respiratory disease and cardiovascular disease are aggressively putting effort into anti-tobacco measures,^{16,17} and it is presumed that these have contributed to the decline in the smoking rate. As for the smoking rates among female physicians by medical specialty, stratification into medical specialties reduced the number of subjects to the point where sufficient analyses could not be made. Nonetheless, a significant decline in the smoking rate was observed among internists and pediatricians, for which a relatively larger pool of subjects was obtained.

Factors relating to smoking among physicians

In the multivariate logistic regression analysis, males, persons in their 60s, persons with a high frequency of night duty or being on-call, persons with a habit of drinking every day, and persons with no exercise habit showed a high adjusted odds ratio for current smoking. It is possible that

these factors encourage smoking behavior. These findings generally fit with prior research reports,¹⁸ and appear to be the general research results. In anti-smoking measures targeted at future physicians and medical students it would seem necessary to take steps emphasizing the related factors identified in this survey. When it comes to the lifestyle habits of smoking, drinking, and exercise in particular, developing comprehensive health promotion measures is important.

Coincidentally, specific medical checkups and specific health guidance have been offered in Japan as a countermeasure to metabolic syndrome since fiscal 2008, and the results of this study will have implications for health promotion measures for physicians themselves, who are health care providers. At present, the JMA carries out initiatives that support the health of physicians working at hospitals,¹⁹ and it is hoped that it will enhance and expand such activities.

Attitudes towards smoking

In the tallied results relating to physicians' attitudes towards smoking, the response "I refer patients to a specialist," in regards to guidance for patients on smoking cessation, increased markedly each time the survey was conducted. Treatment for smoking cessation became covered by health insurance in fiscal 2006, but medical institutions where such treatment is covered by medical insurance have to meet certain requirements, such as being a no-smoking facility. Accordingly, treatment for smoking cessation has become specialized in that it is performed at specified facilities that have been certified. The results of this study are thought to reflect such medical context.

Additionally, in the results of this study there was a decrease in the response "It is pointless, since I have never seen a successful case," in regards to guidance on smoking cessation, suggesting an increase in the number of physicians who feel the benefits of smoking cessation guidance. Furthermore, the number of physicians who responded "I haven't had sufficient education in the problem of smoking" decreased among both men and women, suggesting that educational efforts relating to smoking have become widespread in institutions such as medical schools, medical associations, and academic societies. It is hoped that various initiatives will continue to be taken on the problem of smoking and that

more physicians will become able to provide appropriate smoking cessation guidance.

Conclusion

Based on the four surveys conducted thus far

it has been confirmed that the smoking rate among JMA members has decreased significantly among both men and women. It is hoped that the JMA and other related organizations would continue to cooperate with each other to carry out smoking prevention initiatives.

References

- World Health Organization. Leave the Pack Behind. Geneva: World Health Organization; 1999.
- Goldberg RJ, Ockene IS, Ockene JK, Merriam P, Kristeller J. Physicians' attitudes and reported practices toward smoking intervention. *J Cancer Educ*. 1993;8:133–139.
- Hollis JF, Lichtenstein E, Vogt TM, Stevens VJ, Biglan A. Nurse-assisted counseling for smokers in primary care. *Ann Intern Med*. 1993;118:521–525.
- Sakurai H, Ohida T. Smoking behavior and attitudes toward smoking among Japan Medical Association members. *JMAJ*. 2000;124:725–736. (in Japanese)
- Kaneita Y, Ohida T. Smoking behavior and attitudes toward smoking among Japan Medical Association members in 2004. *JMAJ*. 2005;133:505–517. (in Japanese)
- Kaneita Y, Ohida T, Uchida T. Prevalence and correlates of smoking among Japanese physicians: result from the 2008 survey on the smoking activities of Japan Medical Association members. *JMAJ*. 2009;138:770–783. (in Japanese)
- Japan Medical Association. JMA Declaration on Anti-Smoking Initiatives. <http://www.med.or.jp/people/nonsmoking/declare.html>. Accessed June 2013. (in Japanese)
- Japan Medical Association. JMA Anti-Smoking Proclamation. September 16, 2008. http://dl.med.or.jp/dl-med/teireikaiken/20080917_1.pdf. Accessed June 2013. (in Japanese)
- Japan Medical Association. JMA Declaration on No Secondhand Smoke: Protecting Children From Secondhand Smoke. February 29, 2012. http://dl.med.or.jp/dl-med/teireikaiken/20120229_1.pdf. Accessed June 2013. (in Japanese)
- Ohida T, Takemura S, Nozaki N, Kawahara K, Minowa M, Mochizuki Y. The validity of repeated mail surveys concerning smoking habits for Japanese physicians. *Nihon Koshu Eisei Zasshi*. 2001;48:573–583. (in Japanese)
- Fagerstrom KO. Measuring degree of physician dependence to tobacco smoking with reference to individualization of treatment. *Addict Behav*. 1978;3:235–241.
- Nakamura M, Oshima A. Primary care and behavioral science: a behavioral-scientific approach for the nonsmoking. *Primary Care*. 1991;14:29–37. (in Japanese)
- Fagerstrom KO, Schneider NG. Measuring nicotine dependence: a review of the Fagerstrom Tolerance Questionnaire. *J Behav Med*. 1989;12:159–182.
- Ministry of Health, Labour and Welfare. Latest information on tobacco: adult smoking rate (JT nationwide smokers rate survey). <http://www.health-net.or.jp/tobacco/product/pd090000.html>. Accessed June 2013. (in Japanese)
- Ministry of Health, Labour and Welfare. Latest information on tobacco: adult smoking rate (Ministry of Health, Labour and Welfare National Health and Nutrition Survey in Japan). <http://www.health-net.or.jp/tobacco/product/pd100000.html>. Accessed June 2013. (in Japanese)
- The Japanese Respiratory Society. Recommendations for Smoking Control. http://www.jrs.or.jp/home/modules/citizen/index.php?content_id=81. Accessed June 2013. (in Japanese)
- Website of the Anti-Smoking Promotion Committee of the Japanese Circulation Society. <http://www.j-circ.or.jp/kinen/>. Accessed June 2013. (in Japanese)
- Nakamura Y, Sakata K, Yanagawa H. Relationships between smoking habits and other behavior factors among males: from the results of the 1990 National Cardiovascular Survey in Japan. *J Epidemiol*. 1996;6:87–91.
- Japan Medical Association. Report of the Project Committee on Health Support for Hospital-Based Physicians. March 2012. http://dl.med.or.jp/dl-med/teireikaiken/20120328_6.pdf. Accessed June 2013. (in Japanese)

Reference Materials

2012 survey on the prevalence and correlates of smoking among of Japan Medical Association members

The Japan Medical Association (JMA) conducted surveys on smoking among JMA members in 2000, 2004, and 2008 with the aim of establishing anti-smoking measures. Also, in 2003 it announced the JMA Declaration on Anti-Smoking Initiatives in order to promote awareness of anti-smoking among physicians and medical personnel and has been carrying out anti-smoking initiatives. The JMA has therefore decided to once again conduct a survey on the prevalence and correlates of smoking among of JMA members in order to ascertain members' awareness of smoking, smoking situation, and correlates of smoking (correlations between smoking and other lifestyles habits and mental health have been pointed out) with the aim of contributing further to the health promotion of the public. Members who receive this questionnaire are asked to please cooperate in the survey. As regard the content of replies, your personal privacy and the privacy of the medical institution to which you belong will be protected and results will be published in summary. **Also note that this questionnaire is being sent to JMA members selected at random from among all members.**

◆How to fill out the questionnaire

1. The questionnaire is being mailed to each individual selected, and so please reply for yourself.
2. After completing the questionnaire, put it into and seal the small anonymous envelope. Put that envelope into the medium-sized return envelope addressed to the JMA and post it.
3. The JMA will responsibly open the return envelope and store the small envelope containing the questionnaire form separately from the return envelope. The results will be tallied only after ensuring that respondents and replies cannot be matched.

*This method will allow the JMA to confirm who submitted a questionnaire and to analyze the questionnaires without knowing who filled out each individual questionnaire form.

★Circle the number for your reply to each question below and write specific answers inside parentheses.

- | | | |
|-----|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Have you ever smoked a cigarette? | <ol style="list-style-type: none"> 1. No → <u>Continue from question 12</u> 2. Yes → I first smoked when I was about () years old |
| 2 | Have you ever smoked cigarettes every day for six or more months? | <ol style="list-style-type: none"> 1. No 2. Yes → It became a habit when I was about () years old |
| 3 | Do you smoke now? | <ol style="list-style-type: none"> 1. I smoke about () cigarettes every day 2. I smoke sometimes 3. I do not smoke at all → I quit when I was about () years old |
| 4-1 | Why did you start smoking? Circle <u>as many</u> answers as applicable. | <ol style="list-style-type: none"> 1. Because my parent(s) (father or mother) smoke 2. Because my friends smoke 3. Because my sibling(s) smoke 4. To relieve stress 5. Because of TV or advertising 6. Other () |
| 4-2 | Only if you answered in question 3 that you quit smoking: Why did you quit smoking? Circle <u>as many</u> answers as applicable. | <ol style="list-style-type: none"> 1. Because it is not healthy 2. Because I became sick 3. Because it is unprofessional behavior 4. Because it interfered with my everyday medical practice and giving guidance to patients 5. Because by family and/or friends complained 6. Other () <p style="text-align: right;">→ <u>Continue from question 12</u></p> |
| 5 | How soon after waking up do you smoke a cigarette? | <ol style="list-style-type: none"> 1. More than half an hour 2. Within half an hour |
| 6 | Do you find it very difficult to not smoke in places where smoking is prohibited such as non-smoking cars on trains and in libraries? | <ol style="list-style-type: none"> 1. No 2. Yes |
| 7 | Which cigarette is the most difficult to stop smoking? | <ol style="list-style-type: none"> 1. Ones besides the first one in the morning 2. The first one in the morning |
| 8 | Do you smoke more in the morning than at other times? | <ol style="list-style-type: none"> 1. No 2. Yes |
| 9 | Do you smoke even when you are so sick that you stay in bed nearly all day? | <ol style="list-style-type: none"> 1. No 2. Yes |

- 10** What kind of cigarettes do you smoke?
1. Low nicotine
 2. Medium nicotine
 3. High nicotine
- 11** How often do you inhale deeply?
1. Never
 2. Sometimes
 3. Always
- 12** Do you feel that given their position, physicians should not smoke?
1. No, I do not feel that way
 2. Yes, I feel that way
 3. Not sure
- 13** What kind of smoking policy does the hospital, clinic, or organization to which you belong have?
1. None
 2. Designated smoking areas
 3. Total ban on smoking
 4. Other ()
- 14** How do you feel about patients smoking?
1. They should not smoke because they have a disease
 2. It is alright to smoke depending on the disease
 3. It should be left up to patients
 4. Unsure
- 15** Do you ask new outpatients about their smoking history?
1. I always ask about smoking history
 2. I ask when necessary
 3. I do not ask about smoking history
 4. I do not see new patients
 5. Other ()
- 16** Do you offer guidance on smoking secession to patients who need to stop smoking for treatment?
1. I provide guidance for five or more minutes
 2. I provide guidance for about 3 to 5 minutes
 3. I provide guidance for less than three minutes
 4. I provide no guidance → Continue from question 18
 5. I do not see patients/other → Continue from question 18
- 17** What kind of guidance on smoking secession do you offer? Circle as many answers as applicable.
1. I explain to patients in concrete terms the dangers of smoking
 2. I only give patients advice to quit smoking
 3. I set a specific goal date and offer care and guidance so that patients will quit smoking
 4. I give patients educational materials and offer guidance so that patients can quit smoking on their own
 5. I refer patients to a specialist
 6. I prescribe an antismoking agent (e.g. gum, patch, oral medication)
 7. I reserve exam days to periodically check the progress of smoking secession
 8. Other ()
- 18** What are the obstacles to providing counseling to patients on smoking cessation? Circle as many answers as applicable.
1. It takes time
 2. Counseling is not sufficiently guaranteed by medical fees
 3. The problem of smoking is not my (physician's) concern
 4. I haven't had sufficient education in the problem of smoking
 5. It is pointless, since I have never seen a successful case
 6. Patients refuse guidance from the beginning
 7. There are no particular obstacles
 8. Other ()

-
- 19-1** How frequently do you drink alcohol?
1. Never
 2. Not more than once a week
 3. Two to four times per week
 4. Five to six times per week
 5. Every day
- 19-2** About how much alcohol do you drink each time?
(One medium-size bottle of beer, one *go* [0.18 liters] of sake, half a *go* [0.09 liters] of *shochu* [Japanese liquor similar to vodka], and two glasses of wine have roughly the same amount of alcohol)
1. Converted to beer, about one glass (small amount)
 2. Converted to beer, about one medium-size bottle
 3. Converted to beer, about 2 medium-size bottles
 4. Converted to beer, 3 or more medium-size bottles
- 20** On average, about how much have you worked per day in the past month? () hours/per day on average
- 21** How many days off have you had the past month? () days
- 22** Do you work night duty or go on-call?
1. Never
 2. About once every few months
 3. About once per month
 4. About 2–3 times per month
 5. About 4–7 times per month
 6. 8+ times per month
- 23** Do you deliberately get exercise?
1. Never
 2. Hardly ever
 3. Sometimes
 4. Frequently
 5. Every day
- 24** Do you feel you are getting enough rest with the sleep that you usual get?
1. I get enough
 2. I generally get enough
 3. Not so much
 4. Not at all
 5. Not sure
- 25** Do you have trouble falling asleep at night?
1. Never
 2. Hardly ever
 3. Sometimes
 4. Frequently
 5. Always
- 26** Do you ever wake up at night after falling asleep and have difficulty falling asleep again?
1. Never
 2. Hardly ever
 3. Sometimes
 4. Frequently
 5. Always
- 27** Do you ever wake up early in the morning and have difficulty falling asleep again?
1. Never
 2. Hardly ever
 3. Sometimes
 4. Frequently
 5. Always

- 28** Do you ever use drugs such as sleeping pills or stabilizers to help you fall asleep?
1. Never
 2. Hardly ever
 3. Sometimes
 4. Frequently
 5. Always
- 29** About how much do you sleep on average per day? () hours () minutes on average
- 30** Do you ever find it impossible to stay awake when you shouldn't sleep during the day?
1. Never
 2. Hardly ever
 3. Sometimes
 4. Frequently
 5. Always

Answer questions 31 to 35 as for the past month.

- 31** Did you have more fun than usual in your everyday life?
1. Yes
 2. It was the same as usual
 3. No
 4. Not at all
- 32** Where there times when you felt more down and depressed than usual?
1. Not at all
 2. Not very much
 3. Yes
 4. A lot
- 33** Did you have stress due to things such as dissatisfaction, worries, or troubles?
1. Not at all
 2. Not very much
 3. A little
 4. A lot
- 34** Which of the following coping techniques did you use when you felt stress? Circle as many answers as applicable.
1. Work actively at solving the problem
 2. Move around and exercise
 3. Take the time to enjoy a hobby and relax
 4. Watch TV or listen to the radio
 5. Tell family or friends about my worries
 6. Abandon hope of a solution and resign myself to that fact
 7. Grin and bear it
 8. Try to think optimistically that it will be alright somehow
 9. Seek stimulation or excitement
 10. Drink alcohol
 11. Smoke
 12. Eat
 13. Nothing in particular
 14. Other ()
- 35** Have you ever had a close call or near miss, having almost made a mistake in your work?
1. Never
 2. Hardly ever
 3. Yes
 4. Frequently
- 36** What is your gender?
1. Male
 2. Female
- 37** How old are you? () years old

- 38** What is your medical specialty? Circle as many answers as applicable.
1. Internal medicine
 2. Pulmonology
 3. Gastroenterology
 4. Cardiovascular medicine
 5. Surgery
 6. Orthopedics
 7. Pediatrics
 8. Obstetrics and gynecology
 9. Neurology
 10. Dermatology
 11. Urology
 12. Ophthalmology
 13. Otorhinolaryngology
 14. Other ()
- 39** What type of employment arrangement are you doing?
1. I operate (manage) my own practice
 2. I am employed
- 40** To what type of organization do belong?
1. Clinic
 2. Hospital
 3. Other ()

This is the end of the questionnaire. Thank you for your cooperation. Please check to make sure you have filled everything out.