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Hospital Presence and Reported Working Hours Among Specialty Residents in Japan: A Nationwide Cross-Sectional Survey Conducted in 2024

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Abstract

Background: Accurate assessment of physicians' working hours is essential for evaluating working conditions, as reported working hours may not fully reflect the time spent in hospitals. We examined discordance between reported working hours and hospital presence among physicians undergoing specialty training.

Methods: We analyzed 996 responses from 198 hospitals in a voluntary nationwide specialty-resident survey distributed through training supervisors at 955 hospitals during July 20-August 10, 2024 (198/955 hospitals; 20.7% hospital participation). Both working-hour and hospital-presence questions referred to the same most recent week and included outside clinical work, including moonlighting. Categories were cross-tabulated at 60 and 80 hours/week using exact McNemar tests. An exploratory reduced multivariable model accounted for hospital clustering.

Results: Reported working hours were ⩾60 hours/week for 415/996 (41.7%) and ⩾80 hours/week for 78/996 (7.8%), compared with 613 (61.5%) and 187 (18.8%) for hospital presence. At the 60-hour threshold, 210 reported ⩾60 hours of presence but <60 hours of work, whereas 12 showed the reverse pattern (222 (22.3%) discordant; p<0.001). At the 80-hour threshold, discordance was observed in 133 (13.4%; p<0.001). In exploratory adjusted analysis, working ⩾60 hours/week was associated with male sex (adjusted odds ratio (aOR) 1.65, 95% CI 1.26-2.16), surgery versus internal medicine (2.20, 1.40-3.46), and urban setting (1.57, 1.15-2.14), while psychiatry was inversely associated (0.16, 0.09-0.29).

Conclusions: Among participating specialty residents, prolonged weekly hospital presence was reported substantially more frequently than prolonged weekly working hours. Neither indicator directly establishes legally defined overtime, unpaid work, patient harm, or a causal effect of the reform.

Categories: Occupational Health, Health Policy, Medical Education
Keywords: hospital presence, occupational health, physician workstyle reform, specialty residents, working hours

Introduction

Excessive working hours among physicians in training have been linked to sleep loss, attention failures, mental health concerns, and risks to patient safety [1-8]. Duty-hour regulations have therefore been implemented internationally, but evidence concerning their effects on clinical, educational, and resident well-being outcomes remains mixed [7,9-11]. In the United States, current Accreditation Council for Graduate Medical Education (ACGME) requirements limit clinical and educational work to 80 hours per week, averaged over four weeks [12]. Japan introduced new physician overtime limits in April 2024: the standard annual ceiling for overtime and holiday work is 960 hours, with higher ceilings of up to 1,860 hours applicable under designated special categories [13-15]. These legal annual overtime limits are not equivalent to thresholds on self-reported total weekly time at work.

Japan also faces a distinctive measurement question: time physically spent at hospitals may exceed time reported as work, while training and self-directed learning activities occupy a potentially ambiguous boundary between clinical service and education [16-18]. Both measures are informative, yet neither should automatically be interpreted as a direct measure of legally defined overtime. Prior Japanese studies have examined working conditions and burnout among residents, including postgraduate year 1-2 trainees; our sample covers physicians enrolled in basic specialty-training programs [16,19,20].

The primary objective of this study was to examine whether reported working hours and hospital presence yield different estimates of prolonged weekly workload among specialty residents in Japan following the

implementation of physician overtime regulations in April 2024. The secondary objectives were to quantify discordance between these measures at the 60- and 80-hour weekly thresholds and to explore demographic, specialty, and institutional factors associated with reported working ⩾60 hours per week. This cross-sectional study was not designed to evaluate changes over time or the causal effects of the reform.

Materials And Methods

Study design and participants

This secondary cross-sectional analysis used responses to a voluntary nationwide online questionnaire distributed through training supervisors at 955 hospitals accredited for Japan's 19 basic specialty programs. The documented survey period was July 20 to August 10, 2024. The supplied dataset contained 1,038 timestamped responses; 42 responses were dated after August 10 and were excluded to ensure consistency with the specified survey period. Thus, the primary analytic sample comprised 996 responses from 198 unique hospital identifiers (20.7% of the 955 hospitals contacted). The latest excluded response was timestamped September 20, 2024. The number of eligible specialty residents at each hospital, as well as the number of individuals who actually received an invitation, was not recorded; therefore, an individual-level response rate cannot be calculated. Hospital participation does not establish national representativeness.

Survey instrument

The questionnaire was developed by the study investigators and administered in Japanese. Its domains were informed by a previous nationwide resident survey [16] and adapted to basic specialty trainees after implementation of Japan's 2024 physician work-hour regulations. The questionnaire collected demographic and training characteristics, reported weekly working hours, weekly hospital presence, on-call frequency, post-call arrangements, and institutional characteristics. Appendices present the Japanese questionnaire content and response options alongside English translations prepared for publication. The English translations were not administered to participants. Items not used in this analysis are identified separately where relevant.

Measurements and outcomes

This analytical cross-sectional study used data from a voluntary nationwide online questionnaire conducted between July 20 and August 10, 2024, among physicians enrolled in Japan's basic specialty-training programs.

Both reported working hours (Q5) and hospital presence (Q6) referred to the same most recent week, and both included outside clinical work, including moonlighting. The Q5 instruction specifically excluded time spent on self-directed learning and rest periods during approved overnight or holiday duty. The measures were recorded in the same ordered categories: <40, 40-<50, 50-<60, 60-<70, 70-<80, 80-<90, 90-<100, and ⩾100 hours/week. The primary binary outcome was reported working hours ⩾60 hours/week; ⩾80 hours/week was examined descriptively owing to the smaller event count. Hospital-presence classification was compared using the same thresholds. Discordance was defined as differing paired binary classifications. These measures are respondent-reported categories, not clock-recorded overtime, a diagnosis of overwork, or a direct measurement of unpaid work. Training level, sex, grouped specialty, hospital location, ownership, and on-call schedules were also recorded.

Statistical analysis

We summarized self-reported weekly working hours and hospital presence and tabulated paired classifications at 60 and 80 hours/week. Exact two-sided McNemar tests compared the paired binary classifications. For exploratory assessment of reported working ⩾60 hours/week (415 events), we fitted a multivariable logistic model with hospital-clustered sandwich standard errors (198 hospital clusters), adjusting for sex (female reference), specialty (internal medicine reference; surgery, psychiatry, and all other specialties), postgraduate year (PGY3 reference; PGY4, PGY5, PGY6 or later), ownership grouping (public reference; national/public university group and private group), and geographic setting (intermediate/rural reference versus urban). Two source ownership codes, both labeled as private hospitals, were combined. The model was developed during post hoc reanalysis and was not prespecified. On-call frequency was described separately because of its close relationship with workload. No adjusted model was fitted for ⩾80 reported working hours/week (78 events). Core model variables were complete; no imputation was performed. There was no available a priori sample-size calculation. All comparisons are associative, not causal. Data recorded after August 10 were excluded rather than treated as part of the prespecified survey window.

Ethics

The study was approved by the Tokyo Healthcare University Human Research Ethics Committee (approval No. Kyo 023-25B; February 26, 2024), with institutional permission on the same date. Electronic informed consent was obtained before survey participation.

Results

Participants and workload distributions

There were 996 respondent records from 198 hospitals (Table 1). All 996 had data for hospital identifier, specialty, sex, postgraduate-year grouping, geographic category, hospital ownership, on-call frequency, reported working-hour category, and hospital-presence category. Hospital clusters ranged from one to 40 respondents (median 3; 53 hospitals contributed one respondent). Reported working hours were ⩾60 hours/week in 415 (41.7%) and ⩾80 hours/week in 78 (7.8%). Hospital presence was ⩾60 hours/week in 613 (61.5%) and ⩾80 hours/week in 187 (18.8%).

Characteristic	n (%)
Participants	996
Unique coded hospitals	198
Men	643 (64.6)
Women	353 (35.4)
Internal medicine	312 (31.3)
Surgery	94 (9.4)
Pediatrics	103 (10.3)
Psychiatry	79 (7.9)
≥60 reported working hours	415 (41.7)
≥80 reported working hours	78 (7.8)
≥60 hours of hospital presence	613 (61.5)
≥80 hours of hospital presence	187 (18.8)

TABLE 1: Selected descriptive characteristics of the primary analytic sample (July 20-August 10, 2024).

At ⩾60 hours/week, 371 respondents were below the threshold on both measures, 403 were above it on both measures, 210 were above it for hospital presence only, and 12 were above it for reported working time only; thus 222/996 (22.3%) were discordant (exact McNemar p<0.001; Table 2). At ⩾80 hours/week, respective cell counts were 797, 66, 121, and 12 (133/996 (13.4%) discordant; exact McNemar p<0.001; Table 2). These comparisons are between categorized responses, not exact hours.

Hospital presence ≥60 hours	Working <60 hours	Working ≥60 hours
<60 hours	371	12
≥60 hours	210	403
Hospital presence ≥80 hours	**Working <80 hours**	**Working ≥80 hours**
<80 hours	797	12
≥80 hours	121	66

TABLE 2: Concordance between reported working hours and hospital presence at the 60- and 80-hour weekly thresholds.

Specialty and working conditions

Respondents represented all 19 basic specialty fields. Internal medicine was the largest specialty, followed by pediatrics, surgery, and psychiatry. Reported post-call schedules varied: 395 respondents reported a

regular full workday after overnight duty (39.7% of all respondents), 332 a half-day arrangement (33.3%), 115 a full day off after morning handover (11.5%), 144 no overnight duties (14.5%), and 10 another response (1.0%). These categories reflect self-reported scheduling arrangements and do not establish continuous shift duration or verified rest intervals.

Multivariable associations

In the exploratory reduced multivariable model for reported working ⩾60 hours/week (N=996; 415 events; 198 hospital clusters), adjusted odds ratios (aORs) were 1.65 (95% CI 1.26-2.16) for male versus female sex, 2.20 (1.40-3.46) for surgery versus internal medicine, and 1.57 (1.15-2.14) for urban versus intermediate/rural settings. Psychiatry was inversely associated with long hours (aOR 0.16, 95% CI 0.09-0.29). All estimates are exploratory associations, not causal effects (Table 3).

Covariate (reference)	aOR	95% CI	p
Male vs female	1.65	1.26-2.16	<0.001
Surgery vs internal medicine	2.20	1.40-3.46	<0.001
Psychiatry vs internal medicine	0.16	0.09-0.29	<0.001
Other specialties vs internal medicine	0.67	0.48-0.93	0.018
PGY4 vs PGY3	0.86	0.61-1.23	0.410
PGY5 vs PGY3	0.74	0.52-1.06	0.098
PGY6+ vs PGY3	0.72	0.48-1.08	0.110
National/public university group vs public	0.78	0.53-1.13	0.190
Private groups combined vs public	0.98	0.67-1.43	0.914
Urban vs intermediate/rural	1.57	1.15-2.14	0.004

TABLE 3: Exploratory multivariable logistic regression of reported working ≥60 hours/week with hospital-clustered standard errors.

aOR: adjusted odds ratio; PGY: postgraduate year

Data completeness and survey-period restriction

The 996 records within the documented survey period contained no missing observations among the core fields used in the main analyses. Although the source workbook included 42 additional responses timestamped after August 10, 2024, these were excluded. The analytic cut-off was selected to match the documented survey closing date, not on the basis of outcome values.

Discussion

The principal finding is a pronounced divergence between reported working hours and hospital presence among surveyed specialty trainees in 2024. Although 41.7% reported ⩾60 working hours per week, 61.5% reported ⩾60 hours of hospital presence. A threshold discordance was observed in 22.3% of respondents. Because both items asked about the same most recent week and included moonlighting, differences in reporting period or inclusion of outside paid clinical work do not explain the observed classification discordance. However, the working-hours question specifically excluded self-directed learning and rest periods during approved overnight or holiday duty; the presence measure may include some of these periods as well as waiting and other activities. The survey did not disaggregate these components. Accordingly, the discrepancy cannot be labeled entirely as unpaid work or self-study, nor does it establish individual under-recording of legally defined work. Previous evidence on long hours, health, and safety provides a rationale for workload monitoring rather than evidence of harm in this sample [1-6].

Associations of reported long hours with sex, specialty, and urban setting should be interpreted within the observational design. Differences in staffing, service volume, clinical duties, training culture, and organizational arrangements are hypotheses, not established mechanisms. Japanese studies on resident working conditions and supervising physicians' perspectives also underscore institutional context [14,16,19,20]. Randomized trials and reviews of resident duty-hour policies have reported mixed effects on patient safety, well-being, and educational outcomes [7,9,10]. A systematic review of burnout interventions reported that implementation of ACGME duty-hour restrictions was associated with improvements in

emotional exhaustion and depersonalization [11].

Continued work after overnight calls raises a distinct operational issue. Nearly two in five respondents reported a regular full workday after an overnight shift. The questionnaire did not establish the exact continuous shift length or compliance with mandated rest intervals. Earlier research linked extended shifts with attention failures, errors, and occupational risks [2-4,8], but the present survey did not measure validated patient safety outcomes. Future work could link duty rosters and objective time records with educational activities, recovery time, and safety indicators.

Policy interpretation

Japan's annual overtime limits differ according to applicable standards and designated special categories. Total weekly working hours and hospital presence cannot establish violations of annual statutory limits because neither item isolates legally defined overtime or holiday hours or measures the duration of exposure [13,15]. The findings therefore concern measurement and workload monitoring, not regulatory compliance or the causal effect of the 2024 reform.

Limitations

The sample was voluntary and recruited through local training supervisors. Neither the number of eligible specialty residents at each hospital nor the number actually reached with invitations was available; thus the individual response rate cannot be calculated. The 20.7% figure is the hospital participation proportion, not an individual response rate, and the study is not a probability sample of all Japanese specialty residents. Respondent counts varied from one to 40 per hospital, with 53 hospitals contributing only one response. Self-reported categorical measures are susceptible to recall, categorization, and reporting errors; neither measure yields exact hours of unpaid work, self-study, approved-duty rest, or legal overtime violations. The same-week design and inclusion of moonlighting in both items improve conceptual comparability but do not make the two measures interchangeable. We restricted analysis to the documented survey period, excluding 42 later timestamped records. The exploratory multivariable model was specified post hoc and is subject to residual confounding, selection bias, and possible category coding limitations. Only 78 respondents reported working ≥80 hours/week, limiting adjusted modeling of that outcome. No validated patient-safety outcomes were measured, and the cross-sectional design cannot estimate the causal impact of physician work-hour regulation.

Conclusions

Among 996 participating specialty residents at 198 hospitals in Japan in 2024, prolonged weekly hospital presence was more commonly reported than prolonged weekly working hours. Both questions covered the same most recent week and included moonlighting, but they measured related rather than identical constructs. Neither alone establishes legally defined overtime, unpaid work, unsafe practice, or patient harm. More precise and transparent measurement of clinical work, education, and rest, alongside better recruitment denominators, would strengthen future evaluations of training environments.

Appendices

Japanese questionnaire content and publication translations

The survey was administered in Japanese. The Japanese questionnaire content and response options below are presented alongside English translations for publication. The English translations were not administered to participants. Q5 and Q6 both concerned the same most recent week and included outside work, including moonlighting, as confirmed by the investigators. Items Q12-Q14 are provided for contextual completeness, but were not variables in the available Raw Data worksheet used for this analysis.

Q1. Sex/性別

What is your sex?/性別を教えてください。

Response options: Female/女性; Male/男性

Q2. Age/年齢

What is your age?/年齢を教えてください。

Response options: 25-29 years/25⊠29歳; 30-34 years/30⊠34歳; 35-39 years/35⊠39歳; ≥40 years/40歳以上

Q3. Postgraduate year/卒後年数

How many years have passed since you graduated from medical school?/医学部卒業後の年数を教えてください。

Response options: PGY3/卒後3年目; PGY4/卒後4年目; PGY5/卒後5年目; PGY6 or later/卒後6年目以上

Q4. Basic specialty/専攻する基本領域

What is your basic specialty training field?/現在専攻している基本領域を選択してください。

Response options: Internal medicine/内科; Surgery/外科; Orthopedic surgery/整形外科; Pediatrics/小児科; Obstetrics and gynecology/産婦人科; Anesthesiology/麻酔科; Otorhinolaryngology/耳鼻咽喉科; Psychiatry/精神科; Dermatology/皮膚科; Ophthalmology/眼科; Emergency medicine/救急科; Urology/泌尿器科; Radiology/放射線科; Neurosurgery/脳神経外科; Pathology/病理; Plastic surgery/形成外科; General practice/総合診療科; Rehabilitation medicine/リハビリテーション科; Laboratory medicine/臨床検査科

Q5. Weekly reported working hours/週当たりの労働時間

Japanese instruction: 直近の1週間について、回答ください。自己研鑽や宿日直⊠許可取得済⊠における休息時間を除きます。アルバイトを含みます。 English: Please answer based on the most recent week. Exclude self-directed learning and rest during approved overnight or holiday duty. Include moonlighting.

Response options: <40; 40-<50; 50-<60; 60-<70; 70-<80; 80-<90; 90-<100; ⩾100 hours/corresponding Japanese categories

Q6. Weekly hospital presence/週当たりの在院時間

How many hours did you spend at hospitals during the most recent week, including outside clinical work?/1週間の在院時間を教えてください。(The English wording clarifies the investigator-confirmed common time period and inclusion of moonlighting; this bracketed explanatory note was not itself part of the Japanese item.)

Response options: <40; 40-<50; 50-<60; 60-<70; 70-<80; 80-<90; 90-<100; ⩾100 hours/corresponding Japanese categories

Q7. Number of overnight/on-call duties/月当たりの当直回数

How many overnight or on-call duties do you perform per month?/1か月当たりの当直回数を教えてください。

Response options: None/当直なし; 1-4 times/月1⊠4回; 5-8/月5⊠8回; ⩾9/月9回以上

Q8. Schedule after overnight duty/当直明けの勤務

What is your usual work schedule after overnight duty?/当直明けの勤務状況について教えてください。

Response options: No overnight duty/当直なし; Full day off after morning handover/朝の引継ぎ後は終日休み; Half-day arrangement/半日勤務; Regular full workday/通常どおり終日勤務; Other/その他

Q9. Hospital identifier/勤務先病院

Hospital or training-site identifier/勤務先病院・研修施設の識別情報

Response options: Institutional coded identifier

Q10. Hospital ownership/勤務先の開設主体

What type of institution is your training hospital?/勤務先病院の開設主体を教えてください。

Response options: Public hospital/公的病院; National or public university hospital/国公立大学病院; Private hospital grouping/民間病院. Source workbook contains additional public and national subcategories; two separate ownership codes were both labeled 民間病院 and were combined for modeling.

Q11. Hospital size/勤務先の総病床数

How many beds does your hospital have?/勤務先病院の総病床数を教えてください。

Response options: <200/200床未満; 200-399/200⊠399床; 400-599/400⊠599床; 600-799/600⊠799床; 800-999/800⊠999床; ⩾1000/1000床以上

Q12. Perceived reform progress/医師の働き方改革の進捗

To what extent do you think reform has progressed at your institution?/勤務先において、医師の働き方改革はどの程度進んでいると思いますか。

Response options: Progressing substantially/とても進んでいる; somewhat/少し進んでいる; not very much/あまり進んでいない; not at all/ほとんど進んでいない; neither/どちらでもない

Q13. Expected effect on quality and safety/医療の質・安全性への影響

How do you think reform will affect healthcare quality and patient safety?/医師の働き方改革は医療の質や安全性にどのような影響を与えると思いますか。

Response options: Markedly improve/かなり向上する; somewhat improve/やや向上する; no change/変わらない; somewhat worsen/やや低下する; markedly worsen/かなり低下する; neither/どちらでもない

Q14. Expected effect on specialty training quality/専攻医の研修の質への影響

How do you think reform will affect the quality of specialty training?/医師の働き方改革は専攻医の研修の質にどのような影響を与えると思いますか。

Response options: Markedly improve/かなり向上する; somewhat improve/やや向上する; no change/変わらない; somewhat worsen/やや低下する; markedly worsen/かなり低下する; neither/どちらでもない

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Masatoshi Ishikawa, Ryoma Seto, Michiko Oguro, Yoshino Sato

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Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. Human Research Ethics Committee of Tokyo Healthcare University issued approval Kyo 023-25B. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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