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## BRIEF COMMUNICATION

# Residents' perception of duty hour limits through teaching hospital accreditation status—experience in Taiwan

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Residents' work overload is a rising issue in Taiwan. Duty hours of the residents in the United States have been limited by the Accreditation Council for Graduate Medical Education Common Program Requirements since 2003; similar standards were not implemented in Taiwan until 2013. Taiwanese duty hour standards are the work hour limits adopted as part of the required teaching hospital accreditation status. In January 2015, the Ministry of Health and Welfare conducted a national survey for all house officers in Taiwan. We collected data including those on demographics and perceptions of residents regarding duty hour limits. Most respondents reported positive perceptions of the duty hour standards. They felt that these limits will improve resident education, quality of life, and patient safety. The strong incentive to follow the regulations (through teaching hospital accreditation) could help protect residents (and patients) from unsafe working conditions. However, further studies on the influence of shortened duty hour on professional development are necessary for future improvement.

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## Introduction

Limits on resident duty hours have become a central theme in graduate medical education all over the world. In the United States, the Accreditation Council for Graduate Medical Education (ACGME) published revised Common Program Requirements limiting resident duty hours in July 2011.<sup>1</sup> These requirements increased restrictions placed in 2003, which included for the first time a maximum of 80

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duty hours each week. The most notable change in the 2011 program requirements was a 16-hour shift limitation for residents of Postgraduate Year 1. Beyond establishing new duty hour limits, ACGME standards emphasize the importance of faculty supervision, improvement of patient-handover process, and education of maintaining alertness while on duty.<sup>2</sup> The goals of these common program requirements were to improve the quality and safety of patient care, and create a better learning environment.

Although there are nearly 6000 resident physicians in Taiwan, prior to 2013 there was no regulation of working conditions for this population. Additionally, residents are not protected by the Labor Standards Act, which was enacted in 1984 to protect employees by providing minimum requirements for labor contracts, as well as protect them against unreasonable working hours and forced labor. On the contrary, in order to maintain the quality of medical education, the enrollment quota for medical schools in Taiwan is restricted to 1300 students per year, which means that the population of physicians is under strict control. Compared with the global Organization for Economic Cooperation and Development average of physician density (3.3 practicing physicians per 1000 people), the number of practicing physicians in Taiwan is much lower (2.2 per 1000 people).<sup>3</sup> This lower ratio may increase the relative workload of physicians and residents. According to one survey of 80 teaching hospitals from Taiwan Joint Commission on Hospital Accreditation in 2013, resident duty hours had reached more than 97 hours in certain subspecialties such as plastic surgery and neurosurgery. Similar to prior studies, this report concluded that fatigue and burnout due to working conditions may result in errors and reduce the quality of patient care.<sup>4</sup> As a result, resident working conditions have become a concerning issue in Taiwan.

In order to improve resident education, quality of life, and patient safety, the Ministry of Health and Welfare in Taiwan announced new duty hour standards in May 2013. These standards were designed based on the 2011 ACGME standards and recommendations from the Institute of Medicine in 2008.<sup>5</sup> The guidelines consist of the following rules: in-hospital duty must be limited to 88 hours per week, duty periods must be limited to 32 hours, minimum time off between scheduled duty periods must be 10 hours, and residents must be scheduled for a minimum of 1 day free of duty each week and one 48-hour period off during a 4-week period. These guidelines are now a requirement for the accreditation of all teaching hospitals in Taiwan.

## Materials and methods

In January 2015, the Ministry of Health and Welfare conducted a national survey for all house officers (i.e., interns, residents, and fellows) in Taiwan. A total of 6022 trainees were surveyed and 3191 responses were obtained by March 2015 (response rate 53.0%). We also collected data on gender, year of training, subspecialty, and program size (Table 1). Most respondents (56.7%) came from training programs with less than 10 residents, and 63.0% of respondents were in the first 3 years of training. The main specialties represented were Postgraduate Year 1 transitional (17.6%), internal medicine (13.1%), surgery (8.3%),

**Table 1** Respondent demographics.

Characteristic	Survey respondents (N = 3191)	%	Taiwan resident physicians (%)
<b>Gender</b>			
Male	2228	69.8	NA
Female	948	29.7	NA
Not reported	15	0.5	NA
<b>Year of training</b>			
PGY 1	563	17.6	22.7
PGY 2	763	23.9	21.2
PGY 3	694	21.7	20.4
PGY 4	388	12.2	11.2
PGY 5	383	12.0	11.4
PGY 6	272	8.5	7.9
PGY 7	77	2.4	2.9
PGY 8	6	0.2	NA
PGY 9	5	0.2	NA
Not reported	40	1.3	2.2
<b>Specialty</b>			
PGY 1 (transitional)	563	17.6	22.6
Internal medicine	417	13.1	15.3
Surgery	265	8.3	8.1
Pediatrics	242	7.6	6.5
Family medicine	228	7.1	6.6
Emergency medicine	160	5.0	4.7
Otolaryngology	155	4.9	4.0
Orthopedics	131	4.1	4.0
Radiology	123	3.8	2.7
Psychiatry	115	3.6	3.4
Obstetrics—gynecology	101	3.2	3.2
Neurosurgery	60	1.9	2.0
Rehabilitation medicine	94	2.9	2.3
Neurology	84	2.6	2.4
Ophthalmology	84	2.6	2.2
Anesthesiology	82	2.6	2.6
Urology	71	2.2	2.5
Dermatology	56	1.8	1.5
Pathology	48	1.5	1.3
Others	47	1.4	1.2
Plastic surgery	42	1.3	1.2
Not reported	23	0.7	NA
<b>No. of resident in program (not including PGY-1, total no. 2626)</b>			
1–10	1489	56.7	NA
11–20	640	24.4	NA
21–30	231	8.8	NA
31–40	94	3.6	NA
41–50	59	2.2	NA
>50	91	3.5	NA
Not reported	22	0.8	NA

NA = not available; PGY = postgraduate year.

pediatrics (7.6%), family medicine (7.1%), and emergency medicine (5.0%). This distribution of participants' specialties was consistent with Taiwan's national demographics of residents.

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