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EMERGENCY MEDICINE RESIDENT CLINICAL HOURS: A NATIONAL SURVEY

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☐ **Abstract—Background: Emergency medicine (EM) residency programs have significant scheduling flexibility. As a result, there is potentially significant variation in scheduling practices. Few studies have previously sought to describe this variation. It is unknown how this affects training time in the emergency department. Objectives: The purpose of this study was to describe the current variation in clinical training practices through clinical hour, shift length, and rotation survey data. Methods: A 21-item questionnaire was distributed to all allopathic EM training programs utilizing an online survey during the 2011–2012 academic year. Questions included demographic data, number of EM rotations per year, shifts, average hours, shift length, and scheduling practices. Results: A total of 122 responses were received and 82 programs were analyzed (51.6% of 159 allopathic programs). EM residents work, on average, 45.50 h per week. Postgraduate year 1–3 programs utilizing 28-day schedules averaged two additional EM rotations and 338.2 more clinical EM hours compared with calendar-month rotations. The residents of 4-year programs work approximately 1300 additional hours during residency, with an average of 1279.26 h and 7.9 clinical EM rotations in the fourth year. Clinical hour ranges of 2670–5112 and 4248–6113 were observed for 3-year and 4-year programs, respectively. Conclusions: There are different scheduling modalities used to create resident schedules. This flexibility results in a large amount of diversity in scheduling practices, with certain patterns allowing for significantly more clinical time. This may result in a vastly different training experience for EM residents.** © 2015 Elsevier Inc.

☐ **Keywords—emergency medicine; residents; clinical hours; residency programs; duty hours; schedule; rotations**

INTRODUCTION

Physician training programs have expended significant effort optimizing resident clinical hours. The motivation has been the reduction of medical errors, improvement in patient safety, safeguarding of resident wellness, and maximizing educational opportunities (1). To this end, in 1988 the Association of American Medical Colleges Executive Council issued the first resident work hour restrictions (2). In addition, the Accreditation Council for Graduate Medical Education (ACGME) and Resident Review Committee in Emergency Medicine developed further specialty-specific duty hour regulations (3–5). Ultimately, current emergency medicine (EM) residency duty hour requirements evolved to include on average 1 day in 7 free of all clinical and educational requirements, a 12-h limit to emergency department (ED) shift length, a 60-h clinical week, and a total limit on resident work to 72 h per week, including all clinical, conference, and moonlighting time (3–5). Despite this, EM training regulations allow significant flexibility in scheduling practices if duty hour limits are maintained (3–5). Due to this, there may be significant variation in

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clinical EM scheduling patterns. It is unknown how this variation affects total clinical time in the ED across training programs.

Two previous surveys have attempted to describe EM training program clinical hours and rotations. The first was conducted in 1988 with the goal of determining if EM programs could comply with proposed duty hour restrictions. The results detailed the average hours postgraduate year (PGY)-2 and PGY-3 residents work, with 61 of 71 EM programs (85.9%) reporting (6). The average number of hours per week was found to be 51.2 and 49.5, respectively (6). A subsequent survey described the average number of hours per week, number of night shifts, weekends, and days off per month PGY-1–4 residents were scheduled, with 70 of the 71 programs reporting (98%) demonstrating similar results (7). Because data on EM resident work hours and scheduling are unavailable in any standard format or database, a formal and contemporary questionnaire targeting EM program directors could offer a better understanding of current variations in scheduling patterns, describe differences in residents' clinical hours, and assist residency training programs' creation of schedules and curriculum.

This study seeks to describe this variety of clinical training experience through clinical hour, shift length, and rotation survey data. In addition, we surveyed for scheduling-related information such as methodology and how vacations and day off requests are arranged.

METHODS

Study Design

This study was conducted as an online survey sent to EM residency program directors during the 2011–2012 academic year. Questions were developed based on standard information relevant to the creation of EM shift and rotation scheduling. Because most responses to the questionnaire were numerical, the questions were designed to maximize the ability to analyze data while minimizing the amount of calculations required by the respondents. No formal pilot testing of the survey instrument took place. Using SurveyMonkey® (Palo Alto, CA), the 21-question survey was distributed via the Council of Residency Directors listserv to EM training programs on two separate occasions. After the second distribution, individual e-mails were sent to allopathic EM program directors that had not responded. This study was reviewed and approved by an internal Institutional Review Board with waiver of consent.

The survey contained baseline demographic questions regarding EM rotation format (28-day or calendar month), training format (PGY-1–3, 1–4, or 2–4) and program name. To account for duplicate entries and focus on allopathic programs, self-identification by program name was required. Programs were categorized into the four regions (Northeast, Central, Southern, and Western) as defined by the National Resident Matching Program® (8).

Study Setting and Population

The survey was distributed to the entire population of allopathic EM residency training programs during the 2011–2012 academic year.

Measurements

Survey questions included EM rotations per year, shifts per EM rotation, and average hours per EM rotation. Shift length data were requested as the percentage of shift length type (8 h, 9 h, 10 h, 11 h, 12 h, and other) that each PGY (PGY-1–4) resident is scheduled to work. Program representatives were questioned regarding scheduling practices such as shift overlap, vacation weeks per year, how monthly clinical schedules are created (e.g., computer software scheduling programs, handwritten), who creates the schedule, are resident day off requests allowed, and if so, how many per month.

Data Analysis

The results were analyzed using simple descriptive and comparative statistics (Microsoft Excel 2010™; Microsoft Corporation, Redmond, WA). The program's clinical hours, shifts, and rotations were compared for scheduling format, 28-day rotation cycle vs. calendar month, and number of training years, using a *t*-test. Regional data were compared using analysis of variance. Incomplete data or data from programs with unique scheduling practices that did not allow for the planned analysis were excluded.

RESULTS

A total of 122 responses were received. After removing incomplete (n = 12), duplicate (n = 15), osteopathic (n = 6), and variable scheduling setups not conducive to analysis, 82 programs were analyzed (51.6% of 159 allopathic programs) (7). The average number of EM clinical hours and rotations per year for PGY-1–3, PGY-1–4, and PGY-2–4 programs can be found in Tables 1 and 2. These data were extrapolated from total EM hours per rotation and number of EM rotations per year for each program. Table 3 demonstrates average total EM hours by region for PGY-1–3 and PGY-1–4 programs.

Of the responding PGY-1–3 and PGY-1–4 programs, 47 (57%) programs utilize a 28-day rotation schedule and 33 (40%) utilize a traditional calendar month rotation schedule. EM hours and shifts per week (calculated for all