

Impact of Stroke Call on the Stroke Neurology Workforce in the United States: Possible Challenges and Opportunities

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Background: The Stroke & Vascular Neurology Section of the American Academy of Neurology was charged to identify challenges to the recruitment and retention of stroke neurologists and to make recommendations to address any identified problems. The Section initiated this effort by determining the impact of stroke on-call requirements as a barrier to the recruitment and retention of vascular neurologists. *Methods:* This is a cross-sectional survey of a sample of US Neurologists providing acute stroke care. *Results:* Of the 900 neurologists who were sent surveys, 313 (35%) responded. Of respondents from institutions providing stroke coverage, 71% indicated that general neurologists and 45% indicated that vascular neurologists provided that service. Of those taking stroke call, 36% agreed with the statement, "I spent too much time on stroke call," a perception that was less common among those who took less than 12-hour shifts ($P < .0001$); 21% who participated in stroke call were dissatisfied with their current job. Forty-six percent indicated that their stroke call duties contributed to their personal feeling of "burnout." *Conclusions:* Although the reasons are likely multifactorial, our survey of neurologists providing stroke care suggests that over-burdensome on-call responsibilities may be contributing to the vascular neurology workforce burnout and could be affecting recruitment and retention of vascular neurologists. Strategies to reduce the lifestyle impact of stroke call may help address this problem. **Key Words:** Stroke—stroke call—vascular neurologist—burnout—lifestyle.

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Introduction

The Stroke & Vascular Neurology Section of the American Academy of Neurology (AAN) became increasingly concerned about unfilled vascular neurology (VN) fellowship training positions despite a perceived need for VN specialists.^{1,2} The time demands inherent to the practice of VN encompassing the need for tele-stroke services coverage combined with the advent of neurocritical care and interventional specialties were thought to have decreased the number of trainees choosing VN careers.² In 2017, 34% of VN fellowship programs had unfilled positions,³ and only 60% of eligible diplomates in VN re-certified in 2015.⁴ For those already providing VN services, there was additional concern that the burnout phenomenon, which affects a high proportion of neurologists overall, might disproportionately impact vascular neurologists, further reducing the workforce. In 2014, the AAN Stroke Practice Resources Workgroup was appointed by the Stroke & Vascular Neurology Section to identify challenges to the recruitment and retention of vascular neurologists and suggest remedies. The Stroke Workforce Assessment Survey was proposed by the workgroup to: (1) identify the demographics and practice characteristics of the population who provides stroke call in the United States; (2) identify barriers to the provision of stroke call; (3) determine whether those who take call perceive a shortage in the workforce; and (4) determine whether stroke call is contributing to career burnout. To provide additional insight into the potential effect of stroke call in the United States on the VN workforce, the Workgroup, with the support of AAN staff, conducted the survey of member neurologists providing stroke-related care. It was hypothesized that overly burdensome stroke call is an important barrier to the recruitment and retention of vascular neurologists.

Methods

Sample

We worked with AAN staff and identified a survey population by selecting members who: (1) had previously identified themselves as being a primary stroke, primary general, or primary neuro-hospitalist neurologist; (2) spent a minimum of 10% of their professional time in clinical practice; (3) had a valid e-mail address; (4) had not participated in any AAN survey in the 6 months before our survey; and (5) did not participate in the drafting of the survey. Among the total of 13,753 AAN members, 2471 qualified for the sample population. From this population, we selected a random sample of 900 neurologists for the survey that was then distributed by e-mail in January 2016. Two follow-up invitations were sent to nonresponders before the survey was closed on February 9, 2016.

Survey

The 10 survey questions were developed by the AAN Stroke Practice Resources Workgroup in the fall of 2015 (Appendix 1). The number of questions was limited to 10 to facilitate acceptance by the AAN Member Research Subcommittee and to promote a good response rate. The questions were reviewed and approved by the AAN Member Research Subcommittee and were finalized in January 2016. The survey questions asked respondents to distinguish general from specific stroke call duties, identify the type of professionals who participated in stroke call at their institution, and give their reasons for taking stroke call. Respondents were also asked to provide their opinions about workforce supply of stroke call neurologists and their overall satisfaction with providing stroke call and were encouraged to provide open-ended comments about the benefits and barriers associated with stroke call.

We also analyzed data from other 2015 surveys of AAN neurologists to supplement the information collected by our survey. This included payment data from the AAN's 2015 Neurology Compensation and Productivity Survey and reasons for choosing specialty areas from the AAN's 2015 Fellowship Survey.

Analysis

Survey responses were de-identified and reported in aggregate by AAN staff. Descriptive statistics (mean, median, range for continuous variables; percentages for categorical) were calculated for the individual survey questions using IBM SPSS Statistics for Windows version 24 (IBM Corp., Armonk, NY, USA). We then tested for differences by respondents' subspecialties and institutions using chi-square statistics with significance levels set at P value equal to .05.

Results

Of the 13,733 members of the American Academy of Neurology, 900 neurologists were sent surveys and 313 (35%) responded (Fig 1). The average response rate for other surveys sent to AAN members in 2015 was 18%. As shown in Table 1, basic characteristic of the respondents (age, sex, and membership type) did not differ between respondents and nonrespondents. Survey respondents, however, reported being more likely to spend time in administrative activities than nonrespondents (7.3% versus 5.7%, $P < .01$). As expected, stroke specialists were over-represented relative to their proportion among members of the AAN.

Eighty-five percent of the respondents indicated their institution provided stroke call services, of which 42% were dedicated to stroke call. Of respondents from institutions providing stroke coverage, 71% indicated that general neurologists and 45% indicated that vascular

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