Objective

The main goals of the 2011 AAN Resident Survey were to determine how satisfied residents were in their training, determine any deficiencies in their education, and to trend the data to the previous resident survey conducted in 2008. Results will be used by the Graduate Education Subcommittee to develop solutions for any potential deficiencies in residency programs.

Population

All 742 neurology residents who graduated from their neurology residency in 2011 were the target population for this survey. AAN members who had requested or reviewed the survey were ineligible for participation including members of the Graduate Education Subcommittee and Member Research Subcommittee (MRS) as well as officers from the Consortium of Neurology Residents and Fellows (CNRF).

In addition, residents who had received 3 AAN surveys in the past 3 years were removed from the sample in accordance with AAN survey policy. Those who contacted the Academy to indicate they were not in their final year of residency and those who did not have accurate contact information were also removed from the list resulting in a final sample size of 619.

Instrument

The survey was revised from the 2008 version, which was created by members of the Graduate Education Subcommittee and the Consortium of Neurology Residents and Fellows. The Member Research Subcommittee reviewed the survey in March of 2011 and provided suggestions for improvement. The final survey draft was agreed upon in April of 2011.

Data Collection

The survey was initially sent to the sample on May 11, 2011 via postal mail. A cover letter signed by the Chair of the Consortium of Neurology Residents and Fellows accompanied each survey. An email was also sent that provided a link to the online version of the survey. The second and third reminders were sent on June 2, 2011 and June 15, 2011, respectively. Both the second and third reminders were distributed via postal mail, which included a business reply envelope, and email. An additional reminder to complete the survey was advertised in a CNRF email sent on June 10, 2011. Data collection closed on July 8, 2011.

Response Rate

A response rate of 49.8% (308/619) was achieved for the 2011 AAN Resident Survey. The margin of error for all respondents at a 95% confidence level is ±5.4%.
2011 AAN Resident Survey
Survey Respondents’ Demographic Characteristics

The following demographic information on survey respondents was analyzed from the AAN internal membership database.

The average age of survey participants is 33 years and the majority is male. A detailed comparison of all demographic variables can be found in Table 1. Differences in age and gender were not significant.

Table 1. Demographic characteristics of survey respondents and non-respondents

<table>
<thead>
<tr>
<th>Demographic characteristics</th>
<th>Survey Respondents (N = 308)</th>
<th>Survey Non-respondents (N = 311)</th>
<th>Significance Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age¹ (mean)</td>
<td>33.2 years (SD = 3.9)</td>
<td>33.9 years (SD = 4.3)</td>
<td>p = 0.08³</td>
</tr>
<tr>
<td>Gender² (%)</td>
<td>Male 57.9</td>
<td>54.2</td>
<td>p = 0.39⁴</td>
</tr>
<tr>
<td></td>
<td>Female 42.1</td>
<td>45.8</td>
<td></td>
</tr>
</tbody>
</table>

¹ Data missing for 25% of respondents and 34% of non-respondents
² Data missing for 14% of respondents and 19% of non-respondents
³ T-test
⁴ Pearson Chi-Square
Executive Summary

Duty Work Hours

Most residents (74%) believe the duty hour restrictions had a positive impact on resident quality of life. Residents think that duty hour either mostly had no impact (44%) or a positive impact (38%) on patient care and no impact (38%) or a positive impact (39%) on resident education.

Residency Training Program

More than half of residents (59%) rated the quality of their neurology faculty as excellent. More than half of residents also rate their inpatient-ward, continuity clinic, and subspecialty supervising/teaching physicians as excellent. The majority of residents rate their programs very well on preparing them for patient management and to make diagnostic formulations. Clinical skills and conferences-grand rounds were rated very well in providing didactic material, while basic science and subspecialty training received lower marks.

Most residents received poor or fair preparation from their programs on billing, contracts, malpractice, coding, and office management. Residents feel more prepared to handle electronic health records, as the majority (71%) rated their programs as excellent or good. The majority (67%) believe that residency is the best venue to teach practice issues.

Residency In-service Training Examination (RITE SM)

Most survey respondents (71%) agree that RITE helped define areas of self-study. The majority (69%) indicated their scores were only used for self-study improvement. Reported misuse of the RITE included: being compared to other residents, honors, fellowship applications, chief resident selection, and the scores not being kept confidential.

Fellowship

The majority (86%) of residents will enter a fellowship following residency. Most residents (81%) who enter a fellowship will be in a clinical fellowship; the majority of residents (60%) will have a one-year long fellowship. The top areas of fellowship are: clinical neurophysiology, cerebrovascular/stroke, neuromuscular disorders, and epilepsy. Most residents were satisfied with their fellowship offers (87%) and their mentoring in helping them select a fellowship or career (74%).

More than half of residents (56%) selected their fellowship based upon a mentor in their institution. The top three factors residents believe to be most important in making their fellowship decision are: patient contact, academic environment, and quality of life; financial reasons were at the bottom. Following fellowship, 37% of residents plan to enter into an academic practice, 29% are unsure of their plans, and 23% plan to enter private practice. More than half of residents (56%) plan on retaining their AAN membership the following year only if their member dues are paid by their institution.
### 2011 AAN Resident Survey

#### Survey Frequencies

1. **What are your plans in neurology directly after your residency? Mark only one.** (N=305)

   - 39.0% Fellowship training at residency institution
   - 46.6% Fellowship training at another institution
   - 14.4% Go into practice
   - 0.0% Return to home country
   - 0.0% Go to PHARMA
   - 0.0% Leave medicine
   - 0.0% Leave neurology
   - 0.0% Other

#### Duty Work Hours

2. **In your opinion, how did duty hour restrictions impact the following:**

   - a. Patient care (N=307)
     - Don’t know/No opinion: 5.2%
     - No impact: 44.0%
     - Negatively impacted: 13.0%
     - Positively impacted: 37.8%
   - b. Resident education (N=307)
     - Don’t know/No opinion: 5.9%
     - No impact: 38.4%
     - Negatively impacted: 16.9%
     - Positively impacted: 38.8%
   - c. Resident quality of life (N=308)
     - Don’t know/No opinion: 4.5%
     - No impact: 17.5%
     - Negatively impacted: 3.6%
     - Positively impacted: 74.4%

#### Residency Training Program

3. **Preparing you to make adequate diagnostic formulations (N=306)**

   - Very well: 62.1%
   - Well: 29.4%
   - Somewhat well: 6.9%
   - Not well: 1.3%
   - N/A: 0.3%

4. **Preparing you adequately for patient management (N=306)**

   - Very well: 61.1%
   - Well: 32.7%
   - Somewhat well: 4.9%
   - Not well: 1.0%
   - N/A: 0.3%

5. **Providing didactic material for each category below:**

   - a. Basic science (N=308)
     - Very diverse: 23.1%
     - Somewhat diverse: 30.8%
     - Not diverse: 28.9%
     - N/A: 16.9%
   - b. Clinical skills (N=308)
     - Very diverse: 56.2%
     - Somewhat diverse: 33.4%
     - Not diverse: 6.2%
     - N/A: 3.6%
   - c. Conferences-grand rounds (N=308)
     - Very diverse: 50.3%
     - Somewhat diverse: 33.1%
     - Not diverse: 11.0%
     - N/A: 4.9%
   - d. Subspecialty training (N=308)
     - Very diverse: 36.7%
     - Somewhat diverse: 34.7%
     - Not diverse: 18.5%
     - N/A: 9.4%

6. **Please rate the diversity of your residency training program for the following rotations (diversity includes the depth and breadth of patient cases and disease entities):**

   - a. Continuity clinic (N=308)
     - Very diverse: 43.5%
     - Somewhat diverse: 41.6%
     - Not diverse: 14.0%
     - N/A: 1.0%
   - b. Inpatient rotations (N=308)
     - Very diverse: 69.5%
     - Somewhat diverse: 26.9%
     - Not diverse: 2.9%
     - N/A: 0.6%
   - c. Pediatric neurology rotations (N=307)
     - Very diverse: 60.6%
     - Somewhat diverse: 33.9%
     - Not diverse: 4.9%
     - N/A: 0.7%
   - d. Subspecialty clinic (N=308)
     - Very diverse: 55.8%
     - Somewhat diverse: 36.0%
     - Not diverse: 5.8%
     - N/A: 2.3%
   - e. Subspecialty rotations (N=306)
     - Very diverse: 50.7%
     - Somewhat diverse: 42.8%
     - Not diverse: 2.9%
     - N/A: 3.6%
   - f. Consult rotations (N=308)
     - Very diverse: 65.3%
     - Somewhat diverse: 30.5%
     - Not diverse: 1.6%
     - N/A: 2.6%
7. Please rate your residency program on the following:

<table>
<thead>
<tr>
<th>Area</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Inpatient-ward supervising/teaching physicians (N=308)</td>
<td>61.7%</td>
<td>30.2%</td>
<td>6.2%</td>
<td>1.3%</td>
<td>0.6%</td>
</tr>
<tr>
<td>b. Continuity clinic supervising/teaching physicians (N=308)</td>
<td>50.3%</td>
<td>37.3%</td>
<td>9.7%</td>
<td>1.9%</td>
<td>0.6%</td>
</tr>
<tr>
<td>c. Subspecialty supervising/teaching physicians (N=307)</td>
<td>56.7%</td>
<td>30.9%</td>
<td>8.1%</td>
<td>2.6%</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

8. Overall, what was the quality of the teaching from the neurology faculty in the institution of your residency? (N=307)

- Excellent 59.0%
- Good 33.2%
- Fair 6.5%
- Poor 1.3%

9. Please rate your non-neurology residency supervising faculty:

<table>
<thead>
<tr>
<th>Area</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Pathology (N=305)</td>
<td>44.3%</td>
<td>29.8%</td>
<td>12.1%</td>
<td>6.9%</td>
<td>6.9%</td>
</tr>
<tr>
<td>b. Radiology (N=305)</td>
<td>41.3%</td>
<td>37.4%</td>
<td>14.8%</td>
<td>3.0%</td>
<td>3.6%</td>
</tr>
<tr>
<td>c. Neurosurgery (N=305)</td>
<td>22.3%</td>
<td>30.5%</td>
<td>18.7%</td>
<td>8.9%</td>
<td>19.7%</td>
</tr>
<tr>
<td>d. Rehabilitation (N=304)</td>
<td>20.1%</td>
<td>31.9%</td>
<td>14.1%</td>
<td>6.6%</td>
<td>27.3%</td>
</tr>
<tr>
<td>e. Psychiatry (N=305)</td>
<td>26.2%</td>
<td>46.2%</td>
<td>21.0%</td>
<td>3.3%</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

10. Please rate your residency on preparing you for the following practice issues:

<table>
<thead>
<tr>
<th>Area</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Billing (N=305)</td>
<td>5.9%</td>
<td>24.3%</td>
<td>32.1%</td>
<td>35.1%</td>
<td>2.6%</td>
</tr>
<tr>
<td>b. Contracts (N=304)</td>
<td>4.9%</td>
<td>13.5%</td>
<td>33.2%</td>
<td>43.1%</td>
<td>5.3%</td>
</tr>
<tr>
<td>c. Malpractice (N=305)</td>
<td>4.3%</td>
<td>19.7%</td>
<td>30.5%</td>
<td>40.7%</td>
<td>4.9%</td>
</tr>
<tr>
<td>d. Coding (N=304)</td>
<td>5.9%</td>
<td>22.0%</td>
<td>33.2%</td>
<td>35.2%</td>
<td>3.6%</td>
</tr>
<tr>
<td>e. Office management (N=301)</td>
<td>5.3%</td>
<td>13.3%</td>
<td>31.6%</td>
<td>43.5%</td>
<td>6.3%</td>
</tr>
<tr>
<td>f. Electronic health records (N=302)</td>
<td>33.1%</td>
<td>37.4%</td>
<td>16.9%</td>
<td>9.6%</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

11. If you responded “fair” or “poor” to any of the items in 10, do you think residency is the best venue to teach practice issues? (N=267)

- Yes 67.0%
- No 33.0%

Comments: See comments on page 10

12. How satisfied are you with the research opportunities available during residency? (N=305)

<table>
<thead>
<tr>
<th>Satisfaction Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>3.3%</td>
</tr>
<tr>
<td>Neutral</td>
<td>14.1%</td>
</tr>
<tr>
<td>Very satisfied</td>
<td>47.2%</td>
</tr>
<tr>
<td>Somewhat dissatisfied</td>
<td>7.2%</td>
</tr>
<tr>
<td>Somewhat satisfied</td>
<td>24.6%</td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td>3.6%</td>
</tr>
</tbody>
</table>
13. Are there any areas, rotations, or topics that would have helped to prepare you for fellowship or practice that were not taught? (N=303)

38.0% Yes (go to question 13a) 62.0% No (go to question 14)

13a. If yes, what areas (please specify):

See comments on page 14

Residency In-service Training Examination (RITE℠)

14. The RITE℠ helped define areas for my self-study to strengthen my knowledge in neurology. (N=301)

15.3% Strongly agree 9.3% Disagree
55.8% Agree 5.0% Strongly disagree
14.6% Neutral

15. Was your RITE score used for any other purpose other than self-study improvement (e.g., comparison to other residents, fellowship acceptance, honors, not kept confidential)? (N=303)

14.2% Yes (go to question 15a) 68.6% No (go to question 16) 17.2% Unsure (go to question 16)

15a. If yes, explain:

See comments on page 17

Fellowship – if you do not plan to enter a fellowship, please skip to question 24

16. What type of fellowship are you entering? (N=252)

0.4% Basic science research 12.7% Clinical research fellowship
81.3% Clinical fellowship 5.6% Mixture of basic science research and clinical research

17. What is your area of fellowship training? (N=251)

2.0% Behavioral 4.8% Neuro-oncology
14.7% Cerebrovascular/stroke 6.4% Neurocritical care
18.3% Clinical neurophysiology 12.4% Neuromuscular disorders
2.0% Headache 0.8% Pain
12.0% Epilepsy 5.6% Sleep
6.0% Movement disorders 8.4% Other (please specify).1
6.8% Multiple sclerosis

See comments on page 18
18. How important were the following factors in making your fellowship decision?

<table>
<thead>
<tr>
<th>Factor</th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Very important</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Quality of life (N=259)</td>
<td>6.2%</td>
<td>43.6%</td>
<td>50.2%</td>
</tr>
<tr>
<td>b. Patient contact (N=258)</td>
<td>2.7%</td>
<td>27.9%</td>
<td>69.4%</td>
</tr>
<tr>
<td>c. Academic environment (N=258)</td>
<td>6.6%</td>
<td>26.0%</td>
<td>67.4%</td>
</tr>
<tr>
<td>d. Financial reasons (N=258)</td>
<td>36.4%</td>
<td>45.0%</td>
<td>18.6%</td>
</tr>
<tr>
<td>e. Location (N=259)</td>
<td>17.0%</td>
<td>38.2%</td>
<td>44.8%</td>
</tr>
</tbody>
</table>

19. Please list any additional reasons for choosing your fellowship area.

See comments on page 18

20. How long will your fellowship be? (Please mark only one) (N=256)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>One year</td>
<td>59.8%</td>
</tr>
<tr>
<td>Three years or longer</td>
<td>5.9%</td>
</tr>
<tr>
<td>Two years</td>
<td>30.9%</td>
</tr>
<tr>
<td>Other (please specify):</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

2 See comments on page 20

21. At the end of your fellowship, what type of practice do you expect to enter? (N=257)

<table>
<thead>
<tr>
<th>Practice</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic practice</td>
<td>37.4%</td>
</tr>
<tr>
<td>Basic science research</td>
<td>0.0%</td>
</tr>
<tr>
<td>Basic science research with part-time clinical practice</td>
<td>2.7%</td>
</tr>
<tr>
<td>Clinical research with part-time clinical practice</td>
<td>4.7%</td>
</tr>
<tr>
<td>Not sure yet</td>
<td>28.8%</td>
</tr>
<tr>
<td>Pharmaceutical industry</td>
<td>0.0%</td>
</tr>
<tr>
<td>Private practice</td>
<td>22.6%</td>
</tr>
<tr>
<td>Other (please specify):</td>
<td>3.9%</td>
</tr>
</tbody>
</table>

2 See comments on page 20

22. How did you select a fellowship program? (N=252)

<table>
<thead>
<tr>
<th>Method</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAN online fellowship directory</td>
<td>13.9%</td>
</tr>
<tr>
<td>Networking at the Annual Meeting</td>
<td>1.2%</td>
</tr>
<tr>
<td>Mentor in another institution</td>
<td>8.3%</td>
</tr>
<tr>
<td>Program Director</td>
<td>5.6%</td>
</tr>
<tr>
<td>Mentor in my institution</td>
<td>56.3%</td>
</tr>
<tr>
<td>Other (please specify):</td>
<td>14.7%</td>
</tr>
</tbody>
</table>

2 See comments on page 20

23. How satisfied were you with the fellowship offers you received? (N=257)

<table>
<thead>
<tr>
<th>Satisfaction</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very satisfied</td>
<td>70.4%</td>
</tr>
<tr>
<td>Somewhat satisfied</td>
<td>16.3%</td>
</tr>
<tr>
<td>Neutral</td>
<td>11.3%</td>
</tr>
<tr>
<td>Somewhat dissatisfied</td>
<td>1.9%</td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

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24. I was satisfied with the mentoring available in my residency program in guiding me to find a fellowship and/or career after residency. (N=304)

42.4%  Strongly agree  4.9%  Disagree
31.9%  Agree  4.6%  Strongly disagree
16.1%  Neutral

25. If you completed medical school outside of the US, are not a US resident, and do not have a green card, what is your intention after all your training is completed? (N=70)

20.0%  Return to my country of origin for practice
78.6%  Stay in the US for practice
1.4%  Go to a third country for practice

26. Do you plan to renew your AAN membership in 2012? (N=305)

56.4%  Yes, if my dues are paid by my institution
42.0%  Yes, regardless if I have to pay my own
1.6%  No

27. Please provide any comments you may have on the topic of this survey.

See comments on page 21
2011 AAN Resident Survey
Survey Comments

11. If you responded “fair” or “poor” to any of the items in 10, do you think residency is the best venue to teach practice issues?

Comments:

• A minimum amount of time could be spent teaching these issues in the context of career development.
• Although I think it would be good to have a senior seminar on these types of issues and it could be incorporated into our out-patient rotations.
• Although it could be…
• Billing and contracts issues are directed more to the fellows, though during clinic some teaching points are given to the senior residents.
• Coding and billing is done by attending physicians with little to no resident participation. Contract review talks are offered at the university; however the program does not encourage or promote our participation in such talks. Malpractice education is zero. Residency is the only chance for a resident to learn these modalities and be resourceful in practical world. All the emphasis is on generating RVUs for themselves with near absent teaching in outpatient and continuity clinics. Inpatient service is run by attendings who like to start rounds between 9 and 10am and ‘must’ leave by noon because they have offsite outpatient clinics. This profitable practice has been going on for years despite repeated attempts by the residents for a change in favor of resident education and patient care but with no success. Continuity clinics are scheduled to see maximum number of new patients with no attempt to have a patient seen by the same resident. Residents have to struggle to see the same patient twice.
• Difficult to fully explore private practice issues in an academic setting. I think the residency’s responsibility is to provide access to mentors in the private sector for residents who choose that path for their careers.
• Difficult to incorporate while busy with clinics and wards; might be possible to create 1 or 2 week rotation dedicated to preparing for practice issues.
• During my residency training, there was no opportunity to learn practice issues because majority of our patients are Medicaid patients, and the hospital billing department takes care of them.
• During residency, we have so much neurology to learn that it is difficult to see the importance of billing and coding.
• Earlier you learn, better you grasp
• Everyone does fellowship, so not as necessary
• Exposure to some, if not all, should be part of all residencies.
• Fellowship is helpful or on job training. There isn’t time during residency.
• Felt as if faculty were largely oblivious to these issues. Or if they weren’t oblivious, didn’t share their knowledge. I have a general idea about these issues, but this was purely the result of self-education.
• Few sessions in the final year of residency would be helpful.
• Focus of residency is often on knowledge base rather than reality of practice.
• Focus on academia and classic neurology. No time devoted to billing, contracts or any other mundane aspects of neurology.
• I am glad we just started to get lecture on billing. But not on coding, malpractice. So there has been progress but still some aspects are lacking.
• I attended a few didactic hours on billing and coding during residency. They tended to be overwhelming and lack context to make them relevant. I have just accepted that I’ll have to learn it on my own during fellowship.
• I believe the lack of training regarding the practice issues reflects the understood inefficiencies that a university setting practice has. It would be more interesting to see a private efficient office that needs to be profitable in order to truly learn the practice/business issues that we inevitably face and will learn the hard way.
• I did not get solid formal training in billing, coding or healthcare management. I think those issues should be included in the residency curriculum.
• I don’t know the best venue, but they are essential to know at least basics.
• I feel there should be an elective or a scheduled monthly conference on the business of medicine. Otherwise, we cannot adequately utilize our skills in the private practice setting.
• I practice in a military institution which removes me from the finances of medicine.
• I think a formal curriculum on practice issues will be beneficial to the resident to start practice.
• I think more time needs to be spent discussing why the administrative (non-clinical) activities need to be done. Regardless of what one’s career path is (academic or not) these are important practical skills.
• I think residency training should focus on training neurologists to do their job (taking care of patients & advancing the science). Teaching practice issues is important because if we can’t run a practice if there is no patient care. However, it should remain secondary to training in clinical neurology (including skills like EEG, NCS/EMG, Botulinum neurotoxin BoNT, perhaps TCD/Ultrasound or sleep studies). I hope that the AAN efforts to improve training don’t change our didactics into senseless hoops of bureaucracy as the ACGME’s efforts on 6 core competencies & resident sleep have. We don’t need more lectures telling us that current coding system is absurd but important the same way we didn’t need lectures telling us to sleep well & to be professional.
• If not in residency, then where?
• If we don’t get preparation during residency, when will we?
• I’m not sure why this isn’t taught well during residency.
• In association with continuity clinic
• Info on contracts is important
• It has to be the best venue because it is the only venue before you are on your own.
• It is important to understand billing and diagnostic codes in addition to diagnosing and evaluating patients. This is especially important in the last year or residency as we are ready to transition into practice.
• It is very important for transitioning into practice.
• It would be ideal but in a busy clinical service, understandably, priority needs to be patient care
• It’s also an issue intertwined with our future success. More emphasis should be placed.
• It’s difficult to teach these things when residents have no direct investment in them. Residency isn’t predicated on learning the ‘business’ of being a doctor and I think that biases residents’ opinions on the importance of learning this valuable skill as they go through training.
• Just like everything else – you can’t learn something you don’t do on a regular basis
• Makes sense for last year of residency
• Many faculty are unaware of these issues as well.
• Mastering clinical knowledge is the most important.
• Medicine now exists in a world of coding, billing requirements, and legal issues. If we don’t learn about these things during residency, when we are starting to develop our sense of how to practice as neurologists, when are we going to learn them?
• Most residencies are in academic institutions so they are not qualified to teach residents how to run an office. I think this is a huge deficit in residency training.
• Most residents do not intend on academic careers. It’s time that this was accepted and we were given training on all aspects of practice – including those that academicians find distasteful.
• Need more exposure to private practice settings. Billing should be done by residents and staff.
• Need to provide residents more information.
• No one from my institution has gone into private practice for years, so there is no emphasis on these issues.
• Not beneficial for resident education. Should not be part of the education process; more appropriate for after graduation due to rule changes, dependency on academic vs. private practice vs. sub-specialization, etc.
• Not during the first few years. This becomes more relevant the final year and a few conferences would be helpful.
• Not really but what other time is there?
• Not sure but some exposure would be helpful
• Not sure where it could be squeezed in, but business matters were really not a priority in education.
• Our institution never took time to formally teach about billing and coding or malpractice, aside from just instilling good ethical judgment. Also, given that their goal is to produce academic neurologists, office management does not seem to be a priority for our education.
• Our program is not oriented towards preparing residents for private or group practice.
• Our residency is geared toward inpatient service and it does not address issues related to office practice.
• Perhaps a class or seminar focusing on these issues can be helpful.
• Perhaps not the best venue, but there should be more teaching on these topics.
• PGY3’s should be prepared for all of the above starting their second year of neurology training.
• Practice for each resident after graduating will be so variable that I think a few token lectures or practical sessions during residency would not be that useful. Essentially all of our residents go on to do a fellowship where these things can be emphasized.
• Practice issues are a necessary evil, but I don’t think most residents garner any useful teaching in these topics during their residency because they (we) are so focused on learning neurology that we don’t spend much energy on this.
• Practice issues should be addressed by the Office of Graduate Medical Education, and it is. They hold a seminar for all graduating residents but it is not mandatory.
• Residency is venue for training and preparing physician for working as a neurologist. It is becoming more and more crucial in today’s practice. [Practice issues are] 50% of being a physician. If not learned then when we should have required. Thanks.
• Residency should provide an education to prepare us for real world practice. I would like to see these issues addressed more during residency. Individual attendings would occasionally use their teaching time to go over these topics. However, there was nothing structured in my residency to cover these topics.
• Residents are not well prepared on how to manage practice as business. More mandatory teaching should be given on this.
• Should be addressed more formally in residency, particularly to senior residents
• Starting to be emphasized more this past year
• Teach them.
• The bureaucratic thing of medicine should not be a priority for a residency program. The goal should be to prepare to see patients, collateral stuff like administrative are far less important and life eventually will teach you.
• There can be a conference to educate us on these issues.
• There is no other place/time to teach these issues – people will go into practice straight out of residency if they do not do further fellowships.
• There should be a specific teaching session or course dedicated to PGY4 residents for practice issues.
• These practice issues are not part of the core competencies of our residency program. There was some attempt to incorporate this into our education (scheduled conferences, bedside teaching, etc.), but even our attending physicians do not feel comfortable with these subjects.
• This could easily be incorporated into modules that could weave throughout the 4 year training program.
• This is a complex question. It depends on the expectations that are placed on residents finishing residency. If the expectation from other programs and employers is that we don’t learn any practice issues than that is fine; however, if the converse is true then it certainly is a problem.
• This is something that would be best approached initially in residency; however, neurologists will have to learn many of the specifics once they are in practice.
• This is where we have supervision to avoid mistakes; however, our attendings do not bill.
• To a certain extent, residency is the only time to prepare a trainee prior to them entering the real world of billing and practice.
• Unless it’s made a general priority for all resident training.
• Unsure, possibly
• We are so busy in residency learning about our specialty that I think it is very hard to make the billing and coding stuff relevant and therefore we don’t pay much attention to it until we have to as we become attendings. We are too stressed just learning neurology.
• We didn’t learn much about these things at our residency program, but I suspect that is true of all residency programs. I do think residency is an appropriate venue to teach these, because when else are we going to learn them?
• We don’t get any information regarding practice issues.
• We need to know these things when we graduate from residency so should be learning them during residency. I think it definitely hurts us not to know about these things when we leave residency.
• Where else are we going to learn?
• Wish I’d had more instruction on these things in residency.
• Yes, especially if one is going in to private practice.
• Yes, most of us will be practicing in the real world and need to know about billing and contracts.
• Yes, where else can we learn this?
13. **Are there any areas, rotations, or topics that would have helped to prepare you for fellowship or practice that were not taught?**

13a. **If yes, what areas (please specify):**

- Neurocritical care (2)
- Neuro-oncology (2)
- Faculty lead guidance to know what it is like to be an Epileptologist, NM specialist, HA specialist. 2. Pros and cons of going into practice without fellowship
- A neuro-oncology clinic rotation
- As noted previously, contract negotiation, billing and coding, etc.
- Away/international electives
- Behavioral and cognitive neurology. Neuroradiology lectures. Neurosurgery lectures
- Billing and coding, more involvement from movement disorders staff.
- Billing, coding, contract negotiating
- Billing, contracts etc. Too little EMG/EEG
- Billing, malpractice, office management
- Billing, outpatient non-academic practice etc.
- Billing; more logistical things; application of tests for a practical purpose, not academic
- Boards’ preparation
- Business aspects of practice
- Business of medicine
- Clinical investigation skills
- Continuity clinic was dominated by chronic headache patients. All of the subspecialty patients were diverted into their respective subspecialties and seen primarily by attendings.
- Contract negotiation, assistance with job search
- DBS management, Botox
- Dementia, TBI
- Dementing illnesses
- Due to multiple residents on rotation you never complete an EMG by yourself during training.
- EEG, EMG practice
- Elective in neuro-oncology, radiology, and EEG
- Evoked potential
- Exposure to perform diagnostic procedures such as Transcranial Doppler, and certain aspects of critical care neurology.
- For practice: billing, contracts. For fellowship: should have more time for research.
- Given that it is so emphasized on the RITE exam, more formal neuroanatomy teaching and neuropathology teaching would have been helpful.
- Hands on conducting NCS and EMG; actual hands on Botox injections
- Headache
- Headache - taught but not emphasized
- How to build and run your practice
- How to manage practice
- I am pursuing additional training in neonatal neurology and this was not available as a month long rotation at my institution. My program director arranged for funding for me to go to a different institution for the month to get this training and this was fantastic!
• I did not have a detailed EMG and EEG rotation.
• I think we should have training in fluoroscopically guided lumbar punctures.
• Interventional neurology
• Interventional, neuro-oncology
• Lack of neuromuscular faculty and senior epilepsy faculty
• Lectures and teaching with focus on practice based learning and guidelines not attendings’ personal views and feelings.
• More EEG/EMG training and didactic basic neuroscience/neuroanatomy teaching
• More EMG experience
• More exposure to outpatient MS
• More focus has been on stroke than general neurology
• More formal training aimed at having the graduating resident be independent with regards to the following skills: performing & interpreting NCS/EMG, performing botulinum neurotoxin BoNT for dystonia/spasticity/chronic migraine, and perhaps if we were more progressive TCD & carotid ultrasound training or sleep study interpretation. Our residency does a great job with EEG training & training us to give tPA for stroke and to informally interpret MRI scans. Our NCS/EMG training is improving, the BoNT training could be better especially if it was taught with the explicit intent to have residents be independent in applying this FDA approved evidence-based therapy to their patients post residency. After all isn’t that what training is about; empowering us to diagnose & treat patients?
• More integration of neuroanatomy in day-to-day teaching
• More movement disorder and dementia
• More neuro oncology
• More neuro-pathology
• More outpatient exposure, behavioral neurology and movement disorder preparation, actual EMG performance as opposed to only interpretation
• More outpatient exposure; residency heavily weighted towards inpatient work.
• More outpatient management of chronic neurological diseases such as Parkinson’s disease, multiple sclerosis, and myasthenia gravis.
• More time in electrodiagnostics.
• More time spent on EEG and EMG/NCS, that is why I actually did a fellowship in clinical neurophysiology and I am finishing this June 30th.
• More training in EMG/NCS, EEG, sleep. Less in pediatrics. Billing, coding, etc.
• Movement disorders, neuropathology
• Movement, rehabilitation, MS
• Need more exposure to neuro-ophthalmology and the business-side of medicine.
• Needed more sleep medicine exposure
• Needle EMG. Actual Botox injections administration.
• Negligible exposure to sleep medicine
• Neuro critical care, interventional neurology
• Neuro critical care, neuro-radiology, neuro-pathology, more exposure to demyelinating illnesses like MS, ADEM, neuromyelitis optica.
• Neuro-oncology, neuromuscular
- Neuroanatomy poorly taught
- Neurocritical care, more opportunity to do EMG, we just have one neurology attending who does it so we don’t get to do many which would have been good. We just got dementia person in my last 2 month of training.
- Neuroimmunology, stroke, critical care, neuro-oncology, movement disorders, headache, pain management
- Neuro-infectious disease, critical care neurology, advanced neuro-imaging
- Neurology practice management, job search, contract signing
- Neurology sleep medicine.
- Neuromuscular
- Neuromuscular cases, neuro-anatomy
- Neuromuscular pathology, EMG
- Neuromuscular, neurophysiology
- Neurophysiology training. Although we have rotation in EEG/epilepsy, we have almost no opportunity to interpret EEGs.
- Neuroradiology
- Not enough hands-on experience in EMG, headache/pain procedures.
- Not enough overall subspecialty exposure
- Outpatient continuity clinic at the VA was a poor area of my residency. Ambulatory neurology rotations should have been increased and didactics could have been better too because service obligations negatively affected didactics in my program.
- Pain management, procedures such as nerve blocks, EMG
- Pathology
- Paucity of EEG reading, EMG performance, dementia. The opportunities are available, but you have to seek them out. These things should be required in a normal neurology curriculum.
- Pediatric neuromuscular disorders
- Practical aspects of an academic job or private practice; how to build up contact networks; more insight into research
- Practical office tips, billing, coding, more outpatient time
- Practice management
- Protected time for research and didactic teaching in research methodology (basic trial design, basic epidemiologic and biostatistic principles) would have prepared me better for my fellowship.
- Psychopharm for behavioral problems
- Reading EEG, seeing more variety of cases especially in movement disorders & neuromuscular disorders.
- Rehab, neuroenhancement
- See #11 [although practice issues could be taught in residency]
- Sleep medicine
- Sound research techniques, rigorous research projects.
- Specific procedures such as placing in arterial or venous lines. Subspecialty training in movement disorder, neuromuscular and all others except stroke and epilepsy
- Subspecialty rotation
- Ultrasound
• We had no training at all on the “business” of neurology. Exposure to research was limited. We had limited exposure to movement disorders, behavioral neurology, and neuroinfectious diseases. We had no exposure whatsoever to neuro-oncology.

15. Was your RITE score used for any other purpose other than self-study improvement (e.g., comparison to other residents, fellowship acceptance, honors, not kept confidential)?

15a. If yes, explain:

• Comparison to other residents (4)
• As a gauge by program director to see if I was studying on a regular basis, and to identify residents who might need extra learning/oversight for the boards.
• Award given to resident with highest RITE score
• Certain programs asked for rite scores as part of fellowship application, which I felt was not appropriate.
• Compare to other residents
• Compared to other residents, used to establish “honors” within program
• Comparing to other residents and used in letter of recommendation
• Comparison between residents and to change lecture schedules for the future to improve upon global deficiencies.
• Comparison to other residents; honors given for high scores.
• Fellowship applications
• Fellowship programs requested them as part of application process
• Fellowships interviewers asked about scores, program director compared residents’ scores
• Fellowships requested
• For honors and comparison to other residents
• High scores within the program were announced in public venues
• Honor/award given to those who score greater than 90%
• I had some fellowship directors request my RITE scores with my application.
• I was humiliated by previous program director.
• I was treated like I was not as smart as my colleagues. The possibility of becoming chief resident was taken from me because of my score.
• If RITE score was below 25th percentile and had professionalism issues, we could be placed on probation.
• Initially I was not doing well on peds based on my score; therefore I paid more attention on pediatrics resulting in better scores next year.
• It is used as a benchmark to judge which residents are brighter/brilliant. I was asked to submit my RITE scores by other institutions when applying for fellowships. I think that is unfair.
• It was used to give privilege to residents in the program so they could receive favor from the director.
• Moonlighting
• Not kept confidential.
• Program director used it to comment when writing recommendations – please discourage this practice!!!
• Ranking residents and rewarding residents publicly. Also disclosed to faculty.
• RITE scores were used for fellowship applications.
• Selection as chief resident
• The adult neurology residency director put a lot of emphasis on the RITE and singled out those who did well or poorly.
• There was pressure from the program director to obtain a higher score; there was minimum 25 percentile for passing year
• To compare performance with other residents
• Used in order to point out leaders in the residency.
• Used to be judged within the program--i.e. awards/honors as well as chief selection
• [Institution name withheld] fellowship programs ask for RITE scores
• Was used by other residency programs when considering accepting us for their program
• We were all told each other’s RITE scores publicly and they were used for evaluations and assignments of work duties.

17. What is your area of fellowship training?

Other (please specify):

• Neuro-ophthalmology (2)
• All pediatric, other neuroinflammatory diseases
• Child
• EMG
• Epilepsy and neurocritical care
• Genetics
• Infectious disease
• Interneuron development
• Interventional
• Interventional neurology
• Neonatal neurology
• Neurogenetics
• Neurohospitalist
• Neuroinfectious
• Neuro-infected disease
• Neuropsychiatry
• Neuro-rehabilitation
• Palliative care
• Pediatric critical care
• Undecided – clinical neurophysiology, headache, epilepsy, movement disorders, sleep

19. Please list any additional reasons for choosing your fellowship area.

• Interest (2)
• 1. The program has an infrastructure and history that ensures excellent training. 2. Patient population is perfect. 3. The program is willing to support and promote the fellows.
• Ability to do procedures
• Academic interest
• Allows me to perform EMGs to help diversify my practice. Also, I enjoy analyzing the tests.
• Area of neurology where more research and patient care is needed!
• Bridge to pain, pain is difficult for neurologists to get into
• Can’t be certified to do anything anymore without a fellowship
• Clinical demand for subspecialty
• Continuing research with several faculty
• Develop research experience
• Don’t enjoy practicing neurology
• Duration of training-post training job opportunities
• Enjoyment of the subject
• Enthusiasm generated during EMG rotation in residency
• Excellent program at residency institution
• Faculty who would be available to mentor and teach me
• Future career goals
• Gain experience doing EMG and EEG to be able to feel competent in private practice
• Good program at [institution name withheld]
• I chose my fellowship because of the academic opportunities. I’m already well trained at treating stroke patients & have given tPA countless times and taken care of these patients throughout their hospitalization & clinic visits. My 1 year fellowship is unique in that there is a lot of clinical research and some opportunities to get some bio-statistics training. I chose stroke over neuro ICU because I would like to do endovascular/interventional training afterwards and I’m on a J1 visa that limits the duration of my training.
• I did not feel I received adequate training in this during residency.
• I felt that my residency program did not offer enough exposure to clinical neurophysiology for me to comfortably perform and interpret the tests.
• I have neurosurgical background.
• I love the headache center where I will be training, and the faculty there is outstanding both as people and as clinicians.
• I was never trained on it in my residency program and I feel that knowledge is crucial to my ability to be a well-rounded neurologist.
• I’m interested in the subject matter!
• Interest, skillset/aptitude, technology-based, cutting edge
• It makes sense to do CNP since >50% of my patients are going to present with seizures (peds neuro)
• Mentor influence
• Mentor location
• Need for this subspecialty in my home country
• Personal connection to a patient with this disease in my family
• Personal interest
• Potential for growth
• Providing continuity for children from ICU setting to outpatient arena
• Quality of the teaching faculty and flexibility for tailoring specific aspects of the fellowship
• Research interest
• Research opportunities in that field were good
• Step toward other career options
• The fellowship I am doing is not currently ACGME accredited and therefore I had to go to the only place offering a funded PGY6 position which happens to be [institution name withheld]. It was the only program with a funded fellowship.
• The most challenging and critically ill patients are the ones I am interested in taking care of. I lack the patience of outpatient medicine.
• Types of cases I find still rely heavily on clinical diagnosis and where a neurologist’s opinion matters over an imaging study. Also, there is a lot of unique pathology so that I won’t get bored.
• Want to go into private practice, need extra experience in these areas to feel more comfortable.
• Working environment, research opportunity, recommendations of faculty of residency

20. How long will your fellowship be?

Other (please specify):
• 1-2 years (4)
• 1.5 years
• 1-3 years
• 1-3 years depending on research funding
• One year but I plan on doing another fellowship afterwards for 2 years either interventional ESN or NICU
• One year with an option for a second year

21. At the end of your fellowship, what type of practice do you expect to enter?

Other (please specify):
• 2nd fellowship in palliative care
• Academic or private-undecided
• Additional fellowship
• Community hospital
• Government/military
• Hospital admin & IT, minimal clinical
• Mixture of private practice and academic practice
• Neurohospitalist
• Private practice with academic appointment

22. How did you select a fellowship program?

Other (please specify):
• AANEM directory
• AANEM fellowship directory
• After interviewing with staff and fellows at institution
• AMA fellowship directory and personal contacts
• AMA FRIEDA website
• American Academy of Sleep Medicine directory
• Applied
• Away elective followed by acceptance to [institution name withheld] sleep medicine program
• Colleague recommendation
• Emailed MS specialists at institutions I was interested in.
- Family decision/national reputation
- FRIEDA
- FRIEDA website
- FRIEDA/AMA website
- I did online research, went to subspecialty meeting to get a sense of the research & the field, asked mentors & seniors, interviewed & chose.
- I interviewed and liked it.
- I searched myself and also attended headache conferences and contact with the directors for past 2-3 years
- Internet research & away rotation
- Location
- Looking at programs myself
- Med school
- Mentors/researching fellowship offers
- MS Consortium meeting
- Networking via email/website
- Networking with the neonatal neurology people I have met
- New program at my institution
- Offered at my institution
- Online search
- Referred by another resident
- Self
- Sending e-mails to program directors
- Staying at same institution
- Staying at same place of residency
- Staying in same institution
- Various sources, lots of interviewing

27. Please provide any comments you may have on the topic of this survey.

- Basic neuroanatomy teaching should be mandatory at all neurology residencies.
- DOs should be able to join AAN. It is ridiculous because of my internship I cannot join the AAN!
- I hope AAN keeps it confidential.
- I hope good residency programs like mine realize their potential by improving in terms of faculty and recruitment of residents. Quality of residents / peers has been very variable. Selection of chief residents has been very, very poor, especially for this academic year and hence the conduct and running of day to day activities has been affected. Too much power and reliance placed on inefficient and dishonest chiefs.
- I plan to remain in the US to get experience, save money, and buy equipment for use when I return home.
- I think it was a long 5 minutes!!! :)
- It would be interesting to see how many people pursue their desired occupation after completion of fellowship.
- None
- Overall, my residency is led by very intelligent people who cherish education of residents and students. They are very amenable to our critiques about the program and try to identify areas for
improvement every year. These improvements have enriched the program over the last 3 years and will continue to do so in the future.

- RITE exam needs to focus more on board preparation. RITE should be written by the board of psychiatry and neurology as a tool to get us better prepared for the board.
- RITE is too diverse, with little clinical neurology application, unpredictable and RITE score used by many institutions as a tool to punish residents. (Thankfully that was not the case in my program). Release of RITE pictures and ONLY answers is illogical. Stop using OLD pictures and figures with no legend, calibration, value etc. This is supposed to be a test of knowledge NOT trivia. After taking approximately 400 questions, just the answers are of no use. Either release the questions or more descriptive tests in separate sections covered in exam. E.g. Stroke – most common type is ischemic. Thrombotic and embolic have almost equal incidences with thrombotic slightly predominating in some reports and so on, to complete a small discussion on stroke. Instead of Q3 answer was C in XYZ studies thrombotic stroke was 49.3567% as against 45.564% of embolic strokes
- Should include self-addressed postage-paid envelope if a higher response rate is desired
- Stroke service and neuro ICU service impacted our education and working hours in negative way.
- Thank you
- Thank you for all of the additional neurology training your website and services have provided me.
- Thank you for doing this. I would be interested in the results.
- Thank you for giving me a venue to praise my osteopathic residency program.
- The problem as I see it continues to be best defined by one question: does work get in the way of learning. The answer is yes, not sometimes, but continually. When the priority of a department is patient volume, and not the education of its residents, that’s a big problem.
- The role of program director and chair can be touched. Room for comments other than specified questions.
- These are relevant and practical topics.
- With regards to decisions after my training, I would like to stay in the US and pursue academic opportunities for a few years while I’m a junior faculty (even though this is limited by J1 waiver opportunities) and then eventually go back home to practice & improve training & practice in my home country.