

**UPDATE ON THE WEB-BASED SURVEY ON THE IMPACT OF THE INTERNATIONAL
PARKINSON AND MOVEMENT DISORDER SOCIETY SCHOOLS FOR YOUNG
NEUROLOGISTS: 2014-2017 DATA**

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ABSTRACT

Background: The International Parkinson and Movement Disorder Society (MDS) Schools for Young Neurologists have been held since 2008 for young clinicians with a special interest in the field of movement disorders (MD).

Objective: To update and confirm the results of our previous survey on the perception of the impact of these courses on attendees' careers.

Methods: A web-based survey was performed. All participants from previous MDS Schools for Young Neurologists (2015-2017) were invited to participate in a web-based questionnaire.

Results: A total of 152 out of 644 (23.6%) participants completed the survey. Over 88% considered that the course had a direct impact on their involvement in the MD field. The percentage of participants who identified as a movement disorders specialist increased substantially after the survey (9.2% to 23.9%). Accordingly, the proportion with at least 25% of their weekly time spent practicing MD increased from 32.9% to 55.9% and MD was the main area of interest for 86.7%. Involvement in academic and teaching activities in MD increased from 15.9% up to 47.7%. Finally, 60.4% of participants were members of the MDS at the time of the course and that number increased to 85.2% at the time of the survey.

Conclusions: Our results continue to support the positive impact of the MDS School for Young Neurologists as an effective educational tool for young physicians and health care professionals. The benefits to the participants' careers of their participants include strengthening their interest in the MD field and becoming keener to MDS.

INTRODUCTION

Present day rapid worldwide changes in education have brought about new challenges. This is particularly impacted by advances in technology, the incorporation of telemedicine, and the greater availability of sources of information to students and teachers [1]. Experts in health care consider learning skills in the 21st century as a collection of abilities, such as critical thinking, effective communication, creativity and risk taking, interpersonal skills, being comfortable with information technology, personal, social and civil responsibilities, high efficacy, prioritizing goals, planning and managing, flexibility, compatibility and self-confidence [1].

Traditional teaching and learning methods, where learners have a passive role and merely listen to information being presented, have been criticized by many experts [2]. It has been argued that such methods fail to meet present and future educational needs, and restrict learners' creative and critical thinking [2, 3]. Based on those premises, the International Parkinson and Movement Disorder Society (MDS) School for Young Neurologists was created as an interactive teaching course for theoretical and practical education, with access to patients covering a wide variety of movement disorders (MD). The target audience are young neurologists (less than 40 years of age) interested in MD and either still in training or within five years of completing their general neurology training. In order to maintain a highly interactive and personal experience, the number of attendees is restricted to 48. The course includes complementary educational methods, such as plenary lectures on main topics in MD, questions and answer sessions, smaller interactive parallel sessions, hands-on examination of patients and video case presentations with discussions chaired by the expert faculty members. The first course was held in Germany in 2008 and since then MDS has held two to four annual courses in Europe and the Americas. Top faculty experts from the MDS coordinate and teach the course.

The course program usually consists of three 10-hour long days of activities. The first day is devoted to hypokinetic movement disorders. The second day is dedicated to hyperkinetic movement disorders followed by complex issues in MD on the final day. This last section features sessions on the use of botulinum toxin, psychogenic MD, sleep disorders, gait evaluation, functional neurosurgery, neuroimaging, and rehabilitation approaches. Additionally, the attendees have the opportunity to present their cases in the "Bring your own case" session. The faculty selects a small group of student video cases for presentation to all students, and the attendees then select the best presentation with that attendee receiving complimentary registration to the next scheduled International MDS Congress.

After the MDS School for Young Neurologists course, attendees are expected to be able to present a straightforward MD case history including patient examination, differential diagnosis, and final diagnosis. In the case of more complex MD, participants are expected to provide a differential diagnosis, even if they cannot reach a final diagnosis. It is also expected that the attendee be able to design, review and modify a patient treatment plan.

In 2015, we have published the first report of the web-survey on 2008-2014 Young MDS Schools ([see first report here](#)). Herein we present an update of 2015-2017 data.

METHODS

This was a web-based survey study. All participants from previous MDS Schools for Young Neurologists (2015-2017: 14 schools in total) were invited to participate through electronic mails. The questionnaire contained multiple-choice questions and one open question for suggestions and comments (**Appendix-1**). Descriptive statistics of demographic and questionnaire data were provided for continuous [mean and standard deviation (SD)] and categorical (count and percentage) variables.

RESULTS

A total of 644 attendees were invited to complete the survey. 152 attendees completed the survey, yielding a participation rate of 24%

Survey participants were more frequently female (56.3%) and the mean age of participants was 34.2 ± 5.5 . Most of the survey participants were from Western Europe (91 [32.1%], mostly represented by Italy, Germany, Portugal and Spain) and South America (62 [21.9%], mostly represented by Brazil, Argentina and Chile).

Participants received information about the courses mostly via the MDS website (79 [53.7%]), followed by invitation from a colleague (35 [23.8%]) or a faculty member (24 [16.3%]). Regarding their motivations to participate, most of the participants felt a need to be trained in MD (38.8%), followed by the fact that they were planning to work in a MD unit (25.9%) or already working in one (21.1%). All 147 who responded to the question felt that they would suggest the course to a colleague.

Table 1 details the survey participant main activities, practice in MD and the involvement in research/academic activities before and after the school. Most of the participants (55.6%) were neurology residents at the time of the course and only 13 (9.2%) were already MD specialists. Of the 101 participants who had completed residency at the time of the survey, the number of those who are working as MD specialists increased from 13 (9.2%) at the time of the school to 34 (23.9%) at the moment of the survey. At the time of the survey, 40 (28.2%) participants were still enrolled in residency, 34 (23.9%) participants were specialists in the field (14.7% more if compared to the time of the course) and 8 (20%) residents became general neurologists. At the time of the course, 113 (79.6%) had a main interest in MD, followed by 31 (21.8%) with a main interest in sleep. After the course, there was an increase of 10 (7.1%), reaching 123 (86.7%) in the number of participants reporting MD as their main area of interest. After the course, the weekly-practice in MD clearly increased, but there was not a great change in the specific MD activities, as most of the participants were working in an outpatient unit and continued do to so after the course. Both the involvement in research and academic activities in the MD field clearly increased after the course (respectively from 20 [15.2%] to 75 [56.8%] and 21 [15.9%] to 63 [47.7%]).

At the time of the course, 87 (60.4%) of participants were MDS members. At the time of survey, that number had increased to 121 (85.2%). Subsequently, they had more access to the MDS website content, including the MDS journals. Before the course, 89 (61.8%) participants were visiting the MDS website/journal 1-5 times a month, while 27 (18.8%) were not accessing them at any time. After the course, 42 (29.4%) were visiting the MDS website 6-10 times each month, compared to 15 (10.4%) prior. Only 3 (2.1%) continued to not access the website content. Among the reasons to become members of the MDS were: the need for continuing education, the growing interest in the field and engaging in society educational opportunities, the Associate Member program (first year of membership free of charge), the large amount of information and materials on the website, and the influence of the MDS faculty and staff during the course.

Notably, 122 (88.4%) participants felt that having attended the course influenced their career path, 118 (86.1%) stated that enrollment in the course directly impacted their involvement in the MD field and 59 (43.1%) participants agreed that involvement in MDS courses helped them increase their status in their institution.

DISCUSSION

The current update of our survey clearly confirmed the previous results ([see previous report here](#)) highlighting that the MDS School for Young Neurologists had a positive impact on attendees' careers, their involvement in the MD field and their engagement with the MDS.

Unfortunately, we highlight a consistent decrease in the participation rate of schools attendees to this survey (49.7% in 2015 and only 23.6% in 2018)

Participants continue to be mostly residents or general neurologists at the time of the course with interest in improving their knowledge on MD. MDS Schools provided participants with a number of important advances in their career. They frequently became members of the MDS after the school and had thereby access to educational activities of the website, including the MDS journals. They also increased their enrolment in research and teaching activities in MD. Likewise, participants had more frequently accessed the MDS website or journal after the course, which denotes their growing interest and enthusiasm in the MD field.

In summary, our results continue to support the MDS School for Young Neurologists as an effective educational tool for young physicians and health care professional to strengthen their interest in the MD field and become keener to the MDS

REFERENCES

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2. Waldrop, M.M., *Why we are teaching science wrong, and how to make it right*. Nature, 2015. **523**(7560): p. 272-4.
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Appendix I

MDS-ALUMNI GROUP Survey Demographic

Impact of MDS Schools for Young Neurologists Program on their current career

DEMOGRAPHICS

1. What is your country of birth: (drop down list of all countries)
2. What country did you reside in when you attended the MDS School for Young Neurologists program: (drop down list)
3. What country are you currently studying/working in (drop down list):
4. Date of birth (DD/MM/YYYY):
5. Gender (M/F):

MDS SCHOOL FOR YOUNG NEUROLOGIST INFORMATION

6. Which MDS School for Young Neurologists program did you attend? (check all that apply)

2015:

- | | |
|---|-----------|
| <input type="checkbox"/> Atlanta, Georgia | Feb 20-22 |
| <input type="checkbox"/> Tel Aviv, Israel | Feb 25-27 |
| <input type="checkbox"/> Prague, Czech Republic | Sept 4-6 |
| <input type="checkbox"/> Mexico City, Mex | Nov 26-28 |

2016:

- | | |
|---|------------------|
| <input type="checkbox"/> Aarhus, Denmark | Feb 26-28 |
| <input type="checkbox"/> Atlanta, GA | April 30 – May 1 |
| <input type="checkbox"/> Lisbon, Portugal | July 15-17 |
| <input type="checkbox"/> Quito, Ecuador | Nov 15-17 |

2017:

- | | |
|---|------------|
| <input type="checkbox"/> Catania, Sicily | Feb 24 |
| <input type="checkbox"/> Atlanta, GA | March 4-5 |
| <input type="checkbox"/> Marburg, Germany | July 21-23 |
| <input type="checkbox"/> Philadelphia | Sept 24-26 |
| <input type="checkbox"/> Kuwait City, Kuwait | Oct 2 – 3 |
| <input type="checkbox"/> Porto Alegre, Brazil | Dec 1-3 |

7. How did you learn of the program(s)?

- Colleague
- Faculty member
- MDS website
- Past participant: _____
- Other (please specify): _____

8. Why did you apply to participate in the program(s)?

- Working in a movement disorders unit at the time
- Planning to work in a movement disorders unit (when applied)
- Need for specific training in Movement Disorders
- Need for training in neurology overall
- Other (please specify): _____

9. Would you suggest to a colleague that they should participate in an MDS School for Young Neurologist course?

- Yes
- No

SOCIETY INVOLVEMENT

Membership and Resources with the International Parkinson and Movement Disorder Society (MDS)

10. Please read each statement provided, and indicate Yes or No (where applicable):

Please indicate, where applicable	YES	NO
Were you an MDS member at the time you applied for the MDS School for Young Neurologists?		
Did you become aware of the MDS Young Members Group during the School?		
Did you become a member or continue your membership after attending the School?		
Before your participation in the School, did you subscribe to the <i>Movement Disorders Journal</i> ?		
Do you currently subscribe to the <i>Movement Disorders Journal</i> (through either a MDS membership or otherwise)?		

11. Please indicate how frequently you accessed the following resources prior to and following your participation in the MDS School for Young Neurologists:

Please indicate, where applicable	Never	1-5 times a month	6-10 times a month	11-20 times a month	20+ times a month
To the MDS website – <i>prior to applying to the School</i>					
To the MDS website – <i>after attending the School</i>					
To MDS education website offerings (e.g. roadmap or fundamental courses) – <i>prior to applying to the School</i>					
To MDS education website offerings (e.g. roadmap or fundamental courses) – <i>after attending the School</i>					
To the Movement Disorders Journal – <i>prior to applying to the school</i>					
To the Movement Disorders Journal – <i>after attending the School</i>					

ACTIVITIES / POSITION

12. Please indicate your activity/position at your institution both at the time of your participation in the MDS School for Young Neurologists and currently.

Please indicate, where applicable	At the time of your participation in the MDS School for Young Neurologists(s)	Currently
General practitioner / General Internist		
General neurologist		
Medical student		

Neurologist expert in Movement disorders		
Neurologist expert in other neurology field		
Neurology resident		
Other medical specialty resident		
Postgraduate Program (MSc/PhD)		
Other (if selected, please further specify below)		

If you selected other (please specify, for both, at the time of your participation in the School and currently): _____

13. Please indicate your main neurological area of interest/s both at the time of your participation in the MDS School for Young Neurologists and currently.

Please indicate, where applicable (you may select up to two answers for each column)	At the time of your participation in the MDS School for Young Neurologists(s)	Currently
Basic research		
Behavioral neurology		
Dementia		
Epilepsy		
Movement disorders		
Multiple sclerosis		
Headache		
Neuromuscular		
Neuropathology		
Neuropharmacology		
Neurosurgery		
Pediatric neurology		
Sleep		
Stroke		
None		
Other (if selected, please further specify below)		

If you selected other (please specify, for both, at the time of your participation in the School and currently): _____

14. What percentage of your practice on a typical week involves working with movement disorder patients?

Please indicate, where applicable	0 - 25%	26 - 50%	51 - 75%	76 - 100%	Exclusively seeing movement disorders patients
Prior to your participation in the MDS School for Young Neurologists:					
Currently:					

15. What specific activities related to Movement Disorders were/are you performing? (select all that apply)

Please indicate, where applicable (please check all that apply)	Prior to your participation in the MDS School for Young Neurologists	Currently
Botulinum toxin clinic		
Deep brain stimulation for movement disorders		

Movement disorders outpatient clinic		
Movement Disorders inpatient care		
Movement disorders day hospital		
Neurophysiological assessment of movement disorders		
Neuropsychological assessment of movement disorders		
Other (if selected, please further specify below)		

If you selected other (please specify, for both, prior to your participation in the School and currently): _____

16. Where true for you (and applicable), please specify your involvement in various activities (including research, academic, and/or teaching) both at the time of your participation in the MDS School for Young Neurologists, and currently:

Please make selections in all boxes where statements made are true for you (per column and row)	At the time of your participation in the MDS School for Young Neurologists	Currently
I was/ am involved in research activities		
I was/ am involved specifically in Movement Disorders research		
I was/ am involved in general academic teaching activities		
I was/ involved in Movement Disorders related academic/teaching activities		

17. Where true for you (and applicable), please specify if there were some Movement Disorder-specific activities at your department when you attended the MDS School for Young Neurologists program (check all that apply), as well as currently:

Please make selections in all boxes where statements made are true for you (per column and row)	At the time of your participation in the MDS School for Young Neurologists	Currently
Botulinum toxin training		
Deep brain stimulation surgery		
Movement disorders inpatient care		
Movement disorders outpatient care		
Neurophysiological assessment of movement disorders		
Neuropsychological assessment of movement disorders		
*Other (please specify below)		

***If you selected other, please specify the type of program:**

_____.

- If this question is not true for you, neither at the time of your participation nor currently, please check this box.

18. Did you receive specific Movement Disorders training prior to your participation in the School?

- No
- Yes (if yes, please select all that apply)
- Courses/workshops
 - During the neurological residency
 - Integrated in your own neurological department activities
 - Movement disorders Fellowship
 - Other: _____

GLOBAL PROGRAM IMPACT

19. Please read each statement provided, and indicate Yes or No (where applicable):

Please indicate, where applicable	YES	NO
Do you feel that having attended this course influenced your career path?		
Did involvement in the MDS School for Young Neurologists directly impact your involvement with the Movement Disorders field?		
Did you do a Movement Disorder Fellowship after your MDS School for Young Neurologists participation?		
Did involvement in the MDS School for Young Neurologists help to increase your status at your institution?		

20. Please use the area below to give us feedback on how the MDS-School for Young Neurologists changed your practice:
