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A Dozen Years of American Academy of Sleep Medicine (AASM) International Mini-Fellowship: Program Evaluation and Future Directions

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Sleep medicine remains an underrepresented medical specialty worldwide, with significant geographic disparities with regard to training, number of available sleep specialists, sleep laboratory or clinic infrastructures, and evidence-based clinical practices. The American Academy of Sleep Medicine (AASM) is committed to facilitating the education of sleep medicine professionals to ensure high-quality, evidence-based clinical care and improve access to sleep centers around the world, particularly in developing countries. In 2002, the AASM launched an annual 4-week training program called Mini-Fellowship for International Scholars, designed to support the establishment of sleep medicine in developing countries. The participating fellows were generally chosen from areas that lacked a clinical infrastructure in this specialty and provided with training in

AASM Accredited sleep centers. This manuscript presents an overview of the program, summarizes the outcomes, successes, and lessons learned during the first 12 years, and describes a set of programmatic changes for the near-future, as assembled and proposed by the AASM Education Committee and recently approved by the AASM Board of Directors.

Keywords: Mini-Fellowship for International Scholars, sleep medicine, education

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Sleep medicine remains an underrepresented medical subspecialty, with great disparities between developed and underdeveloped or developing countries with regard to the type of training, number of available sleep specialists and laboratories, clinical infrastructures and practices. In a dedicated effort to improve sleep medicine care in developing and underdeveloped countries, the American Academy of Sleep Medicine (AASM) has explored different avenues to encourage training sleep professionals and to bolster the implementation of high-quality care in sleep centers around the world.

THE FIRST 12 YEARS: PROGRAM OBJECTIVES AND DESIGN

In early 2002, the AASM Board of Directors (BOD) evaluated and approved the Mini-Fellowship for International Scholars, a program proposed by the International Affairs Committee at the specific request of the society's leadership. This 4-week training program was designed as a pathway to support up to 10 clinicians from various countries to visit and get instruction in an AASM Sleep Center in the US and then attend the Annual SLEEP Meeting of the Associated Professional Sleep Societies, LLC (APSS). The initial goals were "to facilitate and organize mini-fellowships in clinical sleep medicine for international physicians and other qualified health care providers...[and] to provide hands-on training experience to prospective participants, so that they can initiate

and establish clinical sleep programs/centers in their home countries and improve sleep health care."

The application process was designed, maintained, and managed every year by AASM staff and the International Affairs Committee. After several years, the responsibility for application review was transferred to the AASM Education Committee. Annual requests for applications were posted online in the summer or early fall. The applications were then evaluated by the AASM Education Committee members for admission to the program. Up to 10 accepted candidates were matched each year with an academic or private US-based AASM Accredited sleep center that had been approved to participate in this program. The fellows received assistance from the local sites with lodging and accommodations, while travel arrangements were made by each candidate, at his/her own expense. The AASM provided each candidate staff support, complimentary SLEEP Meeting registration, one year of AASM membership, and complimentary registration for one full-day postgraduate course at the Annual SLEEP meeting. Additionally, each candidate received several educational reference materials. At the SLEEP Meeting, international fellows received their certificates of participation during a reception in their honor. The reception provided an opportunity for program feedback and networking with other sleep professionals.

During the first year, two fellows participated in three weeks of training at the University of Pennsylvania and Mayo Clinic, respectively, and attended the 2002 SLEEP Meeting afterwards. Between 2002 and 2013, a total of 83 international fellows

Figure 1—Diagram representing the countries of origin of the past participants in the American Academy of Sleep Medicine (AASM) Mini-Fellowship.

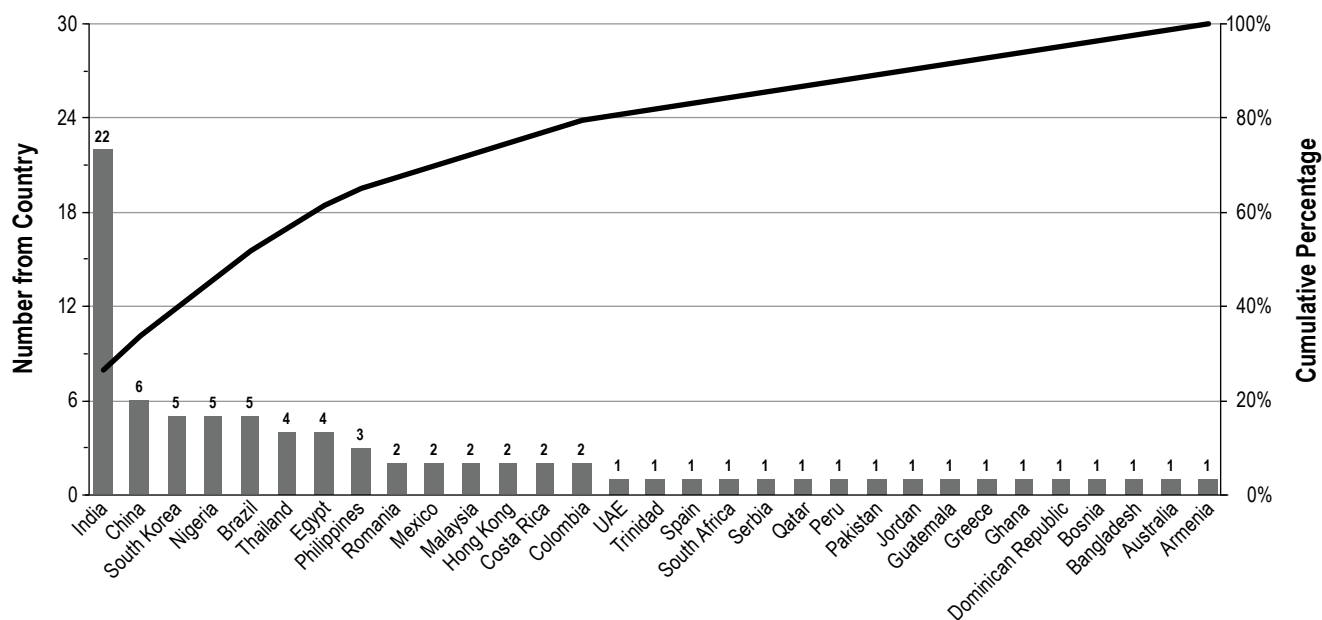


Table 1—Host centers of the AASM Mini-Fellowship between 2002 and 2013

Host Center	Total number of fellows trained
AnMed Health Lung and Sleep Center	2
Baylor College	2
Beth Israel Deaconess Hospital	8
Case Western Reserve University	1
Cleveland Clinic	9
Emory Sleep Center	3
Florida Sleep Institute	3
Henry Ford Hospital	1
HMSD, LLC Sleep Center	1
Houston Sleep Center	1
Johns Hopkins University	3
LDS Hospital	3
Mayo Clinic	2
Medical College of Wisconsin	2
National Jewish Medical and Research Center	3
Northwestern University	4
Peninsula Sleep Center	1
Sleep Medicine Centers of Western New York	1
Sleep Therapy and Research Center	1
Southwest Cleveland Sleep Center	2
Spectrum Health Sleep Disorders Center	1
Stanford University	6
Texas Sleep Med	1
The Sleep Disorders Institute	1
University of Pennsylvania	13
University of Washington	3
Wayne State	5
Total	83

internal medicine, neurology, psychiatry, psychology, pulmonary medicine, otolaryngology, oral surgery, and dentistry. Fellows spent approximately 3 weeks at their host sites (see **Table 1** with the list of the 27 centers), followed by one week at the SLEEP Meeting.

PROGRAM EVALUATION

As part of ongoing quality monitoring of the program, the fellowship evaluation included an informal evaluation by the local site coordinator, mentor, and/or medical director. Additionally, AASM Education Committee representatives and AASM staff obtained informal feedback from the participating fellows during the reception at the SLEEP Meeting. As is often the case with new program development, the formal assessment of the fellowship by the participants or host centers was not standardized, and data collection was at times sporadic. Consequently, in 2012, at the request of the AASM Education Committee, an online survey was extended to participants who had completed the program between 2005 and 2009 (37 program graduates). These responses were collected and analyzed by the Education Committee.

Overall, this data provided important insight into general outcomes of the program. Among the survey respondents (21/37, 56%), participants thought that the program achieved its stated goals (100%), mentorship was good or excellent (100% combined), the SLEEP Meeting was excellent (100%), and the fellowship enriched them with knowledge and needed skills to be able to build sleep centers or practices in their own countries (100%).

In addition, the survey also identified several potential areas and opportunities for improvement. For example, all respondents thought that the program was too short, that complimentary registration for two full-day postgraduate courses at the

participated, representing 31 countries, from all continents (on average 7 fellows per year; see **Figure 1**). Fellows represented a variety of subspecialty backgrounds, including primary care,

Table 2—Program evaluation responses to the online survey sent to the AASM Mini-Fellowship participants between 2005 and 2009

Questions	% Respondents
The Program accomplished stated goal?	100.0
Application process was good or excellent?	87.5
Mentor was good or excellent?	100.0
Hospital/facility was good or excellent?	72.5
SLEEP meeting was good or excellent?	100.0
Program improved knowledge of diagnostic methods, including reading sleep studies (agree/strongly agree)?	100.0
Program improved knowledge of current treatment methods (agree/strongly agree)?	100.0
Program provided exposure to different sleep disorders (agree/strongly agree)?	100.0
Program provided valuable information and skills to share at my home institution (agree/strongly agree)?	100.0
Program provided valuable information and skills to share at my home institution (agree/strongly agree)?	100.0
Program increased knowledge about clinical sleep research (agree/strongly agree)?	75.0
Are you still in contact with the mentor?	75.0
Are you still in contact with sleep center staff?	66.0
Are you still in contact with other Program fellows?	85.0
Program duration - too short (agree/strongly agree)?	100.0
I would recommend the host site for future mini-fellowships (agree/strongly agree)?	100.0
Program helped you receive any financial assistance to conduct research or to expand clinical services?	12.0

Table 3—Proposed changes to the fellowship compared to the last 12 years

	2002-2013	Beginning in 2014
Total duration in weeks	4	5
SLEEP Meeting	At the end of the program	At the beginning of the program
Complimentary SLEEP Meeting postgraduate courses	Up to 1 full-day course	Up to 2 full day courses
Fellowship at designated site, in weeks	3	4
Application package	Standard application form, resume, essay and two letters of recommendation	Revised application form including a pre-fellowship questionnaire, resume, essay and two letters of recommendation
SLEEP Meeting reception	At the completion of the program	At the end of the first week of fellowship
Post-fellowship evaluation	Informal, at SLEEP meeting Past fellow surveys	Informal, at SLEEP meeting <i>and</i> Post-fellowship questionnaire <i>and</i> Mentor evaluation

SLEEP Meeting would be better (100%) and that further (financial) support for building the sleep medicine infrastructure in their own country was desirable. See **Table 2** for a summary of the survey results.

THE FUTURE OF THE AASM INTERNATIONAL MINI-FELLOWSHIP PROGRAM

Upon review of the first 12 years of the program's informal and formal feedback, the AASM Education Committee (current authors) proposed to the AASM BOD several changes to the program. These changes were presented to the BOD in the fall of 2012, approved with several modifications (see **Table 3**), and will take effect starting in 2014.

In order to gain better insight into the clinical, educational and research infrastructures of the host sleep centers as "exportable" models in the fellows' native countries, the total duration of the International Fellowship will change from 4 weeks to 5 weeks.

In the general structure of the revised program, the annual SLEEP meeting will begin the program, *followed* by 4 (instead

of 3) weeks of training in the AASM Accredited sleep center. During the SLEEP meeting, the fellows may attend up to two full-day sponsored postgraduate courses (in addition to the free registration, reading materials, paid AASM membership for one year and other benefits).

In the new format, the revised application package will also include a pre-fellowship questionnaire, intended to identify specific goals and objectives for each of the candidates, and to better assess the state of sleep medicine in each candidate's country. In addition to this questionnaire, the revised application package will contain a resume, letters of recommendation, an essay addressing the potential benefits of the program for the respective center and country, and the 2-page standard application form.

The AASM Education Committee also suggested that the outcomes of the fellowship training be better monitored prospectively by implementing a standardized post-fellowship questionnaire and a fellow evaluation form to be completed by the mentors and/or medical directors of the host centers. Similar to the National Institutes of Health's peer review standards, the

adjudication process will take into consideration elements such as environment, project, and candidate (including the post-fellowship questionnaire and mentors' evaluations). As in the past, the AASM Executive Committee and BOD will continue to approve the final list of participants, after reviewing the recommendations from the Education Committee.

In conclusion, over the last 12 years the AASM International Mini-Fellowship has made significant improvements in the professional network of sleep providers from 31 countries. Past participants found the fellowship to be an important step towards minimizing geographic and economic disparities in our specialty. We would like to see in the near future a reassessment of the program outcomes in order to evaluate the potential impact of the above changes on the care of the patients with sleep disorders in the countries of the participating fellows. The AASM plans to continue the International Mini-Fellowship program. This will help disseminate sleep knowledge and

resources and will lead to better patient care, collaborations in research, and education in the realm of sleep disorders.

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SUBMISSION & CORRESPONDENCE INFORMATION

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DISCLOSURE STATEMENT

The authors have indicated no financial conflicts of interest.