Distance learning for neurology: experiences from mini-fellowship in movement disorders.

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DISTANCE LEARNING FOR NEUROLOGY: EXPERIENCES FROM MINI-FELLOWSHIP IN MOVEMENT DISORDERS.

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Sub-speciality training in neurology is not available in Pakistan given lack of trained supervising faculty. Developing trained supervisors by sending faculty abroad for formal fellowships is too slow, resource intense and subject to attrition or brain-drain. Web-based learning methods have been used effectively in training in medicine. Meta-analysis of 201 eligible studies showed large positive effects of E-learning in health professionals compared with no interventions[1]. There are highly qualified academic neurologists available in developed countries of Pakistani origin providing opportunity to bridge the gap and transfer skills.

Rapid advances in Information Technology have enabled the use of web-based learning methods to supplement traditional methods using a Blended learning methodology. These methods of learning have been used effectively in stroke training of prehospital providers and acute medical management for medical students for learning purposes [2]. Blended learning had been a viable and useful tool for residents in psychiatry, obstetrics and gynaecology, ENT, gastroenterology and numerous other fields of medicine.[3]

We launched one such program in 2017 in partnership with Pakistan Society of Neurology and Movement Disorder Society of Pakistan for Movement Disorders training (a complex and demanding field) designed as a mini fellowship. Participants are selected annually from across the country for a modular 6-months online course with online discussions, group assignments, scholarly activity and case discussions. The program has been highly successful with more than 35/39 successful graduates. This 90 percent completion rate is remarkable achievement given It has to be integrated into learners ongoing daily medical practice and other responsibilities. Blended learning also have the added advantage to learners where they can choose their learning sequence, time, control over content which encourage individuals to attain personal learning objective and consequently increase individuals productivity as compared to traditional education.[4]

We utilize Milestones developed by American Council for Graduate Medical Education (ACGME) for Neurology residents in Movement Disorders as a gauge for the progress of participants. Successful completion requires an overall effort from learner through-out the course gauged by their total assignment scores and performance within 1 Standard Deviation of the group. An objective summative assessment is completed through a standardized pre-test and post-test and we have noted an overall improvement 20-30% every year. Post-test score improvement has a clear correlation with timeliness and effort on the assignments. An individualized remediation process is offered to each participant not meeting the graduation criteria.

This course was designed as a stop-gap measure to fill in the needs for movement disorders in Pakistan such as Parkinson Disease, Dystonia, Huntington disease etc, while waiting for a formal fellowship. Initially intended to train Neurology residents, the scope and needs of the training grew bigger and we mostly trained recent neurology graduates and junior faculty. The program is considered a mini fellowship as we utilize similar self-learning methods used in a formal fellowship program and the training is fully supervised by international academic faculty running their own formal fellowship programs.

Few areas of concerns noted were mainly around technology with the difficulty of internet usage, loading of videos affecting their performance and frustration and difficulty sharing videos from their mobile phones of their clinic patients. This required patience, education and alternative solutions where necessary such as cloud storage (e.g. google drive) and video compression. Some participants had initial concerns on subjective grading that improved with use of rubrics though out the course. One of the biggest barrier overall in devolving countries is the IT infrastructure and un-familiarity with the E-learning culture. It can be overcome by implementing IT standards using the experiences

of leading countries in E-learning and familiarizes teachers and learners to develop and use E-learning tools and material [5]

The most effective feature has been self-timed self-paced nature of the program with flexibility to adapt participation in discussions and completion of assignments within their routine. We found use of a proper Learning Management System (such as CANVAS) was highly beneficial given various functionalities, something that free tools like Google Classroom cannot yet offer. We found offering a Certificate of completion and Continuing Medical Education (CME) credits from University of Nebraska Medical Centre (UNMC) as very satisfying and sought after by the participants.

With our initial success we are building other similar programs including stroke, general neurology and even family practice; to be utilized as standalone online programs or as blended learning with local institutional partnerships. This program offers a good example for other resource challenged countries in similar situation in a scalable fashion. The program differentiates itself from other online resources and conferences given a formal curriculum, ongoing supervision, self-learning methods, formative assessments and feedbacks. Although online content is becoming more common and accessible, there remains a challenge of proper development and utilization of such resources to make an impact.

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