Kevin N. Alschuler, PhD
Annette Wundes, MD
Dennis W. Dietrich, MD
Bojan Boskovski, MD
Igor Kuzmanovski, MD
Katharine S. Alexander, BA
Gloria von Geldern, MD
Gary A. Stobbe, MD

Correspondence to Dr. Alschuler: kalschul@uw.edu

ACCELERATING INTERNATIONAL MS CARE THROUGH VIDEOCONFERENCE-BASED EDUCATION AND CASE CONSULTATION

Disparities exist in the international management of multiple sclerosis (MS). For example, when stratified by income, only high-income countries have a high rate of availability of all disease-modifying therapies (DMTs); as income decreases, the availability of DMTs declines rapidly, such that even upper-middle-income countries commonly only have access to first-line therapies but not the newer, potentially more potent agents, and low-income countries have no access to DMTs.[1] As newer DMTs associated with greater risk of toxicity become more available, providers in those countries are playing catch-up to the international community in providing guideline-level MS care.[2] This adds to the challenge already described by providers where advanced MS treatments are available: it is difficult to remain current on important domains related to DMT prescription, including selecting the correct DMT for a specific patient's characteristics, safety data, and monitoring guidelines, resulting in a call for targeted continuing medical education.[3] Taken together, it is in the interest of the international MS community to have providers with more experience using these DMTs spread the knowledge they have gleaned to providers in countries where these same treatments are emerging. Our videoconference-based education and case consultation program can efficiently meet this need.

We collaborated with the National MS Society (NMSS) to develop MS Project ECHO (Extension for Community Health Outcomes), a videoconference-based education and case consultation program, with the goal of improving the quality of care delivered to patients with MS who receive care outside of US MS specialty centers. This program is an MS-focused adaptation of the Project ECHOs that successfully improved disparities in care for hepatitis C[4] and HIV.[5] In Project ECHO, community providers engage in weekly videoconferences led by content experts. Sessions include targeted didactic education, followed by case consultations, which provide an opportunity to gain knowledge and experience by comanaging patients with content experts. Project ECHO is enhanced by tailoring curriculum to the needs of the audience, and is highly accessible and cost-efficient due to the videoconference-based delivery.

MS Project ECHO (detailed in manuscripts currently under review for publication) was delivered as follows: The MS expert team was composed of the multidisciplinary team of neurologists, physiatrists, rehabilitation psychologists, rehabilitation counselors, nurses, rehabilitation therapists, and a pharmacist from the University of Washington Medicine MS Center. Importantly, the team also included NMSS representatives who directed participants to unique resources available for providers and patients. We developed and delivered educational content specific to the diagnosis and management of MS, ranging from topics such as the use of neuroimaging in diagnosis to selection of DMTs to management of symptoms such as pain and mood. For case consultations, community providers presented patient history, laboratory results, and MRI, which were displayed to enhance discussion. This first year included 41 sessions for 24 participating neurology, primary care, and rehabilitation medicine providers. Feedback was overwhelmingly positive, both qualitatively and in terms of the direct impact on consulted cases.

Although MS Project ECHO was developed to target rural and underserved populations in the United States, the model could easily be adapted for international delivery. In that vein, we piloted an international version of an ECHO session with the University Clinic of Neurology in Macedonia, where providers recently gained access to a larger number of DMT agents commonly used in the United States. Treatments previously available in Macedonia only included interferons β-1a and β-1b, but recently expanded to glatiramer acetate, fingolimod, and natalizumab. Whereas US providers have accumulated years of knowledge related to accessing agents with variable risk profiles and mechanisms of action, the Macedonian providers were new to this decision-making process. These providers were seeking

From the Departments of Rehabilitation Medicine (K.N.A., A.W., K.S.A.), Neurology (K.N.A., A.W., G.v.G., G.A.S.), and Psychiatry and Behavioral Sciences (G.A.S.), University of Washington, Seattle; Advanced Neurology Specialists (D.W.D.), Great Falls, MT; and University Clinic of Neurology (B.B., I.K.), Ss Cyril and Methodius University, Skopje, Macedonia.

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the knowledge necessary to incorporate those DMTs into their practice, such as which DMT to start with or when to change DMTs, how safety data should impact patient selection, and standards for monitoring patients on the newer DMTs. Additionally, some non-DMT advances in MS care are also not standard practice in Macedonia, such as evaluation of vitamin D levels, providing additional opportunity for sharing knowledge.

The resulting interaction was encouraging and supports further exploration of the international use of this model. Specifically, the model emphasized a case-based learning model to promote greater engagement and accelerate learning: We reviewed the case to understand the patient's profile and subsequently engaged in treatment decision-making that exemplified how to incorporate access to multiple DMTs into their clinical decision tree. Such decision-making included the assessment of relevant patient factors that contribute to stratifying risk (e.g., JCV antibody testing, prior exposure to immunosuppression, MS disease characteristics, comorbidity, and comedications). We were then able to develop a monitoring plan for each patient to demonstrate the established practices we utilize effectively with our patients in the United States, while simultaneously considering the country-specific availability of resources, such as imaging. Importantly, the collaborative model leverages the intimate knowledge local providers have of their community and patients, providing vital information necessary to ensure the resulting plan is the safest, most effective, and financially viable plan for their patients.

Our Macedonian colleagues reported that this interactive exchange of knowledge was a valuable experience, noting that it improved their confidence in their ability to manage patients with these new DMTs. Furthermore, they described specific changes in practice, including modifying their clinical decision-making to utilize potentially more potent agents sooner in treatment. In addition, they improved their clinical monitoring for safety on the newer DMTs and began systematically addressing vitamin D insufficiency. Finally, they feel that an ongoing international MS Project ECHO would have a measurable impact on MS care in Macedonia.

Our experience with the United States–based model, as well as with the enthusiasm in this initial effort towards an international adaptation, suggests that there is great promise for sustainability of the program. MS Project ECHO is a cost- and time-efficient model relative to traditional educational opportunities (e.g., conference or visiting scholar). Costs include preparation time for the project's medical director and manager, 1 hour of time for the session, a minimally expensive subscription to a secure videoconferencing service, and the use of standard audiovisual equipment.

Sustainability of the program is dependent on a number of factors. Although efficient, the program has ongoing costs, primarily reimbursement of time for the expert team and cost of continuing medical education (CME) accreditation. Sustained Project ECHOs have been funded through grant or government program support due to the positive impact on chronic disease management. Further, to minimize industry influence over content, the program must be hosted by clinicians who adhere to strict guidelines to minimize bias, such as in the academic setting. The model is also dependent on the sustained engagement of participants. In our United States–based model, engagement was incentivized directly through CME credit and indirectly through the creation of a collaborative environment that participants see as beneficial due to the impact on their clinical practice and decreased sense of professional isolation. Finally, international delivery invites additional logistical barriers to those observed in our United States–based model: differences in medical record systems and technology made the transfer of MRI difficult and required additional time from administrative staff; the locations were separated by 9 time zones; and, although our Macedonian colleagues demonstrated impressive English proficiency, there was a difference in primary language.

This initial effort to deliver MS Project ECHO internationally has demonstrated a unique opportunity to accelerate the transfer of knowledge and thus improve the quality of MS care globally. We look forward to opportunities to continue to develop and tailor the model, with specific emphasis on assessing and maximizing the impact on patient outcomes.

AUTHOR CONTRIBUTIONS

Kevin N. Alschuler, PhD: drafting/revising the manuscript for content, study concept or design, interpretation of outcomes, statistical analysis. Annette Wundes, MD: revising the manuscript for content, study concept or design, interpretation of outcomes. Dennis W. Dietrich, MD: revising the manuscript for content, study concept or design, interpretation of outcomes. Bojan Boskovski, MD: revising the manuscript for content, study concept or design, interpretation of outcomes. Igor Kuzmanovski, MD: revising the manuscript for content, study concept or design, interpretation of outcomes. Katharine S. Alexander: revising the manuscript for content, study concept or design, interpretation of outcomes, acquisition of data. Gloria von Geldern, MD: drafting/revising the manuscript for content, interpretation of outcomes. Gary A. Stobbe, MD: drafting/revising the manuscript for content, study concept or design, interpretation of outcomes, acquisition of data.

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REFERENCES

1. Multiple Sclerosis International Foundation. Atlas of MS. 2013. Available at: http://www.msif.org/about-us/advocacy/atlas/. Accessed February 25, 2016.
2. Coalition MS. The use of disease-modifying therapies in multiple sclerosis: principles and current evidence. 2015. Available at: http://www.nationalmssociety.org/getmedia/5ca284d3-fc7c-4ba5-b005-ab537d495c3c/DMT_Consensus_MS_Coalition_color. Accessed February 25, 2016.
3. Ng P, Murray S, Hayes SM. Clinical decision-making in multiple sclerosis: challenges reported internationally with emerging treatment complexity. Mult Scler Relat Disord 2015;4:320–328.
4. Arora S, Thornton K, Murata G, et al. Outcomes of treatment for hepatitis C virus infection by primary care providers. N Engl J Med 2011;364:2199–2207.
5. Arora S, Kalishman S, Dion D, et al. Partnering urban academic medical centers and rural primary care clinicians to provide complex chronic disease care. Health Aff 2011;30:1176–1184.