

ORIGINAL RESEARCH

A Protocol to Develop Practice Guidelines for Primary Care Medical Service Trips



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Abstract

BACKGROUND North American clinicians are increasingly participating in medical service trips (MSTs) that provide primary healthcare in Latin America and the Caribbean. Literature reviews have shown that the existence and use of evidence-based guidelines by these groups are limited, which presents potential for harm.

OBJECTIVE This paper proposes a 5-step methodology to develop protocols for diagnosis and treatment of conditions encountered by MST clinicians.

METHODS We reviewed the 2010 American College of Physicians guidance statement on guidelines development and developed our own adaptation. Ancestry search of the American College of Physicians statement identified specific publications that provided additional detail on key steps in the guideline development process, with additional focus given to evidence, equity, and local adaptation considerations.

FINDINGS Our adaptation produced a 5-step process for developing locally optimized protocols for diagnosis and treatment of common conditions seen in MSTs. For specified conditions, this process includes: 1) a focused environmental scan of current practices based on grey literature protocols from MST sending organizations; 2) a review of relevant practice guidelines; 3) a literature review assessing the epidemiology, diagnosis, and treatment of the specified condition; 4) an eDelphi process with experts representing MST and Latin American and the Caribbean partner organizations assessing identified guidelines; and 5) external peer review and summary.

CONCLUSIONS This protocol will enable the creation of practice guidelines that are based on best available evidence, local knowledge, and equitable considerations. The development of guidelines using this process could optimize the conduct of MSTs, while prioritizing input from local community partners.

KEY WORDS medical missions, humanitarian health, medical service trips, Latin America, global health, international health

Authors' contributions: Christopher Dainton conceived the study and was involved in writing and revision of all sections. Charlene H. Chu was involved in writing and revision of the Methods and Discussion section. Lawrence Loh was involved in the conception and writing of the Discussion section, and in substantial revision and editing of all other sections. Henry Lin and William Cherniak were involved in writing and revision of the Introduction section. All authors reviewed the final version and approved it for publication.

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INTRODUCTION

Short-term medical service trips (MSTs) have emerged as a controversial means of providing health care in low and middle income countries.^{1,2} These endeavors typically involve clinicians, students, allied health professionals, and other support staff who travel to under-resourced settings in remote communities, providing primary, specialty, and/or surgical care to populations that often have limited access.^{3,4} Due to their geographic proximity to the United States, countries in Latin America and the Caribbean (LAC) are a particular focus for many MSTs, with at least 1 study documenting 125 different groups operating in Honduras alone.⁵

The conduct of MSTs has raised numerous concerns, particularly surrounding the consumption of scarce resources by visiting providers, the inherent communication barriers in such settings, and the potential for undermining local community leadership and creating dependence. There are additional concerns over the appropriateness and effectiveness of North American clinicians practicing in settings that are culturally discordant and resource limited.^{6–8}

Clinical guidelines may be defined as “recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options”⁹ and are an accepted means for summarizing evidence, making it relevant to practice, and standardizing patient care.¹⁰ However, a review of peer-reviewed literature failed to identify practice guidelines employed by primary care MSTs in LAC.¹¹

Context-specific practice guidelines for these efforts could optimize care provided and address some of these concerns by accounting for 1) limited access to laboratory tests, medical equipment, and diagnostic radiography; 2) epidemiological differences in MST communities and practice settings; and 3) local differences in disease management. These guidelines would also promote effective partnerships by inviting collaboration in the development of mutually acceptable standards for host and visiting providers alike. Furthermore, guidelines would serve to improve outcomes for patients by encouraging treatment based on best available evidence.

This paper outlines a novel approach to the development of practice guidelines for diagnosis and treatment of common conditions seen in primary care MSTs in LAC. Primary care can be defined as “first contact assessment of a patient

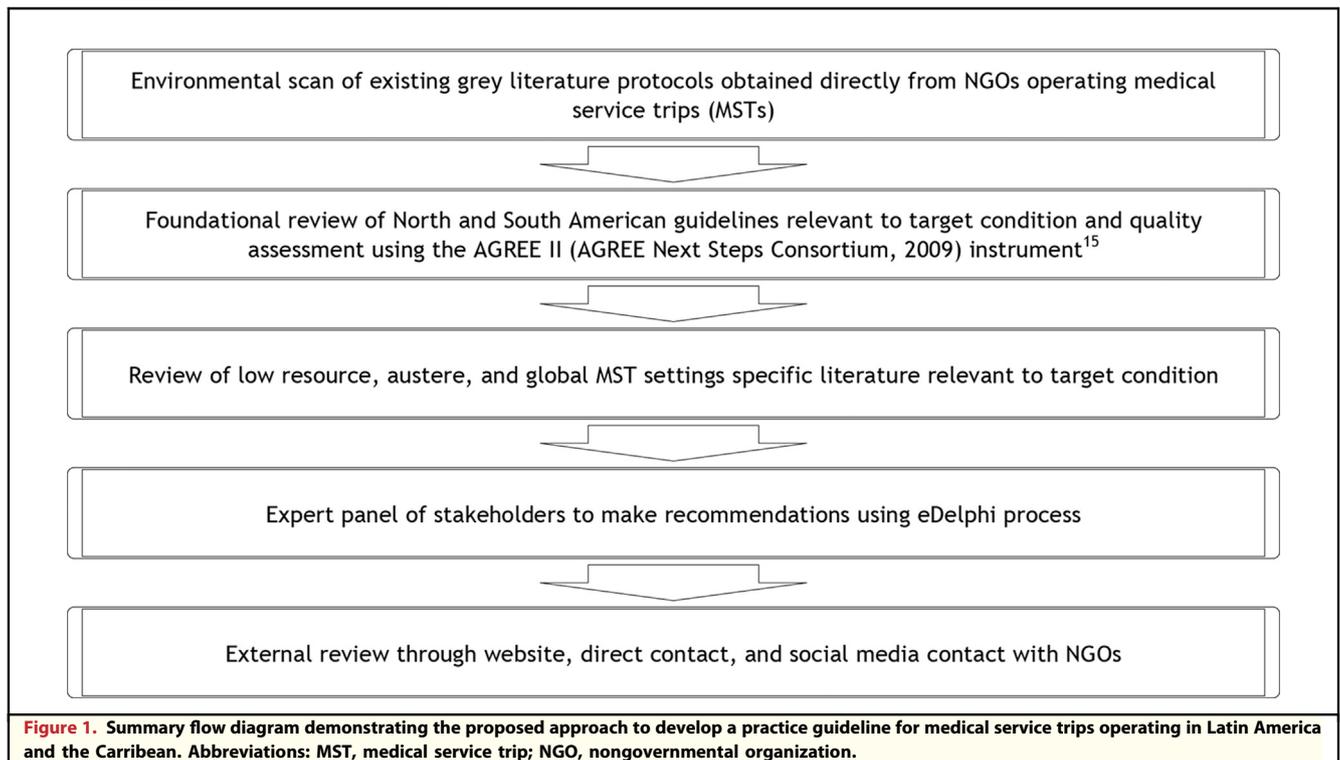
and the provision of continuing care for a wide range of health concerns,” including but not limited to the assessment of undifferentiated illness.¹² For our purposes, the term “primary care” refers to MSTs that are not primarily surgical, subspecialized, or technical in nature. The latter subcategories are not the focus of this paper as they are fundamentally different in character, setting, and how they might impose on local resources. Our approach integrates a systematic process to include the perspectives of multiple stakeholders, such as local and national health authorities in LAC, program administrators, volunteer health care professionals, and patients themselves. Any process to develop guidelines requires a collaborative methodology that effectively solicits contributions from each of these stakeholders. Ideally, this will foster credibility and a sense of ownership and support eventual guideline adoption by MST implementers in partnership with host communities.¹³

METHODS

This adapted approach to assessing evidence and producing a practice guideline for a common target condition is based on an American College of Physicians guidance statement and summarized in Figure 1.¹⁰ This process consists of two steps: 1) summarizing the relevant literature, and 2) achieving consensus via an eDelphi panel.

Scope and Leadership. These guidelines will be tailored for use by primary care clinicians on MSTs in under-resourced settings in LAC. A clinician is defined as a physician, physician assistant, nurse practitioner, or other healthcare professional with responsibility for diagnosis. The process will be led by the MST Guidelines Development Group, consisting of experienced MST physicians from backgrounds in emergency medicine, public health, and pediatrics, as well as an academic nurse with expertise in research methods.

Environmental Scan of Guidelines, Protocols, and Grey Literature from Nongovernmental Organizations. The majority of existing practice guidelines and protocols are unpublished and unavailable in peer-reviewed literature.¹¹ The panel will summarize existing practices by directly contacting nongovernmental organizations (NGOs) conducting primary care MSTs via email and telephone to request access to existing clinical or treatment guidelines/protocols for specified conditions. A summary will be created and areas of disagreement will be highlighted.



Foundational Review of Relevant Guidelines from North America, Latin America, and the Caribbean. A guideline adaptation process will be used to take advantage of existing high-quality practice guidelines (<5 years) to reduce duplication and costs in the creation of the target guideline.¹⁴ We will obtain relevant high-quality practice guidelines for the target condition, and guideline quality will be appraised independently by 2 reviewers who are not part of the eDelphi panel, using the AGREE II instrument.^{15,16} The AGREE II provides a structured and rigorous development methodology to evaluate guidelines for potential adaptation to another context (AGREE II user manual). Those papers that are scored as good quality will be defined as “seed guidelines.” The following information will be extracted from the seed guidelines: source of guideline, recommendations, and the strength of the recommendations. The recommendations will be categorized as “do,” “do not do,” or “do not know,” and areas of discordance will be highlighted by the same 2 reviewers. Reviewers will first perform each task separately, and conflicts will be resolved by discussion and consensus, with a third reviewer available to resolve disagreements. The goal of this step is to produce a summary list of all recommendations from seed guidelines, which will

subsequently be modified to meet local MST needs in LAC.

Review of MST-Specific Literature. For the target condition in question, a second literature search will be conducted to identify literature on the condition’s epidemiology, diagnostic standards, treatment guidelines, and/or patterns specific to low-resource, austere, or MST settings in LAC. This search will include all article types, will have no restrictions on language, and will draw from literature published in the year 1990 and later, which corresponds to the period of rapid expansion of MSTs in LMICs.¹⁷

Inclusion criteria will account for factors that would alter practice guidelines intended for resource-rich settings, specifically including quantitative and qualitative papers describing epidemiology; cultural, dietary, and religious norms; environmental considerations with clinical relevance; cost considerations; and clinical outcome assessments. The process will exclude papers describing pathophysiologic-, nonclinical-, or nonpatient-centered measures and outcomes, or those that present data specific to a region other than LAC.

Included studies will undergo data extraction for article type, article theme, specific location, setting (urban vs rural; mobile clinic vs established clinic or hospital), type of clinicians involved, and key

conclusions. Article quality will then be assessed using the Mixed Methods Appraisal Tool,¹⁸ a widely used, valid, and reliable tool for appraisal of both qualitative and quantitative methodologies. These data will be presented as a summary table.

eDelphi Method to Form Consensus Recommendations. An eDelphi methodology will be used to refine a list of statements from the NGO grey literature, North and South American seed guidelines, and MST-specific literature.¹⁹ The eDelphi is an electronic adaptation of the Delphi structured communication technique for achieving consensus among a panel of experts and is further described below.

eDelphi Panelist Recruitment and Identification. Panelists will be directly recruited using contacts from a large, publicly accessible database of NGOs conducting primary care medical service trips in Latin America, which was created for the purposes of the study (www.medicalservicetrip.com).

Panelists will be selected with the goal of achieving representation from each stakeholder subgroup described in Table 1. The selected panelists will be notified by e-mail by a member of the leadership team, and an e-mail Listserv of panelists will be created. While an arbitrary ratio of panelists cannot be established, the balance of stakeholders will be a key consideration in establishing legitimacy for the guidelines. Social media engagement and search engine optimization will be used to increase traffic to the website and encourage diverse participation in the guidelines process.^{20,21}

A formal e-mail invitation will be sent to each panelist, which will include an embedded hyperlink to the questionnaire hosted by Fluid Surveys. Demographic information about the panelists will be collected, including name, discipline/content expertise, institution, geographic location, previous experience on MSTs, and a classification of the member's stakeholder role (Table 1).¹⁵

eDelphi Procedure. All panelists enrolled in the Listserv will receive background information in the form of a summary of existing unpublished grey literature protocols, seed guidelines, and evidence specific to MST settings. The leadership group will provide a series of statements generated from the seed guidelines, NGO protocols, and MST-specific guidelines, and these will be candidates for a case definition, red flags, or management plan for that condition.

Panelists will be invited to propose additional statements during the first round of the eDelphi, which will be edited for clarity and redundancy.²²

For each eDelphi statement in the survey, panelists will use a 7-point Likert scale to describe their level of agreement with two prompts: "I am satisfied with the evidence supporting this statement," and "This guideline would be appropriate for use on a short-term medical service trip in a limited-resource setting in Latin America or the Caribbean." Participants will be allowed 2 weeks to submit their responses for each round. Guidelines will remain on the list for the next round if supported by 70% or more of the panelists ("support" is defined as a Likert rating of 5 to 7 on both prompts).

Table 1. Stakeholder Groups to be Recruited for eDelphi Panel

Stakeholder	Inclusion Criteria
Western MST clinicians (physicians, nurse practitioners, physician assistants)	Primary care practice (family medicine, internal medicine, emergency medicine), participation on at least 1 MST in Latin America in the past 5 years
MST allied health workers (nursing, pharmacy, physiotherapy, occupational therapy)	Participation on at least 1 MST in Latin America in the past 5 years
Western and Latin American public health specialists	Public health practice focus, participation on at least 1 MST experience in the last 5 years
Specialists relevant to target condition	Board, FRCPC, or nursing certified specialist from a recognized university, participation on an MST in the last 5 years
Latin American clinicians	Primary care health care provider currently practicing at least 6 months of the year in a Latin American or Caribbean country
NGO administrators	Nonclinical executive role on NGO operating at least 5 MSTs in the last 5 years
Methodology experts	Statisticians, epidemiologists, library scientists
Patients and local community health promoters	Health promoter or patient living in a community that has been attended by a Western MST in the last 12 months

MST, medical service trip; NGO, nongovernmental organization.

The principal investigators will calculate descriptive statistics for each statement, including the central tendency and interquartile ranges. Members whose score for statements falls outside the interquartile ranges will be asked to provide a brief justification for their score. This information will then support iterative discussions by the principal investigators that will refine these statements, with consideration to harms and benefits, cost and resource considerations, ethical and legal considerations, and patient preferences.

The newly refined statements will be redistributed to the panelists, and the process will be repeated to complete a second and third eDelphi round. Three rounds of eDelphi will be conducted, based on previous studies that indicate that 3 rounds of survey iteration are generally sufficient to reach consensus.¹⁴ After a final comprehensive discussion of the results, the principal investigators will summarize and format brief consensus recommendations for the target syndrome (Table 2).

External Review of eDelphi Results. After the eDelphi process, the consensus recommendations will undergo open peer review by external global health stakeholders, which will be done by placing the tentative recommendations on the public website. Registration will be required to leave comments, to clarify the stakeholder group to which the commenter belongs. Major global health organizations and influencers relevant to the guideline under review will be solicited via e-mail and social media to review the target guideline and provide feedback, thus building content validity of the guidelines. The selection process will be similar to recruitment for the eDelphi panel. Table 3 presents a suggested final format for a targeted guideline for MSTs operating in Latin America and the Caribbean (Table 3).

DISCUSSION

This paper presents a novel framework for generating treatment guidelines that incorporate local host

practices, international clinical guidelines, and NGO perspectives for primary care MSTs in LAC. This approach could be applicable to the development of treatment guidelines for nearly any clinical condition in any location.

The current standard of care is for clinicians volunteering with MSTs to bring their own knowledge from their home setting with them abroad, and apply that knowledge in a local context. Often, their primary resource may be a single textbook of tropical medicine or informal conversations with friends and colleagues who have previously participated in similar trips. There is little standardization of care and few options for clinical resource development that fits the MST setting or the locale in which the MST occurs.

The strengths of the process presented in this paper are the inclusion of multiple mechanisms for soliciting feedback from local sources, NGOs, and relevant healthcare professionals, in addition to the integration of social media and Web-based external review. These considerations are meant to encourage adoption of the guidelines and ensure acceptability for their key stakeholders. It is essential to note that the overall process depends on project leadership to ensure the participation and feedback from Latin American stakeholders and that inadequate representation in this regard jeopardizes the legitimacy of any guideline produced. Our method can be easily modified and extrapolated to non-Latin American settings, although it is worth noting that differences in epidemiology, culture, and community health concerns mean that any guideline construction would be region specific.

Potential weaknesses are that guideline development may be biased toward large NGOs with extensive resources and limited by the participation rates of these NGOs. Specifically, during the environmental scan and MST-specific literature review, one might predict an imbalance of influence in favor of organizations that have the capacity and ability to participate in projects such as this one, or organizations with the resources to have

Table 2. Sample Format of Brief Recommendations for Syndromic Management on an MST

Brief Recommendations for Syndromic Management on an MST	
Case definition	Unambiguous clinical inclusion and exclusion criteria for syndrome, based on history, physical exam, and point-of-care testing
Red flags	Specific clinical signs and symptoms that should prompt referral from MST site to a higher level of care
Management recommendations	Cost effective and resource conscious investigations, treatment, and public health interventions that should be undertaken at the MST site when the case is encountered
Abbreviations as in Table 1.	

Table 3. A suggested Format for a Practice Guideline for Use on Primary Care MSTs in Latin America

Domain	General Examples and Suggestions
Epidemiology of topic at hand	
Health question and objective of guideline	
Target users of guideline	North American clinicians traveling on primary care medical service trips in low-resource settings in Latin America or the Caribbean
Target population	Rural patients in Latin America visiting NGO-led mobile and standing clinics
Cultural considerations	<ul style="list-style-type: none"> ● Health literacy ● Diet ● Occupational and environmental concerns ● Economic and resource considerations ● Challenges for the clinician on focused history and physical
Specific key recommendations and options for clinical management	<ul style="list-style-type: none"> ● Barriers to and facilitators for the application of the guidelines ● Consider likelihood of patient adherence to treatment (how do we estimate this?), resource implications, and unique risks and side effects particular to the specific patient population ● Input and feedback from target population through health promoters in the community ● Discussion of key input from external review
Discussion of evidence-based public health interventions that may address the determinants of community health	
Brief box summary for clinicians	Inclusion criteria, red flags, and management recommendations
Tools for implementation by NGOs	<ul style="list-style-type: none"> ● Putting recommendations into practice ● Minimum pharmacy and supplies ● Monitoring and auditing criteria
Gaps in evidence base and future directions	
Explicit timeline for updating recommendations	5 years ²²
Acknowledgement of conflicts of interest	
Abbreviations as in Table 1 .	

previously developed their own guidelines or publications. Organizations operating MSTs are also more likely to be found during the foundational and MST-specific literature reviews if they have a research footprint or a website with highly effective search engine optimization. Finally, the utility and applicability of the MST-specific literature in informing guideline development will be limited by the quality of the published literature.

The organizations in the MST database found on medicalsevicetrip.com do not operate in all LAC countries. The website is biased toward countries that receive the bulk of MSTs, making the conclusions most relevant to those settings. Furthermore, for manpower reasons, the process accepts North and South American seed guidelines at face value, without conducting a comprehensive and resource-intensive review of the primary literature, which could alter the basis for final recommendations. It is worthwhile to also note that while many diverse settings in LAC may share the same

general principles of care, the practical use of any guideline will depend on the specific setting, local factors, and resources.

Finally, eDelphi consensus will be achieved based on multiple individual perceptions of harms and benefits, cost and resource considerations, ethical and legal considerations, and patient preferences related to each intervention. This means that specific voices may not be adequately heard, potentially and most concerningly involving marginalization of certain local stakeholder voices (community health workers, local staff) due to the academic approach taken and Western reference frame. We also acknowledge other limitations of using an eDelphi, including the customary high dropout rate for panelists after the second round of a typical eDelphi, dependence on participants to volunteer their time to form the eDelphi panel, and the use of a convenience sample that introduces some selection bias in panelists. To minimize these limitations, we will implement several mitigation strategies identified

Table 4. A Summary of the General Symptoms and Syndromes Requiring Guidelines for Medical Service Trips¹¹

Category	Subcategory
General pain	Nonspecific headache, back pain, and musculoskeletal pain
Respiratory complaints	Asthma, COPD, possible pneumonia, URI, pharyngitis
Abdominal complaints	Diarrhea, nonspecific abdominal/parasites, dyspepsia
Gynecologic complaints	Menstrual complaints, pregnancy, vaginal discharge
Dermatologic complaints	Tinea, pruritis, pyoderma
Diabetes and hypertension	
COPD, chronic obstructive pulmonary disease; URI, upper respiratory tract infection.	

in the literature,²³ such as the use of internet databases to recruit panelists and identifying and avoiding panelists' "high season" times.

Potential conditions targeted for future guideline development were based on a framework developed from the MST literature.^{24,25} Six categories with appropriate subcategories were selected for commonly assessed symptoms (Table 4). We propose

that each subcategory would be an appropriate priority target for guideline development. However, as this novel framework has yet to be attempted, the feasibility of this framework is unknown and the time frame required to develop each guideline has yet to be determined.

CONCLUSION

Providing care to underserved communities in a low-resource MST setting potentially benefits both host communities and their partners. The production of comprehensive clinical guidelines is an important goal in ensuring that the care being provided by these Western clinicians conforms to best practices. This will hopefully reduce harm to host communities and improve clinical outcomes. This framework provides a novel approach that serves as a starting point for global health clinicians and NGOs to develop practice guidelines that are relevant to the clinicians and include local adaptations to the specific geographical location at hand. Guideline simplicity and clarity are of particular importance in ensuring that the recommendations produced are quickly and easily adopted by NGOs and understood by clinicians working in the field.

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