

# The Evaluation Of Medical Student International Mission Trips

## A Rapid Review

Andrew Kamel, BA, Medical Student, University of Colorado School of Medicine

Mentor: Rosemary Frasso, PhD, MSc, CPH, Thomas Jefferson College of Population Health

### INTRODUCTION

As medical student interest in global health grows, medical mission trips (MMTs) play an increasingly important role in medical education. More medical students are engaging in these short-term international experiences, where participants, typically travelling from well-resourced countries to low- and middle-income countries (LMICs), deliver medical care and conduct research while learning from local patients and providers. These medical missions vary significantly in their characteristics, and with different destinations, durations, and objectives, these experiences can be difficult to assess for quality and efficacy.

This difficulty in characterizing and evaluating MMTs is especially important because there are meaningful concerns about the ethical implications of these brief international interventions in often indigent and vulnerable communities. A 2017 systematic review of recommended practices for MMTs determined that there was little consensus about standard of care, patient selection, and trip duration, and that comprehensive global standards were still lacking.

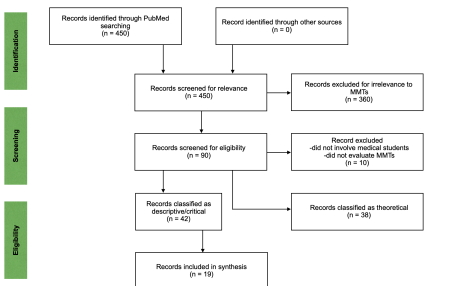
Several systematic reviews of the MMT literature suggest that rigorous evaluation of MMTs is lacking. Martiniuk et al. (2012) reviewed 230 MMT articles between 1985 and 2010 and found that 78% of the pieces were merely descriptive without contextual or theoretical analysis. Another 2014 review of 67 articles with empirical results found that 95% had little or no data collection (Sykes, 2014).

Given these deficits in the evaluation of medical missions as a whole, the objective of this rapid review is to characterize the nature of studies on medical mission trips for medical trainees in particular. Do these experiences adequately evaluate their own success in achieving their stated objectives? If so, does the evaluation focus primarily on educational outcomes for students or does it also address outcomes for patients and communities in the host country? Finally, does evaluation of student educational outcomes rely primarily on surveys of student perceptions or are there efforts to measure these outcomes objectively? This review will differ from those discussed previously in its focus on MMTs conducted specifically by medical students, and in its analysis of MMT evaluation.

Table 1: Published search strategy

Search Terms  
Published: Medical missions OR "Medical Missions"(MeSH) OR Medical service trips OR Short-term international OR Medical mission trips OR Medical brigades OR Volunteer trips OR Volunteer mission OR Humanitarian assistance OR "Global Health"(MeSH) OR "International Educational Exchange"(MeSH) AND "Students, Medical"(MeSH) OR medical student AND evaluation OR outcome

Figure 1: PRISMA Flow Diagram



### METHODS

This rapid review was conducted using PRISMA guidelines. The search was conducted in PubMed between December 1, 2020 and February 1, 2021. Initial search yielded 450 articles that were managed and further evaluated using EndNote X9. Title and abstract screening were conducted to determine article eligibility and for inclusion in full text screening. This initial screen was intended to exclude articles that did not discuss MMTs or were entirely unrelated to global health education, and 360 articles were ultimately found to be irrelevant.

After title and abstract screening, results were further sorted according to categories offered by Martiniuk et al. (2012). At this stage in article screening, descriptive articles and critical appraisals were grouped for further consideration and theoretical articles were excluded as they did not involve evaluation of discreet medical missions. Ten additional articles were excluded at this stage because they did not discuss medical students or because they did not evaluate MMT outcomes.

The full text of the remaining 42 articles was evaluated for final inclusion in the qualitative synthesis and 19 were ultimately selected. To be included in the final cohort, articles had to conduct some evaluation of discreet MMTs to LMICs involving medical students. Some articles were excluded at this stage because they collected data about numerous trips to unspecified countries over a wide range of years.

Study characteristics were recorded using an Excel spreadsheet. Several features of each article were extracted including the country of origin of participating students, the host countries for MMTs, the number and types of participants evaluated, the duration of trips, the types of evaluation conducted, and general summaries of the articles' conclusions.

Table 2: Selected articles included in qualitative synthesis

Year	First Author	Article Title	Methodology
2000	Haq	New world views: preparing physicians in training for global health work	Pre/Post Survey
2006	Jolkowitz	Description and evaluation of a clerkship in International Health and Medicine	Pre/Post Survey
2010	Vora	A student-initiated and student-facilitated international health elective for preclinical medical students	Post Survey
2011	Eit	Ethical issues encountered by medical students during international health electives	Interviews
2012	Abedini	Understanding the effects of short-term international service-learning trips on medical students	Interviews
2014	Kumwenda	Western medical students' experiences on clinical electives in sub-Saharan Africa	Interviews
2015	Chuang	Medical and pharmacy student concerns about participating on international service-learning trips	Pre/Post Survey
2015	Kumwenda	Medical electives in sub-Saharan Africa: a host perspective	Interviews
2015	Ziganshin	Training Young Russian Physicians in Uganda: A Unique Program for Introducing Global Health Education in Russia	Post Survey
2016	Kung	Host community perspectives on trainees participating in short-term experiences in global health	Interviews
2016	Rovers	Motivations, barriers and ethical understandings of healthcare student volunteers on a medical service trip: a mixed methods study	Post Survey
2018	Fotheringham	International medical electives in selected African countries: a phenomenological study on host experience	Interviews
2018	Leathers	Interprofessional education between medical students and nurse practitioner students in a Global Health course	Pre/Post Survey
2018	Peluso	Ethical dilemmas during international clinical rotations in global health settings: Findings from a training and debriefing program	Pre/Post Survey
2019	Anderson	Development of a Novel Global Surgery Course for Medical Schools	Pre/Post Survey
2019	Rovers	Short-term medical service trips: what is the cost of patient care and student training?	Pre/Post Survey
2020	Dornhofer	Evaluation of a point-of-care ultrasound curriculum taught by medical students for physicians, nurses, and midwives in rural Indonesia	Knowledge Testing
2020	Skolka	Attitude adjustments after global health inter-professional student team experiences	Pre/Post Survey
2020	Xu	Reflecting on exchange students' learning: Structure, objectives and supervision	Interviews

### RESULTS

#### Study Characteristics

Ultimately, 19 articles were selected for inclusion in the qualitative synthesis. Article publication dates ranged from 2000 to 2020. Nine of these (47.4%) exclusively assessed medical students, while six (31.6%) evaluated a mix of participants including resident and attending physicians along with medical, pharmacy, nursing, physician assistant and other health professions students. Finally, four articles (21%) did not evaluate student participants but instead assessed host site coordinators or clinicians.

A majority (17) of these articles evaluated MMTs that included students from the US, with only two studies exclusively discussing MMTs for students from other countries (Australia and Canada). Six articles evaluated MMTs for students from various, mostly Western countries. Articles discussed missions to numerous countries across Asia, Africa, and Central and South America.

#### Methodologies

Articles generally assessed participants with surveys and questionnaires, semi-structured interviews, and in one case, knowledge testing. Eight of the studies (42.1%) assessed participants with pre- and post-MMT surveys while three (15.8%) only involved post-experience surveys. Seven articles (36.8%) involved semi-structured interviews of participants with thematic analysis of their discussions. Finally, one article, Dornhofer et al. (2020), tested clinician and provider knowledge of point of care ultrasound (POCUS) skills after a course administered by visiting medical students. Of the articles that assessed student perceptions of their international experiences, several also asked students to write reflective essays or keep journals that were also included in thematic analysis of their perspectives.

Table 3: Study characteristics of articles included in qualitative synthesis

First Author	Student Origins	Host Countries	Duration	Study Participants (n#)
Abedini	US	Cuba, the Dominican Republic, Guatemala, Jamaica, or Peru	1 week	13 medical students
Anderson	Sweden, US, Zimbabwe	Zimbabwe	2 weeks	50 medical students
Chuang	US	Many/Unspecified	variable	27 medical students, 8 pharmacy students
Dornhofer	US	Indonesia	4 weeks	55 clinicians
Eit	Canada	Nepal, India, Thailand, Uganda, Ghana, Kenya, Tanzania, South Africa, Honduras, Nicaragua, El Salvador and Venezuela	various	12 medical students
Fotheringham	UK, Germany, Netherlands, Scandinavia, Australia, Belgium, France, US	Uganda, South Africa, Swaziland	4-16 weeks	10 host site coordinators (9 physicians)
Haq	US	Honduras, Columbia, Thailand, South Africa, Kenya, India, Pakistan, India, Kenya, Ethiopia, Peru, Nepal, Israel	6-8 weeks	60 medical students
Jolkowitz	US, Israel	Denmark	4 weeks	49 medical students
Kumwenda (2014)	US, UK, Netherlands, Australia, New Zealand, Denmark	Malawi, Tanzania, Zambia	variable	29 medical students
Kumwenda (2015)	US, UK, Netherlands, Australia, New Zealand, Denmark	Malawi, Tanzania, Zambia	variable	14 host coordinators
Kung	US	Bolivia, India	variable	35 host site coordinators
Leathers	US	Nicaragua	1 week	18 medical students, 8 nursing students
Peluso	US	Africa, Asia, South America, and the Caribbean	variable	82 medical students
Rovers (2016)	US	Dominican Republic	1 week	35 health professions students
Rovers (2019)	US	Dominican Republic	1 week	10 health professions students, 7 providers
Skolka	US	Central America	1 week	59 medical, physician assistant, nursing students
Vora	US	Various	4 weeks	30 medical students
Xu	Australia	China	2 weeks	7 medical students
Ziganshin	Russia, US	Uganda	6 weeks	4 medical students, 4 interns, 9 residents, 2 PhD students, 1 faculty

#### Outcomes Assessed

Seven of the nineteen articles aimed to evaluate student attitudes about MMTs, international health care delivery, and their motivations for participating. Three articles specifically evaluated student perceptions of, and experiences with, ethical issues on their international electives. Three articles assessed host attitudes of MMTs to their sites. Three studies evaluated changes in student competency in various topic areas (e.g., cultural competency). Dornhofer et al. (2020) was unique for evaluating technical knowledge with a test of POCUS skills. Rovers et al. (2019) evaluated the cost of MMTs for students and providers. Finally, Skolka et al. (2020) measured changes in student perceptions of the value of interprofessional collaboration before and after a medical mission involving medical, physician assistant, and nursing students. None of the articles in this cohort aimed to assess patient outcomes or evaluated patient perspectives.

### DISCUSSION & CONCLUSIONS

The nineteen articles selected for relevance in this review demonstrate an inordinate focus on the perceptions, motivations, and educational outcomes of students who embark on medical mission trips to LMICs. They also reflect a finding of existing reviews described previously, that there is a dearth of quantitative data collection and evaluation with respect to the success and efficacy of mission trip objectives. Only three of the identified articles evaluated changes in medical student competencies, while the vast majority of studies instead focused on qualitative appraisals of students' opinions about their trips. One troubling finding of this review is that none of the included articles made any effort to assess the impact of mission trips on the patients they served. Without rigorous evaluation of the potential drawbacks and benefits of MMTs for host countries, the ethical concerns around the potential exploitation of these communities and of medical tourism persist.

This review supports findings from reviews of the broader MMT literature, that there is a relative lack of quantitative assessment of the outcomes of MMTs. It is also clear that the attitudes of participants and clinicians are overwhelmingly and disproportionately represented. Methodologies tended to focus on qualitative data using primarily surveys and interviews. Therefore, most studies could not make conclusive statements about the value of MMTs in educational outcomes like clinical skills or cultural competency. These results support a need for a better standard of evaluation when it comes to medical missions for medical trainees. When combined with the lack of evaluation of patient outcomes, it is unclear from the literature whether MMTs are truly benefiting students and the communities that they visit. Increased attention on the need for better evaluation suggests that study authors and trip organizers are aware of the necessity of rigorous evaluation, and this review supports that same need when it comes to trips organized for medical students.

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