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## Impact of Global Medical Service Trips on Physician Careers of Medical Students of Host Country.

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### Abstract

Short-term experiences in global health (STEGH) are common among high-income country institutions visiting middle or low-income countries. Little information is known about the impact of STEGH to medical students of the host country. This study aims to identify the impact of global service trips on the host country's medical students' learning and career choices. The University of Florida (UF) College of Medicine hosts an annual, weeklong global service trip to different countries. For almost 20 years, UCNE (Universidad Catolica Nordestana) has partnered with UF DR Salud (University of Florida Dominican Republic Health) in a weeklong service trip in the underserved communities of San Francisco de Macoris. Every year, 10-15 UCNE students in their senior year of medical school assist the DR Salud team to care for patients in their community by providing translation and cultural guidance. An electronic survey was sent via email to previous DR Salud UCNE medical student participants. Out of 52 surveys sent, 31 responses were received. Five of the responses were incomplete, and only 26 were included in the analysis. The overall response of the host country's student participants regarding the influence of STEGH in their medical career is overwhelmingly positive. They all agreed that participating in STEGH improved their ability to perform physical examinations, reinforced their empathy to care for the poor and underserved, improved their ability in medical history taking and diagnostic skills, gave them confidence in procedural skills and medical decision making, and reinforced the reason why they wanted to be a physician. As far as the impact on their choice of medical career, a majority of respondents agreed that STEGH affected their choice of medical specialty.

**Keywords:** Global health, physician's career, host country.

### Introduction

Medical students who have completed an international clinical rotation often report a greater ability to recognize disease presentations, do a more comprehensive physical examination, improved diagnostic skills with less reliance on expensive imaging, and greater cultural sensitivity [1]. Most of the current available studies involve medical students from visiting institutions and little is known about the effects on medical students of the host country. Tiller and Jones' study on ethical reflection for medical electives concluded that more research is required to assess the effects of electives on developing countries from an economic and clinical perspective [2]. In the absence of clear definitions, standards, impact data, and appropriate conduct, STEGH (short term experiences in global health) may represent a suboptimal use of time and resources, harm the community, and even perpetuate global health inequities [3]. For

years, the University of Florida (UF) has partnered with Universidad Catolica Nordestana (UCNE) in providing medical services to the underserved population of San Francisco de Macoris. Host country medical students primarily helped the visiting medical students with language and cultural interpretation and were supervised by visiting medical faculty during patient encounters including performing history and physical examinations, procedural skills, medical diagnosis, treatment, and decision-making. Medical students at UCNE in their 5<sup>th</sup> and 6<sup>th</sup> years are equivalent to 3<sup>rd</sup> and 4<sup>th</sup> years in US medical schools. It has been shown that global health service trips have a positive impact on visiting student medical skills.

A previous study on the impact of global service trips on physician careers among US students reported improved history taking, physical examination, diagnostic and procedural skills, and medical decision making ability [4]. Another study reported that medical students involved in global service trips were more culturally competent and were more likely to choose a primary care specialty and/or a public service career [5]. As far as the impact on the choice of a medical specialty, it showed mixed results [4]. This study attempted to quantify the impact of global service trips on the host country's medical student career.

### **Method**

A thirteen-question survey was developed addressing how global medical service trip experiences influenced the host country's medical students' career choices. The host country in this study is the Dominican Republic. The survey was developed in an electronic format and tested on a select group of physicians who recently participated in service trips to refine the questions and flow of the survey. Test responses were cleared before the email request to complete the survey was sent to the host country (UCNE) medical student participants. Approval to conduct this study was obtained through the University of Florida Institutional Review Board (IRB-03).

Survey questions were emailed to previous UCNE Medical Students who participated with UF DR Salud from 2015 to 2018. An introduction and survey link was sent via email using Qualtrics survey software through UF's secure server to previous UCNE DR Salud participants to current and former medical students (alumni) inviting them to participate in the survey. Each participant was assured that results would be strictly confidential and totally voluntary. Surveys are anonymous and completion implied consent to participate in the study. Email request was sent twice to 52 UCNE medical students and alumni during a 6 month period from October 2017 to March 2018. 3 email addresses were undeliverable. 31 responses were received, 5 with incomplete responses, and only 26 completed the survey.

A descriptive analysis that included counts and percentages for each of the survey questions was performed including cross tabulations. Chi square analysis was performed to compare two groups, alumni versus medical student.

### **Results**

Out of 31 responses, 16 (52%) were current medical students and 15(48%) were alumni. 81% of current medical students are in their 6<sup>th</sup> or final year of medical school and only 19% are in their

5<sup>th</sup> year. Regarding alumni respondents, 87% are in primary care and only 13% are in specialty care. Among the specialties, 92% are in Family Practice and only 8% are in Pediatrics, and 43% are practicing in Public Health. Majority of those who responded, participated in medical service trips only once 47% and 47% more than 3 times (Table 1). As far as service trip sponsors, 44% were sponsored by UF, 34% were sponsored by another University, and 22% were non-governmental agencies.

**Table 1. Sample Characteristics**

	Frequency	%
<b>Alumni</b>	15	100
<i>Primary Care</i>	13	87
Pediatrics	1	8
Internal Medicine	0	0
<i>Specialty Care</i>	2	13
<b>Students</b>	16	100
4th Year	0	0
5th Year	3	19
6th Year	13	81
<b>Number of Medical Service Trips</b>	15	100
1	7	47
2	1	7
3	0	0
More than 3	7	47

The overall response of UCNE students and alumni regarding the influence of global service trips in their medical career is overwhelmingly positive. More than 62% of the respondents strongly agreed that participating in global service trips increased their desire to go on medical mission trips in the future and 85% said that they feel more comfortable speaking a foreign language in their practice. The majority of respondents (62%) strongly agreed that global service trips improved their ability to perform physical examination, improved their empathy to care for patients who are poor or underserved (69%), and it also improved their leadership skills (61%). Majority of the respondents strongly agreed or agreed that global service trips improved their ability to take medical history (89%), improved their confidence in procedural skills (84%), improved their diagnostic skills (94%), improved their medical decision making ability (96%), and made them feel more confident and knowledgeable compared to their peers (84%). It also reinforced the reason why they wanted to be a physician (73%). As far as any kind of stress created while participating in the service trip, there were mixed responses where 44% strongly disagreed or disagreed and 48% were neutral regarding this question. A majority (58%) agreed or strongly agreed that global service trips affected their choice of medical specialty and 27% were neutral about this issue. See Table 2 for full results of the survey.

**Table 2. Survey Results**

<b>Did participating in a global medical service trip:</b>		<b>Student</b>	<b>Alumni</b>	<b>Total</b>
		<b># (%)</b>	<b># (%)</b>	<b># (%)</b>
Improve your ability to perform physical examination?	Strongly Agree	13(87)	3(27)	16(62)
	Agree	1(7)	5(46)	6(23)
	Neutral	1(7)	3(27)	4(15)
	Disagree	0(0)	0(0)	0(0)
	Strongly Disagree	0(0)	0(0)	0(0)
Improve your empathy to care for patients who are poor or the underserved?	Strongly Agree	13(87)	5(45)	18(69)
	Agree	2(13)	5(45)	7(27)
	Neutral	0(0)	0(0)	0(0)
	Disagree	0(0)	1(9)	1(4)
	Strongly Disagree	0(0)	0(0)	0(0)

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Improve your ability to take medical history?	Strongly Agree	11(73)	4(36)	15(58)
	Agree	4(27)	4(36)	8(31)
	Neutral	0(0)	2(18)	2(8)
	Disagree	0(0)	1(9)	1(4)
	Strongly Disagree	0(0)	0(0)	0(0)
Improve your leadership skills?	Strongly Agree	9(60)	7(64)	16(61)
	Agree	4(27)	3(27)	7(27)
	Neutral	2(13)	1(9)	3(12)
	Disagree	0(0)	0(0)	0(0)
	Strongly Disagree	0(0)	0(0)	0(0)
Affect your choice of medical specialty?	Strongly Agree	4(27)	4(36)	8(31)
	Agree	5(33)	2(18)	7(27)
	Neutral	3(20)	4(36)	7(27)
	Disagree	3(20)	0(0)	3(12)
	Strongly Disagree	0(0)	1(9)	1(4)
Improve your confidence in procedural skills?	Strongly Agree	8(53)	4(36)	12(46)
	Agree	6(40)	4(36)	10(38)
	Neutral	1(7)	2(18)	3(12)
	Disagree	0(0)	1(9)	1(4)
	Strongly Disagree	0(0)	0(0)	0(0)
Improve your diagnostic skills?	Strongly Agree	11(73)	4(36)	15(58)
	Agree	4(27)	6(55)	10(38)
	Neutral	0(0)	1(9)	1(4)
	Disagree	0(0)	0(0)	0(0)

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	Strongly Disagree	0(0)	0(0)	0(0)
Improve your medical decision-making ability?	Strongly Agree	10(67)	3(27)	13(50)
	Agree	5(33)	7(64)	12(46)
	Neutral	0(0)	1(9)	1(4)
	Disagree	0(0)	0(0)	0(0)
	Strongly Disagree	0(0)	0(0)	0(0)
Increase your desire to go on medical mission trips in the future?	Strongly Agree	13(87)	10(91)	23(88)
	Agree	2(13)	1(9)	3(12)
	Neutral	0(0)	0(0)	0(0)
	Disagree	0(0)	0(0)	0(0)
	Strongly Disagree	0(0)	0(0)	0(0)
Made you feel more confident and knowledgeable when you started your clinical rotation compared to your peers?	Strongly Agree	6(43)	6(55)	12(48)
	Agree	6(43)	3(27)	9(36)
	Neutral	2(14)	1(9)	3(12)
	Disagree	0(0)	0(0)	0(0)
	Strongly Disagree	0(0)	1(9)	1(4)
Feel more comfortable speaking a foreign language in your practice?	Strongly Agree	11(73)	11(100)	22(85)
	Agree	0(0)	0(0)	0(0)
	Neutral	4(27)	0(0)	4(15)
	Disagree	0(0)	0(0)	0(0)
	Strongly Disagree	0(0)	0(0)	0(0)
Reinforce the reason why you	Strongly Agree	3(20)	7(64)	10(38)

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wanted to be a physician?	Agree	9(60)	0(0)	9(35)
	Neutral	3(20)	3(27)	6(23)
	Disagree	0(0)	1(9)	1(4)
	Strongly Disagree	0(0)	0(0)	0(0)
Create any kind of stress?	Strongly Agree	2(13)	0(0)	2(8)
	Agree	0(0)	0(0)	0(0)
	Neutral	7(47)	5(50)	12(48)
	Disagree	4(27)	3(30)	7(28)
	Strongly Disagree	2(13)	2(20)	4(16)

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Comparing medical students versus alumni responses, majority of medical students strongly agreed that participating in global service trips improved their ability to perform physical examinations (87%) and improved their empathy to care for the poor or underserved (87%). Only 27% of alumni strongly agreed that it improved their ability to perform physical examination. All of the students either agreed or strongly agreed about improving their empathy to care for the poor or underserved as compared to 90% of alumni. All of alumni strongly agreed to feeling more comfortable speaking a foreign language in their practice versus 73% of medical students.

All of medical students either agreed or strongly agreed that participation in global service trips improved their ability to take medical history, improved their diagnostic skills, and improved their medical decision making ability. The majority of alumni also agreed or strongly agreed with said statements (72-91%). Medical students and alumni did not significantly differ in their responses about improving their leadership skills (60% vs 64%), increasing their desire to go on future medical service trips (87% vs 91%), and feeling more confident in clinical rotation (86% vs 82%).

When asked how global service trips affected their choice of medical specialty, students and alumni had similar responses, 60% of medical students and 54% of alumni strongly agreed or agreed, 20% of students and 36% of alumni had neutral responses, and 9% of the alumni strongly disagreed.

The majority of medical students strongly agreed or agreed (93%) that their global health experience improved their procedural skills compared to only 72% of alumni. Alumni strongly agreed (64%) that global service trips reinforce the reason why they wanted to be a physician compared to students who strongly agreed (20%). Alumni and students both disagreed (30% and

27%) or strongly disagreed (20% and 13%) that participating in global service trips created any kind of stress.

Overall, there is no statistically significant difference in responses between medical students and alumni, most likely due to a small sample size.

### **Discussion**

The growing popularity of STEGH, particularly among health care trainees and young providers, has raised questions around disparities in benefits and harms assumed by different stakeholders. The literature documents clear benefits for visiting participants and their sending institutions, but for host communities, STEGH benefits remain less clear [6]. STEGH programs also generate controversy as to whether they do more harm than good [7]. Although a study by Haddad-Lacle documented a very high percentage (98.9%) of patients served feel that they do receive benefits from medical service mission trips [8], little is known about the benefits or harm to the host country's medical student participants.

A study by Bissonette documenting the educational impact of clinical rotations in developing countries showed that students reported increased skill and confidence in the use of knowledge, personal history, and physical as the primary means of diagnosis [9]. That it heightened awareness of the importance of public health and preventive medicine, greater appreciation for the role of the family and culture in health and disease, and decreased reliance on technology [9]. Our study also demonstrated that short one -week global health experiences significantly impact the host medical students' learning. Majority of the survey respondents strongly agreed that STEGH improved their medical history taking, ability to perform physical examinations, diagnostic skills, medical decision-making ability, and procedural skills. They also felt more confident or knowledgeable in seeing patients when they went back to their clinical rotations.

As a result of participating in global service trips, a vast majority of participants felt more empathy in serving the poor and reinforced their choice in medical career. Their confidence in interacting with patients having a language barrier also increased. This result might have been reinforced by interacting with visiting medical students who are not fluent in the host community's native language and some foreign speaking population (Haitians) in rural areas visited during short-term mission trips. A similar result was shown by Vu's study which demonstrated sustained benefits in cultural competency, communication skills, adaptability, and desire for service among residents after years of participation in short term international medical mission trips [12].

An association between international health experience and practicing primary care, public health, or working in underserved communities seems consistent across studies [11]. Almost 50% of our respondents are alumni and half are in their last year of medical school. Of the alumni respondents, 87% are practicing primary care, 92% of them in Family Practice. Majority of respondents agreed or strongly agreed that STEGH affected their choice of medical specialty.



Although the benefits for HIC (High Income Country) trainees are well described, the benefits and drawbacks for LMIC (Low and Middle Income Country) host communities are not well captured [12].

Results of Kung's study on host community benefits included improvement in leadership skills. This is consistent with our study which showed that host country medical students and alumni strongly agreed or agreed and did not differ in their responses about improving leadership skills and desire to participate in future medical service trips. Students and alumni alike both disagreed or strongly disagreed that STEGH created any kind of stress for them.

To our knowledge, there is no previous study on the effect of short-term medical service trips on medical students in their own country. This study provides evidence that the host country's medical students received significant benefits from participating in short term week - long global service trips. The opportunity of medical students to participate in patient care in a setting outside of their medical school, and supervised by visiting faculty, most likely contributed to their medical knowledge and future decisions in their career. Our study provides evidence that medical student participants of host country felt that STEGH improved their clinical skills, which include history taking, physical examination, diagnosis and medical decision-making, and even procedural skills. They also felt more confident treating patients when they went back to their clinical rotation. These include patients with a language barrier. It also made them empathize with the poor and underserved, improved their leadership skills, and reinforced the reason why they pursue the medical career. As far as medical specialty choice, a significant number of respondents were neutral in their answer but over 50% agreed or strongly agreed that it impacted their specialty choice decision. Due to limitations in reaching previous host country medical students and especially alumni, we received limited responses. More studies are needed before we can definitely conclude the effect of STEGH in student learning and the impact it has on physician career choices.

Short-term experiences in global health (STEGH) participation of host country's medical students have a significant impact in their medical career. Our study provides evidence that medical students of host country felt that STEGH help improve their clinical and communication skills, develop empathy, and impacted their medical career choice.

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