

**First-year Medical Student Clinical Confidence on Global Health Immersion Trip**

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## **First-year Medical Student Clinical Confidence on Global Health Immersion Trip**

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### **Author Contributions:**

Kristin Taylor came up with the concept, wrote the IRB, and wrote the manuscript.

Dr. Robin Ross served as her mentor and helped with study design and editing.

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## **Abstract**

### Introduction

There are few reports demonstrating the clinical benefits of global health trips specifically for first-year medical students. The aim of this study was to determine whether first-year medical student confidence in clinical diagnosis improved over their week-long global health immersion trip and to determine what kinds of diagnoses medical students felt confident in making in a global health setting after their first year of medical school education.

### Methods

This study was a survey involving confidence ratings in diagnoses provided by University of Arizona College of Medicine- Phoenix first year medical students who participated in a week-long medical trip to bateyes (rural communities of sugar cane workers) surrounding Santo Domingo, Dominican Republic in 2019. This study received IRB approval. Confidence in diagnosis was determined by a five-point Likert scale. Diagnoses were separated into categories by body system.

### Results

There were no significant differences in student confidence ratings over time when including all time points. There was a statistically significant increase in confidence from 5/28 and beyond ( $p=0.001$ ). There were no significant differences in student confidence ratings amongst category of diagnosis.

### Discussion

The results demonstrated that overall, students reported similar confidence throughout the trip. There was a large decrease in confidence level from the first to the second time point and this is likely attributable to being redirected by attending supervision. Confidence then gradually

increased throughout the trip. Unfortunately, weaknesses in certain subject areas were not able to be elicited as students reported similar confidence for all categories.

## **First-year Medical Student Clinical Confidence on Global Health Immersion Trip**

## Introduction

There is insufficient literature describing the impact of global health immersion trips on first year medical students or how prepared they are clinically to be undertaking such trips. Abedini et al demonstrated that 85% of first-year students at the University of Michigan Medical School who participated in one-week international service-learning trips perceived some improvement in clinical or language skills and/or knowledge of the health care system in the countries visited (1). This is one of the only reports of benefits of first-year medical student global health trips specifically. There is no specific information regarding what clinical knowledge shows improvement and to what extent. Chuang et al studied medical and pharmacy student concerns about participating in international service-learning trips and found that students had multiple concerns prior to attending the trips (cultural barriers, disease/epidemics, natural disasters, terrorism, travel, monetary issues, hospitality, food), but that most decreased upon return (2). Pre-trip apprehension was decreased in healthcare students over the course of the trip.

Global health immersion trips have been more thoroughly studied amongst third-year medical students. Surgical electives in particular have received the most attention. Leeds et al found that 89% of Emory University School of Medicine third-year students who participated in a one-week elective in Haiti during their 8-week surgery clerkship believed the elective provided appropriate clinical training (3). In addition to satisfaction with training, Chin-Quee et al found that learning objectives that satisfied Emory University School of Medicine surgery clerkship were met on the annual surgical service trip to Haiti (4). Global health electives were comparable to training in the US.

Benefits of global health immersion trips have been demonstrated in the literature, however, the focus is primarily on third-year education. The studies that have been done examining first-year trips are slim and are nonspecific in their findings in regard to how students evolve from start to finish of these trips.

The purpose of this research is to add to the body of literature on first-year medical student education in a global health setting. The specific aim is to examine how confidence evolves in first year medical students over the course of a global health immersion trip and to extract what diagnoses specifically first-year medical students are equipped to make. An aim is also to identify which diagnoses are lacking confidence to better train University of Arizona College of Medicine- Phoenix medical students leading up to their annual trip.

We hypothesized that confidence ratings would increase over the course of the week. We also hypothesized that diagnoses falling under topics covered in second year curriculum would have the lowest confidence ratings.

### Methods

This study was a survey involving confidence ratings in diagnoses provided by 15 University of Arizona College of Medicine- Phoenix first-year medical students who participated in a week-long medical trip to bateyes (rural communities of sugar cane workers) surrounding Santo Domingo, Dominican Republic in 2019. 315 confidence ratings were included. This study received IRB approval.

Confidence in diagnosis was determined by a five-point Likert scale: 5- very confident, 4- confident (would love a test), 3 neutral, 2- not so sure, and 1- not sure at all (need to refer to a specialist). This Likert scale was included in the patient chart for students to fill out during the patient encounter.

Upon analysis, diagnoses were separated into categories by body system. These included: musculoskeletal, nervous system, cardiovascular/hematology, pulmonary, gastrointestinal, reproduction/gynecological/breast, dermatological/wound, ear/nose/throat, constitutional, renal/urinary, dental, normal, and multiple diagnoses.

Inclusion criteria was patients who receive a diagnosis with accompanying confidence ratings. Exclusion criteria was patients missing one of these elements in their chart.

### Results

There were no significant differences in student confidence ratings over time when including all time points. There was a statistically significant increase in confidence from 5/28 and beyond ( $p=0.001$ ). There were no significant differences in student confidence ratings amongst category of diagnosis.

The first day of clinic was the time point with the highest mean confidence of  $4.23 \pm .84$ . The most extreme decrease in confidence occurred between the first and second time points ( $4.23 \pm .84$  to  $3.63 \pm .97$ ). The second and third time points were the lowest reported student confidence level ( $3.63 \pm .97$  and  $3.62 \pm .73$ ) and confidence increased over the sequential three time points ( $3.65 \pm .79$ ,  $3.78 \pm .67$ ,  $4.16 \pm .95$ ).

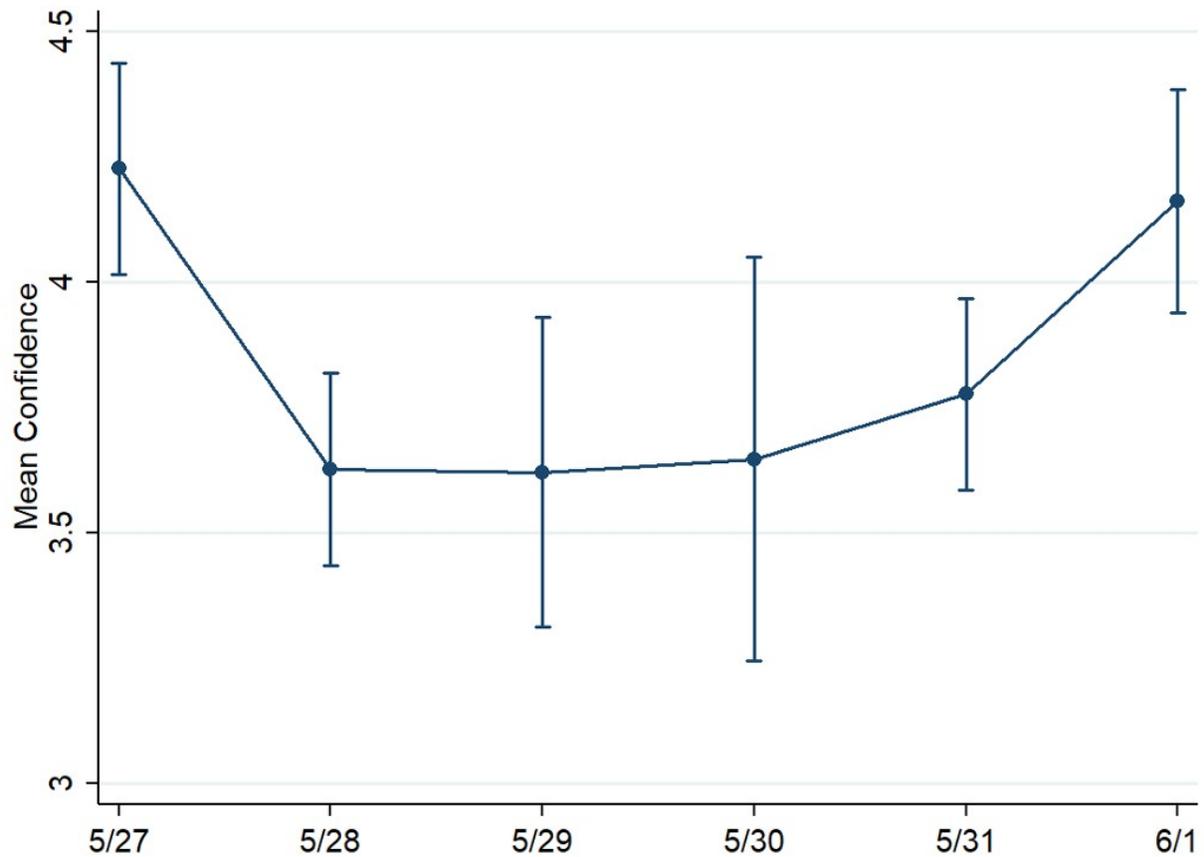


Figure 1: Mean student confidence over time. 5/27 included 62 student confidence rating-diagnosis pairs, 5/28 (75), 5/29 (29), 5/30 (17), 5/31 (76), 6/1 (56). Brackets represent standard deviation.

### Discussion

The expected outcomes of this study were as follows: The study would provide insight into how well prepared first-year medical students were to form diagnoses in a global health setting and how they grew in clinical knowledge over the course of a global health immersion trip. It would demonstrate the benefit of participation by first-year medical students in such an

experience and challenge the established pre-clinical lecture-based learning. And lastly, students would gain a sense of how the trip elevated their clinical knowledge.

The results demonstrated that overall, students reported similar confidence throughout the trip. There was a large decrease in confidence level from the first to the second time point and this is likely attributable to being redirected by attending supervision. Confidence then gradually increased throughout the trip. A factor to also consider is that students moved to new clinics throughout the week and some of the clinics could have had higher complexity patients than others. For example, if the mid-week locations had the most complex patients, this would explain the decline in confidence during this time period. This was a limitation of the study.

An additional limitation was that students were aware of the study and were adding their names to the chart with their confidence rating. This may have influenced them to document under-confidence if there was fear that an inaccurate diagnosis would be tied to their name. It could have also influenced them to document over-confidence if they were considering how their confidence rating would reflect the quality of their clinical skills. Additionally, some students may have filled out confidence before consulting with an attending while others may have reported their confidence after confirming their assessment and plan with an attending.

Unfortunately, weaknesses in certain subject areas were not able to be elicited as students reported similar confidence for all categories.

A future direction of this study would be to follow these patients and obtain data on whether diagnoses were in fact correct and correlate this with student confidence. Data can continue to be collected once trips resume following the COVID-19 pandemic.

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