

# Somos Hermanos: Summer Immersion Program

## “The Dual Burden of Malnutrition: Quetzaltenango, Guatemala”



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### Introduction

In June 2013, I participated in Keck School of Medicine’s Somos Hermanos Summer Immersion Program in Quetzaltenango, Guatemala. This eight-week program aims to foster bilingual and culturally competent health care professionals through Spanish language classes and volunteerism at clinical locations.

Additionally, I designed an IRB-approved research study called “The Dual Burden of Malnutrition: Quetzaltenango, Guatemala” with the guidance of Dr. Robert C. Morrow. The purpose of this study was to assess whether the "dual burden of malnutrition" phenomenon is present in Guatemala.

### Objectives

With the Somos Hermanos Summer Immersion Program, my objectives were to improve my Spanish language skills, to gain medical experience at clinical locations, and to develop a better understanding of the Guatemalan culture, traditions, and health care practices.

The principal objective of the study was to assess whether the “dual burden of malnutrition” phenomenon is present in the Guatemalan population. This theory suggests that a diet high in carbohydrates and starches can promote both under-nutrition in children, which can cause adverse health problems, such as stunting, and eventually promote obesity in adulthood.

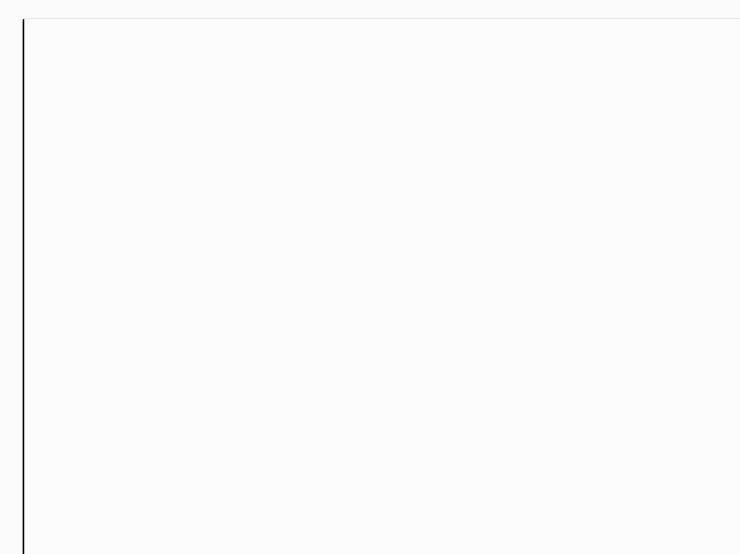
### Methods

The Summer Immersion Program included one-on-one Spanish lessons designed to build medical Spanish language skills; clinical volunteer opportunities at various sites in and around Quetzaltenango; and lectures about Guatemalan culture, history and health care issues.

For my research study, I recruited and interviewed families at the rural clinic of Chiquilaja. The study utilized 24-hour food recalls, weight and height measures to calculate BMI, arm circumference to measure malnutrition, and waist circumference to measure adiposity in order to compare and contrast the health statuses of caregivers and their children.



Puesto De Salud in Chiquilaja, Guatemala



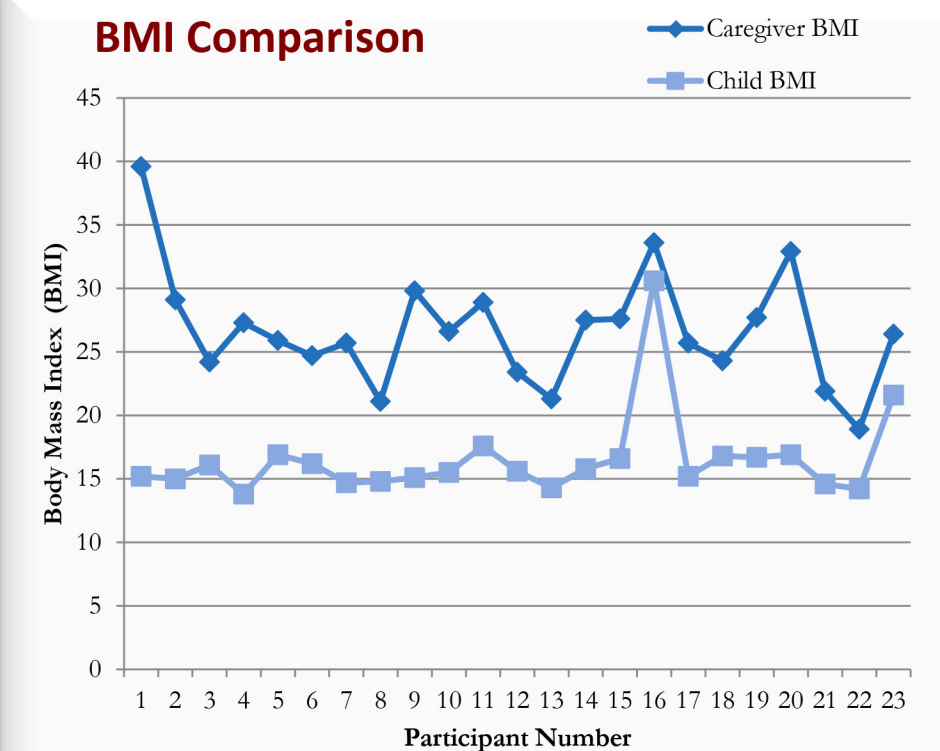
Two of the study participants

### Results

After two months in Guatemala, I gained 120 hours of Spanish language instruction as well as valuable medical experience at a variety of clinical locations, including hospitals and rural clinics. At the rural clinic of Chiquilaja, I practiced adult, pediatric, and obstetric physical exams. At the rural clinic of Llanos de Pinal, I assisted in community-wide health education sessions. At Rodolfo Robles Hospital, I shadowed nurses who were treating patients with tuberculosis and HIV/AIDS. Finally, at Totonicapan Hospital, I observed surgeries in the operating room, and witnessed the labor and delivery of both natural births and caesarean sections.

With the study, I interviewed 26 mothers and 26 children about their diets and collected biometric measurements, including height, weight, upper arm circumference, and waist circumference. I am still in the process of analyzing the data, but preliminary results showed (after removing data from three caregiver-child pairs who represented outliers) that 34.8% of the caregivers had a normal BMI between 18-24.9, while 65.2% of the caregivers were overweight or obese with a BMI over 24.9. In contrast, 82.6% of the children were categorized as “healthy” or within the 5<sup>th</sup> and 85<sup>th</sup> percentile for their particular age and gender. One child was below the 5<sup>th</sup> percentile and three children were above the 85<sup>th</sup> percentile. The CDC’s adult and pediatric BMI calculators and cut-offs were used to calculate these data.

### BMI Comparison



### Conclusions

The preliminary results show that there is clearly a difference in health status between the caregivers and children who participated in this study. Further analysis of the data will be performed to try and deduce if a dual burden of malnutrition phenomenon is present in this population.

Overall, I learned a tremendous amount about primary care and the struggles of accessing medical care in a resource-challenged country. My passion global health have been reaffirmed and I look forward to pursuing these interests further!

### Acknowledgements

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