Non-Governmental Organization’s (NGOs) Impact on Health Care Services in Rural Honduras: Evaluating a Short–Term Medical Mission (STMM)

Utilizing a Case Study Approach

by

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Abstract

Non-Governmental Organization’s (NGOs) Impact on Health Services in Rural Honduras: Evaluating a Short-Term Medical Mission (STMM) Utilizing a Case Study Approach

Canada is a leading, international country that engages in Non-Governmental Organization (NGO)-led STMMs to low and middle-income countries for the provision of health care, education or structural development. Honduras, a chief destination country, is one of the poorest, most politically unstable in Central America. Health expenditure is among the lowest in the Americas, approximately 30.1% of the population receives no health care, and there is marked exclusion of ethnic and rural minorities. In Honduras, there is a paucity of evidence on the expectations, coordination and outcomes of STMMs.

Guided by World Health Organization’s Primary Health Care (PHC) framework, an exploratory, type 2, single case study with a multiple embedded units design was used to address two research questions relating to the processes and outcomes of STMM services, and how stakeholders assess services. Eight propositions supported the data collection and a 12-day STMM involving 7 rural villages in Gracias a Dios (client n = 1120) constituted the case over three time periods (pre, during, and 10-weeks post STMM). Other data sources were key stakeholders (regional health/host officials, Honduran and Canadian health care providers). A revised, adapted Harvard evaluation tool was the principal data collection instrument. According to a review of English publications, this is the first longitudinal assessment of STMM processes, outcomes and community perspectives.
Community members provided rich details regarding factors that impact their health, such as their impoverished situation and environmental challenges and risks (water, sanitation, food scarcity, poverty, and limited transportation). Diagnoses and treatments were consistent with the evidence of predominant health issues and medications provided in similar regions. Due to limited resources and/or unavailability of services STMM, clients had no opportunity to follow up on referrals. The results suggest that the existing STMM model is limited to adequately meet the needs of the people living in a rural and remote region of Honduras where poverty is extreme.

The discussion situates the findings within the context of a country where, despite individuals’ constitutional right for health, political instability and multiple, intersectoral complexities challenge such right and reveal that STMM’s contributions are valued but fragmented with largely unknown outcomes. Recommendations for STMM quality and accountability, policy, education, and future research are presented.
Acknowledgements

This thesis, while revealing, is only the beginning of a much larger journey and requirement for quality and evaluation of the role and impact of Short–Term Medical Missions (STMMs). This adventure, like most adventures was wonderful and exciting however, it also pushed me well beyond what I thought was ever possible. It forced me to think in an inherently different manner about the role of STMMs in low and middle-income countries.

I would like to thank my supervisor, Dr. Carles Muntaner for his dedication and knowledge. You have taught me to challenge the status quo, focus more on solutions than on problems and intimately understand the politics of health. I would also like to thank and acknowledge my esteemed committee members, Dr. Denise Gastaldo and Dr. Alexandra Martinuik, both of whom I respect and admire very much.

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Finally, my heartfelt thank you, gracias y tinki pale goes to the study participants for allowing me into your lives. Your strength, words and stories have illustrated to the world the explicit needs and urgent primary health care requirements in rural Honduras.

This thesis is dedicated to the memory of my mother, Marylin Grace McConnell. I know you will be smiling down on me as I walk across the stage to receive my diploma.
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<th>Full Form</th>
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<tbody>
<tr>
<td>ASDI</td>
<td>Asociación Sueca Para el Desarrollo Internacional</td>
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<tr>
<td>CESARS</td>
<td>Centro de Salud Rural</td>
</tr>
<tr>
<td>CESAMOS</td>
<td>Centros de Salud con Medico</td>
</tr>
<tr>
<td>CHIMPS</td>
<td>Children's Health International Medical Project of Seattle</td>
</tr>
<tr>
<td>CLIPERS</td>
<td>Clínicas Periféricas de Emergencia</td>
</tr>
<tr>
<td>CSO</td>
<td>Civil Society Organization</td>
</tr>
<tr>
<td>ENDESA</td>
<td>Encuesta Nacional de Demografía y Salud</td>
</tr>
<tr>
<td>FFF</td>
<td>Food supplementation, Female literacy, and Family planning</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GOBI</td>
<td>Growth monitoring of infants, Oral hydration techniques, Breastfeeding and Immunization</td>
</tr>
<tr>
<td>GNI</td>
<td>Gross National Income</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>human immunodeficiency virus/acquired immunodeficiency syndrome</td>
</tr>
<tr>
<td>HSKN</td>
<td>Health Systems Knowledge Network</td>
</tr>
<tr>
<td>IAH</td>
<td>Intersectoral Action for Health</td>
</tr>
<tr>
<td>IHSS</td>
<td>Instituto Hondureno de Seguridad Social (Honduran Institute of Social Security)</td>
</tr>
<tr>
<td>INE</td>
<td>Instituto Nacional de Estadística (National Institute of Statistics)</td>
</tr>
<tr>
<td>IOM</td>
<td>Institute of Medicine</td>
</tr>
<tr>
<td>ISEQH</td>
<td>The International Society for Equity in Health</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<td>--------------</td>
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<tr>
<td>LMIC</td>
<td>Low Middle-Income Country</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic and Cooperation Development</td>
</tr>
<tr>
<td>PAHO</td>
<td>Pan American Health Organization</td>
</tr>
<tr>
<td>PHC</td>
<td>Primary Health Care</td>
</tr>
<tr>
<td>SEIP</td>
<td>Secretaría del Interior y Población</td>
</tr>
<tr>
<td>STMM</td>
<td>Short Term Medical Mission</td>
</tr>
<tr>
<td>SS</td>
<td>Secretariat de Salud (Ministry of Health)</td>
</tr>
<tr>
<td>UIO</td>
<td>Union of International Organizations</td>
</tr>
<tr>
<td>UN MDG</td>
<td>United Nations Millennium Development Goals</td>
</tr>
<tr>
<td>URSAC</td>
<td>Unidad de Registro y Seguimiento de Asociaciones Civiles</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
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CHAPTER 1 INTRODUCTION

In the last two decades, the growth in Non-Governmental Organizations (NGOs) has been one of the most significant trends in international development (Organization for Economic Cooperation and Development [OECD], 2006; Union of International Organizations [UIO], 2009). The number of international NGOs was reported to have increased from 6,000 in 1990 to more than 50,000 in 2006 (UIO, 2009). The OECD estimates that, as of 2011, Civil Society Organizations (CSOs) such as NGOs provided approximately $19.3USD billion in international aid assistance to low and middle-income countries.

Technological advancements and the ease of travel between the developed and the developing world has led to a proliferation of NGO-led Short-Term Medical Missions (STMMs) to address health needs of those living in poverty. Health professionals from Canada are reported to be ranked among the top four countries in the world who engage in STMMs (Martiniuk, Manouchehrian, Negin, & Zwi, 2012). While the top destination country is Honduras, Africa receives the highest number of missions (Martiniuk et al., 2012). On average, 28 International NGO-led Short-Term Missions arrive monthly in Honduras for the purposes of providing health care, education or structural development (Honduras Weekly, Missions Calendar, 2012). The number of Short-Term Missions increased in Honduras following their worst natural disaster in 1998, Hurricane Mitch. Seventeen years later, the humanitarian response remains fundamentally uncoordinated, unpredictable and lacks accountability.
Collaborative partnerships among governments, businesses, communities and NGOs are purported to be an effective way to improve standards of living and achieve sustainable, long-term development (World Health Organization (WHO), 2001). The published descriptions in support of the contribution to health have varied over time (Farmer & Kim, 2008; Maes, 2009; Pfeiffer, Johnson, Fort, Shakow, Hagopian, Gloyd, & Gimbel-Sherr, 2008). The rising number of STMMs along with limited scientific evidence of the impact of STMMs has led to increasing criticism and debate among researchers about the overall effectiveness and their ability to improve health indicators (Martiniuk et al., 2012; Martiniuk, Adunuri, Negin, Tracey, Fontecha, & Caldwell, 2012; McQueen, Hyder, Taira, Semer, Burkle & Casey, 2009; Sykes, 2014).

Evidence from international studies and statements from global organizations support a health system based on the principles of Primary Health Care (PHC) as the most equitable and efficient way to organize health services (Greenhalgh, 2007; Starfield, Shi, & Macinko, 2005; Paim, Travassos Almeida, Bahia, & Macinko, 2011). The World Health Report (2008b) reports “people are increasingly impatient with the inability of health services to deliver levels of national coverage that meet stated demands and changing needs, and with their failure to provide services in ways that correspond to their expectations” (p xii). Health systems need to respond to the challenges of a changing world and a PHC focus is supported in this thesis as a means to meet the challenge.

Since the 1978 Declaration of Alma-Ata, Primary Health Care (PHC), the strategy that was promoted worldwide was a system-level, participatory approach that involves multi-sectoral collaboration to promote ‘health for all’. The PHC movement (WHO,
1978) proposed the development of health care that is equitable, with an emphasis on illness prevention and health promotion, maximizing individual involvement in planning and operating services, and the integration of health services with social and economic development (World Health Organization, 1978). Despite being almost 40 years old, this ideal of universal, equitable health care is far from reality in many countries. In Honduras for instance, primary health care services in rural and remote regions are provided by publically-funded clinics known as Centros de Salud con Medico (CESAMOS; a public health centre with a doctor) and Centro de Salud Rural (CESAR; a public health centre with a nurse), but STMMs are also an important part of service provision to these areas. It is estimated that 57% of the population is covered by public health care services provided by the Ministry of Health, 11% by the Honduran Institute of Social Security, which provides coverage to the working population, and their dependents, and approximately 10% have the financial means to access private health care (PAHO, 2012a). The remaining 22% (mostly among the 53% of Hondurans who live in rural regions) who are not covered by health services belong to the poorest segments of society (PAHO 2012a; WHO, 2006a).

1.1 The Problem and Relevance

Worldwide, 1.3 billion people have no access to effective and affordable health care. Low and middle-income countries (LMICs) experience 93% of the world’s disease burden, yet account for only 18% of world income and 11% of global health spending (WHO, 2010). Many LMICs are not on track to meet their United Nation’s Millennium Development Goals (UN MDGs) by 2015 (Pan American Health Organization
(PAHO), 2012b; WHO, 2006b). Key defined health goals, or outcomes, remain currently out of reach. These include a three-quarters reduction in the maternal mortality ratio, universal access to reproductive health care services, and a two-thirds reduction in the under-five child mortality rate (United Nations, 2010). In Honduras, despite some progress towards improving health and quality of life of some of the population, a fragmented and uncoordinated health care system makes achieving these ambitious international targets uncertain.

Findings from their comparison of service delivery models, Prado & Peña (2010) support an alternative community based model of health service delivery as a viable option to Honduras’ ability to expand coverage to areas that lack basic health care, to complement the Ministry of Health’s limited capacity to deliver and manage services in poor and remote regions. According to PAHO (2007) and WHO (2008), public health leaders and governing bodies view the ideal alternative as a model of care based upon a PHC framework (described in Chapter 4) for addressing the critical health issues being faced globally. Given that NGO-led STMMs are a significant provider of health care services in rural regions of Honduras, there is a unique opportunity to begin to more effectively address the benefits of their services, understand current and potential risks and challenges, and apply the PHC framework to enhance decision making for improved services and outcomes.

To add to the discourse, few peer reviewed research studies were uncovered that probed the perspectives of what the NGO volunteers themselves and the people whose health they influence report about the benefits, challenges and risks of the services received (DeCamp, 2014; Leon, 2003; Martiniuk, Adunuri, Negin, Tracey, Fontecha,
Caldwell, (2012); Pearson, Stevens, Sanogo & Bearman, 2012; Sykes, 2014). Insight gained from studies on perspectives and opinions may be useful to support further exploration regarding evaluative information emanating from NGOs who espouse a desire to improve health system performance and population health outcomes in LMICs (WHO, 2009). Ideally, NGOs should support a national and state driven health care goal toward self-sufficiency.

There were virtually no reports located in the literature where systematic evidence has been collected and analyzed “on the ground,” that is, in NGO-supported villages, with the key stakeholders’ input prior to, during, and following STMMs. Having key stakeholder data may illustrate both the contribution and the challenges within the respective country to official decision makers and health care providers (Maki, Qualls, White, Kleefield & Crone, 2008; Pfeiffer et al. 2008). These data are crucial, foundational and fundamental to the evaluation of STMMs. Not only would the data expose a professional requirement for best practices, but could also begin to document the complexity of the dynamic interplay among the many strengths, challenges, barriers and risks inherent in such an interface (WHO, 2001).
1.2 The Purpose and Research Questions

The purpose of this research is to evaluate the impact of a 12-day Canadian STMM on health care services in 7 villages from the rural region of Gracias a Dios, Honduras. Information was gathered from five stakeholder groups (Community Members, Clients receiving services, Honduran Health Care Providers, Regional Health Officials and Canadian Health Care Providers) to respond to the following two primary research questions:

1. What are the processes and outcomes of health care services delivered by a STMM (Short-Term Medical Mission)?

2. How do different stakeholders assess health care services provided by STMMs (Short-Term Medical Missions)?
CHAPTER 2 BACKGROUND

This chapter defines the key concepts and elements of Non-Governmental Organizations (NGOs) and Short-Term Medical Missions (STMMs). Health care systems are organized according to the history, politics and values of individual countries. Therefore, in the second section a background review of the national and regional context of Honduras is provided which includes: political and geographic, demographics, and health status information. In the final section, the current health care situation in Honduras is described along with a review of health care in the regional health department of Gracias a Dios where the study was conducted.

2.1 Defining Key Concepts

2.1.a Non-Governmental Organizations (NGOs).

NGOs, as described and defined in the literature, are far from homogenous. For the purpose of clarity, a consensus definition of key typologies used in this dissertation is presented. Lack of consensus for the classification of NGOs makes it difficult to transfer knowledge and share experiential lessons learned from the field without some way to determine what kinds or types of organizations are providing what services. Examples of the labels used to describe services include: advocacy, health, development, community-based, regional, and national, among other descriptors.

In addition to the service description, modifiers are required regarding the evaluative attribute, such as the NGO’s activity or orientation, the level of orientation (international, national, community-based), or the accountability and efficiency (Vakil, 1997).
Fundamentally, NGOs are defined as “private organizations that pursue activities to alleviate suffering, promote the interests of the poor, protect the environment, provide basic social services, or undertake community development” (World Bank, 2010, p.1). This includes any non-profit and not-for-profit organization, which is independent from the government. Typically, NGOs depend, in whole or in part, on charitable donations and voluntary support. NGOs are considered a part of civil society and the terms are often used interchangeably, particularly within the health sector (World Health Organization, 2001).

The term civil society refers “to the wide array of non-governmental and not-for-profit organizations that have a presence in public life, expressing the interests and values of their members or others, based on ethical, cultural, political, scientific, religious or philanthropic considerations. Civil Society Organizations (CSOs) refer to various organizations such as: community groups, NGOs, labour unions, indigenous groups, charitable organizations, faith-based organizations, professional associations, and foundations” (World Bank, 2010, p 1).

Taking stock of past attempts to classify NGOs, Vakil (1997) proposes a descriptive framework to organize various types of NGOs by their roles, behaviours, and relationships within the country. For the purposes of this dissertation, Vakil’s term “International NGO” fits best for the Honduran/Canadian partnership whose focus is primary health care services, education, housing and safety. The specific attributes of the International NGO will be discussed further in the methods chapter (Chapter 5).
2.1.b Short-Term Medical Missions (STMMs).

Similar to the challenge of defining NGOs, Short-Term Medical Missions (STMMs), owing to their diverse nature and uniqueness, do not share a single definition. In a recent comprehensive literature review, Martiniuk (2012) describes a STMMs as “a short trip of 1 day to 2 years by a healthcare professional group to a LMIC to provide direct medical care to the population at large, or to a particular subset of the population identified by their particular health need, age group, or cultural group” (p 2). The terms short-term medical mission, health mission, medical mission, medical service trips and medical brigade are used interchangeably in the literature to describe a variety of health related services and programs from medical, specialist, nursing, international student placements and dental care to more advanced vertical surgical programs supporting single pathology procedures (Farmer & Kim, 2008; Sykes, 2014). While a STMM is a separate entity from religious missions that have a main objective of “spreading the word of God,” these missions often involve a medical mission as part of their mandate (Bradke, 2009).

The number of STMMs of foreign healthcare providers continues to rise with approximately 1 mission per day (or on average 28 per month) arriving in Honduras (Honduras Weekly, Missions Calendar, 2012). Some NGOs participate simultaneously in several projects at one time in the host country. Some projects are longer term, more established and sustainable, whereas others are of shorter duration and may involve health care professionals or educator exchanges. Specific details such as funding sources and sending/or receiving organizations are not evident in the literature (Martiniuk et al., 2012; Project Honduras, 2012).
No official, mandatory database or tracking mechanism exists in Honduras to gather accurate STMM information about their overall type, structure, intent, work region, length, or outcomes. Two government-organized voluntary databases for NGOs were developed in 2006: the Ministry of Interior and Population's (Secretaria del Interior y Población) and the Unit for Registry and Tracking of Civil Associations (Unidad de Registro y Seguimiento de Asociaciones Civiles). These sites have not been updated since their inception in 2006 and at the time of this writing, no current, aggregated list of registered members was uncovered. However, participation in an online network called *projecthonduras.com* provides an alternative concept for international aid in Honduras based on using information and communications technology to identify, mobilize and coordinate all the available human capital in Honduras. Human capital implies resources such as time, energy, expertise, experience, talent, and contacts, aspects that gain value when people become personally engaged (*projecthonduras.com*, 2012). The network hosts an annual conference, a mission calendar, Honduras aid map by region, and network forums on health, education and development. The *projecthonduras.com* internet group of approximately 8,500 members makes use of a variety of online forums using email listings and social networking via Facebook and Twitter. At any given time, over 200 projects are coordinated via *projecthonduras.com* (Marco Caceres, personal communication, January 25, 2012).

Given, the inability to provide current (2015) information of an approximate number of short-term missions working in Honduras at any given time. I developed a list of current missions actively working in Honduras (Appendix A). This aggregate list
includes over 100 individual mission groups along with an online option for those seeking a mission experience in Honduras called missionfinder.org, which offers an additional 57 groups. Anecdotally, during my 6 months of travel from Toronto, Canada to Honduras (January to June, 2014) for the purposes of data collection, I observed and recorded in my field notes approximately two to three mission teams arriving on three international airlines (Delta, United and American Airlines) each day (from 10 different observations/days) at the Toncontin International Airport in Tegucigalpa.

2.2 Country Context National and Regional

2.2.a Political and geographic context.

Honduras is a republic of Central America, first gaining independence as a country from Spain in September 15, 1821. It was briefly annexed to the Mexican empire until 1823 when they joined the United Provinces of Central American Federation (United States State Department, 2010). Geographically, the country spans an area of 112,492 square Kms (or 43,278 square miles), approximately the size of the province of British Columbia, Canada. The country shares its borders with Guatemala to the west, El Salvador to the southwest and Nicaragua to the southeast. The southern coast encompasses the Pacific Ocean at the Golf of Fonseca and the northern coast by the Golf of Honduras, and a large inlet of the Caribbean Sea. In 2013, the population numbered 8,045,990 million. The country is divided into regions with 18 separate departments, which include 298 municipalities, 3,731 villages and 30,591 hamlets (Instituto Nacional de Estadistica de Honduras [INE], 2013). (Appendix B – Honduras Maps).
Honduras first formed a democratic government in 1982. Since gaining independence, Honduras has had a long and complex history with over 300 small internal rebellions, military coups and civil wars (Caceres di Ioria, 2010). Economically, the country is described as an “open economy” in Central America based on the export of agricultural products (bananas, coffee, shellfish) and the textile manufacturing industry (The World Bank, 2009). Approximately 71% of national employment is in agriculture, trade and industry. A major problem in the Honduran labour market is not unemployment but invisible underemployment, in which low income is associated with low–productivity jobs (Pan American Health Organization (PAHO), 2009). In 2008, “the sum of its total imports and exports represented 129% of its Gross Domestic Product (GDP)” (The World Bank, 2009, p. 2). The World Bank List of Economies 2010 defines low income countries as countries with a per capita Gross National Income (GNI) of $995 or less; lower–middle income countries as defined as having a GNI ranging from $996 - $3945 and middle income countries $3945 - $12 195 (The World Bank, 2009). Honduras’ GNI per capita was $1600, with a Gini coefficient of household income (work income) of 57% (The World Bank, 2007). Therefore, this categorizes Honduras as a lower middle–income country with a significant wealth gap between rich and poor.

Eighty percent of the households receive only 36.8% of the national income while the wealthiest 20% receive 63.2% (PAHO, 2009). In 2007, 60.2% of households lived below the poverty level. This means an approximate total of over 1.7 million people live in households with a per capita income of 1 dollar or less per day and 80% of these people live in rural areas (PAHO, 2009). Given the strong relationship
between poor health and employment conditions a new and important index relates to a
countries labour market regulation and the institutions that shape them are emerging as
important non-medical determinants in a global context (Muntaner, Chung, Benach &
Ng, 2012). Using the labour market regulations and population health taxonomy by
Muntaner et al., Honduras is clustered in the less successful informal classification.

Honduras was devastated by its worst natural disaster in the history of the
country with Hurricane Mitch in October 1998. It caused severe damage to the social
and productive infrastructure. Over 5,000 people were killed, severe damage to
existing road systems occurred, the educational and health care infrastructure was
completely or partially damaged (23 hospitals and 123 health centers) and 70% of the
countries crops were destroyed (PAHO, 2009). The damage was estimated at $3
billion, setting development back by decades (Honduras Weekly, 2010; PAHO, 2012).

Several months after Hurricane Mitch, the governments of Central America and
the international donor community met in Stockholm for a consultative meeting where
commitment to rebuild and transform all Central American countries (including
Honduras) was declared. The principles and subsequent aims were mutually agreed
upon in what was later known as the “Stockholm Declaration” (1999). The Honduran
delegation, led by President Carlos Flores, returned to Honduras and formed an
advisory body called, Civil Society Participation Committee (Comision de
Participacion de la Sociedad Civil) to oversee and advise the government of the
reconstruction processes and plans.
However, nine months later the group disbanded, purportedly because President Flores had no intentions of taking the principle of active participation of civil society seriously (Boussard, 2003). One of the objectives had been to strengthen the health care network and expand coverage in rural regions.

In the political context, the government has three branches: executive, legislative and judicial. Presidential elections are held every four years (PAHO, 2012). Honduras is a constitutional, multi-party republic, however in 2009 the then President Manuel Zelaya Rosales was expelled after trying to change the constitution to allow for his immediate re-election. With the end of his four-year term began a period of governance instability and political crisis. His proposed actions were opposed by the judicial system and congress. Roberto Micheletti was named Acting President, however the greater international community did not recognize his government. Many international agencies such as the World Bank “temporarily paused” their disbursements and cash flows to the Honduran government which in turn continue to negatively impact the people to this day (Caceres, Di Iorio, 2010; PAHO, 2012). In January 2009, the international community recognized a fair election and President Porfírio “Pepe” Lobo assumed the presidency and formed a government of national unity to represent all five registered political parties (U.S. Department of State, 2010). The current president, Juan Orlando Hernandez, a member of the national party was elected in November 2013.

Canada and Honduras established diplomatic relations in 1961. Canada’s role in foreign aid to Honduras indicates that in 2014, Honduras was designated as a country of focus for the Government of Canada. This included $30.12 million Canadian
International Development Agency (CIDA) disbursements to Honduras (Government of Canada, 2015). Canada's objectives in Honduras are aligned with the Honduran government's national development plan and its Poverty Reduction Strategy Paper for 2001-2015, where their stated priorities are education, health, and poverty alleviation. Honduras has nine embassies worldwide including one in Ottawa, Ontario. Since, 2013 Canada also has an Embassy office in Tegucigalpa, the capital city of Honduras. According to Foreign Affairs, a total of 103,100 Canadians visited Honduras in 2014, and a considerable number of Canadians work in Honduras on behalf of Canadian and Honduran non-governmental organizations (NGOs) though the number is not officially recorded. Under the Temporary Foreign Worker Program, only 278 Hondurans work in Canada (Government of Canada, 2014). Canada-Honduras Free Trade Agreements and parallel agreements on labour and environmental cooperation have existed since 2013. Merchandise trading between Canada and Honduras remains strong ($289.75 million in 2014). Merchandise exports to Honduras were $45.06 million in 2014, while merchandise imports from Honduras amounted to $244.69 million. Canada’s foreign investment is prominent in Honduras specifically in the garment manufacturing and mining.

### 2.2.b Demographics and health status.

The country’s population grew by 55.4% between 2001 and 2010, and currently approximately 8,045,990 million (Instituto Nacional de Estadistica (INE), 2004) (Table 1).
INE projects a decline in population growth and a steady increase in life expectancy as the rural population continues to decline.

| Table 1: Selected demographic information, Honduras, 2001, 2005 and projections for 2010 |
|-----------------------------------------------|------------------|------------------|------------------|
|                                              | 2001             | 2005             | 2010             |
| Total population (number of persons)         | 6,530,331        | 7,197,303        | 8,045,990        |
| Under 15 years of age                       | 2,722,205        | 2,911,873        | 3,087,979        |
| Over 64 years of age                        | 239,994          | 278,762          | 332,554          |
| Rural population (%)                         | 53.7             | 51.3             | 48.7             |
| Annual growth rate (%)                       | 2.5              | 2.4              | 2.1              |
| Total fertility rate                         | 4.1              | 3.79             | 3.4              |
| Crude mortality rate                         | 5.2              | 4.9              | 4.6              |
| Crude birth rate                             | 32.8             | 30.8             | 27.8             |
| Life expectancy at birth (years)             | 70.8             | 72.1             | 73.6             |
| Men                                           | 67.5             | 68.7             | 70.1             |
| Women                                         | 74.3             | 75.7             | 77.2             |
| International migration rate                 | -2.5             | -2.2             | -2.2             |


The population is primarily young, with approximately fifty percent under the age of 15 years of age (PAHO, 2012). The adolescent population (15-19 years) accounts for 12% of the total population (PAHO, 2012) (Figure 1). The decrease in population by the age group under 30 years old is reflective of a decrease in fertility.
Over the last 10 years, social violence has contributed to the phenomenon of “citizen insecurity” with a homicide rate of 49 per 100,000 inhabitants (PAHO, 2009). Transparency International (2011) offers a corruption perception index, which ranks countries based on how a country’s public sector is perceived to be on a scale from 0 (highly corrupt) to 10 (very clean). Honduras’ score is 2.6/10 with a ranking of 129th out of 183 countries. Further, Honduras has recently been tagged one of the Western Hemisphere’s most dangerous countries (BBC, 2011; Honduras Weekly, 2011).

Despite these issues, some achievements in health from the 1970s to 1998 were reported, where life expectancy at birth in years rose from 54 in 1970 to 70 in 1995 and infant mortality per 1000 live births decreased from 110 in 1970 to 36 in 1995. The percent of pregnant woman who attended prenatal clinics increased substantially from 65% in 1985 to 84% in 1995. The percentage of the population with access to clean drinking water (piped and non piped) increased from 43% in 1970 to over 70% by 1995, and by 1993, 66% of the population had means for the safe disposal of excreta (World Bank, 1998). Annual deaths (2005), were approximately 35,000. The annual non reporting rate of mortality data which had been at 50% for years, dropped to 37% nationally, with significant variations by region. For example, Gracias a Dios, the setting for this research, has a non reporting mortality rate of 85%. Table 2 summarizes leading cases of death and is compiled from the Ministry of Health and Honduran Social Security Institute (IHSS) hospitals, however, this is only representative of approximately 20% of all annual estimated deaths.
Despite the various improvements by the mid-1990s in basic health outcomes directly attributable to socio-economic development, the quality and number of resources dedicated to primary care health programs slowed considerably for maternal/child health and through basic management of environmental determinants that affect health progress. For example, the infant mortality rate is reported nationally at 34 per 1,000 live births. Figure 2 illustrates the steady reduction in infant mortality trends from 1990 to 2005. The INE projections (2009) report a rate of 25.1 per 1,000 live births. Despite this improvement, there are notable variations between regional and municipal departments. For example, the infant mortality rate ranges from 17 per 1,000 in Jose Santos Guardiola, in the Bay Islands to 82 per 1,000 in Dolores Merendon, Ocotepeque. The last census and family health survey shows a high correlation between infant mortality levels and a mother’s level of poverty and education (INE, 2009). This means the reduction in infant mortality rates during the last 15 years was achieved at the cost of a decline in socioeconomic status (PAHO, 2007).

Table 2: Leading causes of mortality, Honduras, 2004.

<table>
<thead>
<tr>
<th>Causes</th>
<th>% total deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certain conditions originating in the perinatal period</td>
<td>18.8</td>
</tr>
<tr>
<td>Congenital malformations, deformations, and chromosomal abnormalities</td>
<td>6.3</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>5.6</td>
</tr>
<tr>
<td>Cerebrovascular diseases</td>
<td>5.0</td>
</tr>
<tr>
<td>Events of undetermined intent</td>
<td>4.6</td>
</tr>
<tr>
<td>HIV disease</td>
<td>4.4</td>
</tr>
<tr>
<td>Influenza and pneumonia</td>
<td>4.3</td>
</tr>
<tr>
<td>Chronic lower respiratory diseases</td>
<td>4.0</td>
</tr>
<tr>
<td>Cirrhosis and other diseases of the liver</td>
<td>3.6</td>
</tr>
<tr>
<td>Ischemic heart diseases</td>
<td>3.1</td>
</tr>
</tbody>
</table>

*a Based on Ministry of Health and JHSS hospital data only.
*b Represents only 20% of estimated annual number of deaths nation wide.
Source: Pan American Health Organization/World Health Organization/Honduras
The ability to sustain and further develop these achievements within such a fragile environment appears to continue to challenge Honduras. In 2005, Honduras was identified by the Pan American Health Organization (PAHO) as a priority country, along with Haiti, Bolivia, Guyana, and Nicaragua. In other words, they were singled out for special attention because their overall health remains unacceptable as measured by a set of health related indicators. This is a highly debt-ridden, poor country. Their rate of debt payment leaves little national income for financially supporting the development of their social sectors (PAHO, 2005).

The Economic Commission for Latin America (CEPAL) reports the poverty rate in Honduras declined to 63.1% in 2008 however, as the National Institute of Statistics (INE) reports, has since risen in recent years. The INE of Honduras reports that an estimated 5,889,545 Hondurans live in poverty.
This figure represents 69% of the country’s population of 8.5 million. A total of 4,213,746 Hondurans, or 50% of the population live in conditions of extreme poverty. A total of 1,995,200 Hondurans live on less than Lempiras 20.42 ($1USD) per day.

**2.2.c. Health care in Honduras.**

Health systems reflect the unique history and culture of a country (Skolnick, 2012). Health systems define the foundational structures that support health care services and delivery. An understanding of health system outcomes assists researchers’ appreciation of the structures, processes and effects of health services for individuals and populations (Institute of Medicine, 1995). Therefore, in order to better understand the current context in Honduras, it is important to first understand how Honduras’ unique health system developed.

The foundation for the existing health care system began in 1861 when a decree that was issued by the government of the time, led by General Santos Guardiola, to build a hospital in central Tegucigalpa, a large, heavily populated city, (which would later become the capital of Honduras in 1880). Reports detailed that “multiple problems” such as a cholera epidemic and a yellow fever outbreak postponed further implementation of any public health hospitals at that time (WHO, 2006).

Subsequently, in 1880, and with the development of the “Ministerio de Sanidad y Benevolencia”, an organizational structure was proposed by President Marco Aurelio Soto, which focused heavily on hospital-based services in and around the largest and most heavily populated cities. Honduras’ first hospital, San Felipe Hospital, later opened in 1882 in Tegucigalpa (Secretaria de Salud, 2010).
Following World War I, the Rockefeller foundation signed an agreement (1918-1933) with Honduras where technical and economic assistance was specifically dedicated to the health care sector. This agreement led to the creation of several public health centers in all major cities of the country. This period witnessed the first water dam construction being built in Tegucigalpa for the purposes of clean water consumption.

In 1932, the same foundation organized the first community health center in Puerto de Amapala (along the south coast) with support of local authorities such as the military, the mayor’s office, and the port administration office. This pivotal step led to a legislative procedure for the creation of the country’s first health code (Secretaria de Salud, 2010).

In 1954, Julio Lozano, Chief of State for Honduras, ordered decree No. 8 through the government official newspaper “La Gaceta” (the Gazette), creating and renaming “Ministerio de Sanidad y Benevolencia” (Ministry of Sanitation and Benevolence (which refers to human assistance) to “Secretaria de Salud Publica y Asistencia Social” (Secretariat of Public Health and Social Assistance) (Secretaria de Salud, 2010). Then, in 1955, two Sanitary Districts were formed one in Tegucigalpa and the other in San Pedro Sula. Sanitary Districts were formed in the two largest urban cities of the country in an effort to further develop better access to clean water and improved sanitation. By 1957, “Patronato Nacional de la Infancia” (PANI) (National Board for Children) was formed. This is a national lottery, through which a budget was developed that would later be used to build hospitals such as Clinicas Materno-Infantil (Maternal and Child Clinics) and over 500 additional public health centers in and around all regions of the
country. Later in 1968, Hospital Escuela (University Hospital), in Tegucigalpa was annexed to the Materno-Infantil, while continuing to provide treatment to adult health needs along with the establishment of a 24 hour/7 days per week emergency services department. These combined hospital services continue to operate today (Secretaria de Salud, 2010).

Plagued throughout its history by military rule, or “coup d’etat”, in December of 1972, the military took over governmental authority and made significant structural changes to the health care system. This restructuring was led by the Minister of Public Health, whereby the country was divided into 8 health regions, a Metropolitan region (Tegucigalpa), with an additional 35 health departments. During this time, over 30 primary health care centers we created called: Centro de Salud Rural (Rural Health Clinics) (CESARS) for populations under 5,000 and Centro de Salud con Medico y Odontologico (Health Clinic with Doctor and/or Dentist) (CESAMOS) for populations over 5,000. This trend continued and by 2010, 381 CESAMOS and 1,027 CESARS were established (Secretaria de Salud, 2010).

Through the years of 1999-2005 the “Asociación Sueca para el Desarrollo Internacional (ASDI) had a cooperative program with the “Secretaria de Salud” called “Acceso a Servicios de Salud con Equidad y Administración Descentralizada” (health authorities) which underwent major changes while establishing the following goals: quality and equity in the health care system, efficient use of all resources, decentralized budgets, and community participation (Secretaria de Salud, 2006). This cooperative program led to the reorganization of the country into the existing structure of 18 regional health departments.
In summary, according to data for health care facilities (2010), the Ministry of Health or Secretaria de Salud has the largest network of health facilities in the country with 29 hospitals, 58 Clinicas Materno Infantil, 1,408 outpatient facilities (CESAMOS & CESARS) and 4 Clinicas Perifericas de Emergencia (CLIPERS) (Secretaria de Salud, 2010). El Instituto Hondureño de Seguridad Social (IHSS) have 4 hospitals, 2 in Tegucigalpa, 1 in San Pedro Sula, and 1 in La Ceiba; 13 Clinicas Perifericas (outlying clinics) and 20 Servicios subrogados (other services) (IHSS, 2010). Private sector institutions, NGOs and other foundations manage 108 hospitals and 820 outpatient facilities. In 2002 there were 6659 beds in the country (0.97 beds per 1,000 population) distributed as follows: 4656 beds in the Ministry of Health, 250 beds in the IHSS, 1,652 in the private health sector and 101 non-governmental organizations and other institutions (Secretaria de Salud, 2002).

Honduras has a health care system that is a complex mix of public, private (for profit or non profit) and services provided by NGOs. Honduras began implementing an alternative, or public–social model, similar to contracting out that is delivered and managed through community entities or civil associations (for example, the association of local mayors) or in some regions, by NGOs or private non-profit foundations (Prado & Peña, 2010). The health sector consists of a public subsector made up of the Ministry of Health (Secretaria de Salud) (SS), which plays the steering and regulatory role for the sector, and the Honduran Social Security Institute (El Instituto Hondureno de Seguridad Social) (IHSS), which is responsible for collecting and managing fiscal resources and the required contributions made by workers and employers. For-profit and nonprofit institutions form the private subsector.
According to the National Demographic and Health Survey (Encuesta Nacional de Demografía y Salud) (ENDESA) 2005-2006, 9% of the population is registered in the IHSS, 2.7% has private insurance, and 88% are covered by the ministry of health (public services). These numbers can be interpreted differently from WHO reports, which estimate that 30.1% of the total population receives no health care, 83% are uninsured and many people in rural regions (54%) are excluded completely from health care services (WHO, 2006). Other reports estimate coverage by the Ministry of Health to be 57-60%; Social security (IHSS) between 10-12% and the private sector covered 10-13% of the population (PAHO, 2009; PAHO, 2012). This description leaves approximately 20% of the population unaccounted for and without service or basic health coverage. Access to health services has by all accounts increased in the last fifteen-year period. According to PAHO (2009), the groups in 2006-2008 with the most access to health services are children under 5 years of age and persons aged 50 years and over. Access is reflected by the increased utilization of primary care based, ambulatory services at 61.2% for all population groups (Management Monitoring and Evaluation System, 2008). However, this report only provides a general idea of access, because it does not consider the services provided by the private sector or the different NGOs that provide services on an ongoing basis through regular, annual and biannual medical brigades.

The total expenditure on health per capita is $230 and the total expenditure on health was 6% of the GDP (WHOSIS, 2010). Whereas, PAHO (2005), reports average public health spending at 6.7% of GDP confirming health was financed primarily as out-of-pocket spending (54%), the National Treasury, international
cooperation and to a lesser extent private companies who offer their employees private health insurance while adhering to the requirement to contribute to the IHSS.

“Estimates indicate 88% of ambulatory patients pay for medical visits with their own resources” (INE, 2005 p.273). The ENDESA (2005-2006) report indicates “health care payments for outpatient services to be significantly higher for rural dwellers and persons living in households in the lowest income quintile” (INE, 2005 p. 273).

National health human resources per 1000 inhabitants or as a country total are reported as follows: 0.24 or 1,658 physicians; 0.12 or 817 professional nurses; 0.8 or 5,496 auxiliary nurses; 0.02 or 159 dentists (Secretaria de Salud, 2010). The Ministry of Health (public subsector) employs most physicians and professional nurses (45.3%), followed by the (Instituto Hondureño de Seguridad Social (IHSS). The medical and professional resources are located primarily in the most developed urban cities (Secretaria de Salud, 2010). Sixty five percent of national funds were allocated to the salaries of health workers in 2008. The next largest category of national funding is invested in the budget for hospitals and medicines (PAHO, 2009). This is due to the hospital-centric, medical model approach to health services and care (PAHO, 2012).

Natural disasters, unrequited promises, coupled with a past of military rule and persistent corruption, along with significant ongoing political problems in Honduras contribute to an inability to reform, reorganize and implement new plans such as many of the broader system wide social initiatives called for.
2.2.d. Health care in the department of Gracias a Dios.

My field research and case study location is drawn from the department of Gracias a Dios in the municipal region of Puerto Lempira, one of the country’s largest, most rural and remote departments (See Appendix B). This extremely remote, sparsely populated area (16,997 square kms) includes the entire Mosquitia region of eastern Honduras. “La Mosquitia”, extends westward from the coast, across swamps and savannahs to inland rainforests. Approximately 90% of the region’s 85,821 inhabitants are members of indigenous or minority ethnic groups (Instituto Nacional de Estadistica de Honduras)(INE), 2001; INE 2006). Many ethnic groups reside in this region, however, the Miskito people, a Misumalpan-speaking Amerindian group, comprise 83% of the population (INE, 2001).

Transportation infrastructure is limited in the region. People travel mostly by foot, boat or airplane to local health care centers or the one regional hospital. The region itself is still not accessible by road from anywhere in the country. Since Hurricane Mitch in 1998, Honduras has not experienced another natural disaster of this magnitude however, many smaller hurricanes and storms cause fatalities and leave thousands homeless each year. Hurricanes Adrian and Beta struck in May and October of 2005 and destroyed homes and crops in Gracias a Dios. Given the small population within such a vast region, the ratio of healthcare centers to individuals is proportionately higher in Gracias a Dios than the national average (UNDP, 2003). The region has only one SS hospital located in Puerto Lempira and 2 Clinicas Materno Infantil; 0 CLIPERS; 11 CESAMOS; 27 CESARS; 0 IHSS hospitals and/or clinics; 0 private facilities. The Regional Health Director indicated that only 4 health related
NGOs operate within this department (L. Hebered, personal communication, February 21, 2012). Human resources include 48 physicians, (5.6/1000), 7 professional nurses (0.8/1000), 81 auxiliary nurses (9.4/1000) and 1 dentist (0.1/1000) (Secretaria de Salud, (ministry of health), 2009)

Communicable, vector borne diseases such as malaria is endemic in Honduras, spread by the plasmodium vivax vector and primarily affecting the northern and eastern parts of the country. Intestinal infectious diseases and reported cases of diarrhea involving children under the age of 5 have a significant prevalence rate of 22.5% in rural areas, particularly in this region.

The challenges for people in this region are the costs and difficulties associated with transportation which influence both the arrival of patients, providers and supplies to existing health care facilities (Arps, 2009). Many families cannot afford the transportation costs to seek out primary or secondary health care services. Referral or follow up to the only regional hospital is difficult. This region’s per capita income was less than $2,056 US which is approximately $265 below the national average (UNDP, 2003). Such income poverty not only limits access to primary health service, but also poses challenges in meeting basic household needs such as food, clothing and other resources for daily living. Many goods are expensive in la Mosquitia because they are imported from other areas of the country by sea or air. This means the poorest, most remote department in the country, remains the most expensive to operate and with the most limited access to necessary health care services.
Conclusion

In summary, Honduras is a lower middle-income country with a significant wealth gap between rich and poor. They have a low corruption perception index (2.6/10) which means that the public sector is perceived to be highly corrupt. Honduras has a reputation of being labeled one of the Western Hemisphere’s most dangerous countries. The health care system is a pluralistic combination of public, private, and a social security system based on mandatory worker-patron contributions. Basic primary health care services in the rural regions are provided by publically funded clinics known as Centros de Salud con Medico (CESAMOS) and Centro de Salud Rural (CESAR), and STMMs supported by International NGOs.

Honduras also has a shortage of health care providers. They are one of 57 countries worldwide with health human resource worker shortages. Canada is one of the top four sending countries in the world who engages in STMMs and Honduras is one of the top two destination countries (Martiniuk, 2012). On average 28 International Non-Governmental Organization (NGO) missions arrive monthly in Honduras for the purposes of providing aid and four are present in Gracias a Dios (this study’s setting).

This is the current context in Honduras in which this study is situated. The next chapter presents a review of the literature.
CHAPTER 3: REVIEW OF THE LITERATURE

In this chapter, a review of the literature was conducted to examine an overarching question: “What is the impact of a Canadian Non-Governmental Organizations (NGOs) in primary health care in a rural health region of Honduras, Central America?” As articulated in Chapter 1, support for alternative models of primary health care services supported by an NGO delivered Short-Term Medical Missions (STMMs) is a viable option in rural regions of Honduras to compensate for the Ministry of Health’s limited capacity for service delivery to poor and remote regions (Prado & Peña, 2010). Therefore, to gain a deeper understanding of the complexities of NGO delivered primary health care supports, the first section includes a scoping review of the literature was undertaken relevant to the topics of this study including: primary health care, NGOs and Short Term Medical Missions (STMMs) in Honduras. While the research focused on the specifics of one Canadian NGO delivered STMM providing primary health care services in region of Gracias a Dios, I also reviewed the available literature on International health NGOs in other low-middle income (LMIC) countries.

3.1 Scoping Review of the Literature

A scoping review of the relevant literature (Arksey & O’Malley, 2005) was undertaken. This framework for this type of review allows for the inclusion of various study designs or descriptive reports that may apply to a broad topic, like NGOs. The scoping approach does not necessarily aim to exclude studies based on set criteria for methodological quality and summaries of strengths and gaps, rather than quantitative
syntheses are the usual outcomes (Arksey & O’Malley, 2005). Accordingly, a scoping review explores an issue or phenomenon rather than “specific research questions” (Arksey & O’Malley, 2005, p. 20). Scoping reviews aim to map the key concepts underpinning a research area where a need for comprehensive breadth of the literature and broad results are required.

To begin, a review was conducted of global health and government sites, directing and coordinating authorities for health such as the World Health Organization (WHO) and Pan American Health Organization (PAHO). Additional international collaborators such as the World Bank, United Nations and other international initiatives such as the Alliance for Health Policy and Systems Research, the Global Forum for Health Research and the Canadian Coalition for Global Health Research were reviewed with the aim of identifying key published reports. This search for English and Spanish language articles employed Medline, Cochrane, CINAHL, Web of Science, Sociological Abstracts, Political Science Complete, SciELO and LILACS electronic databases and was conducted, searching for articles without placing date parameters or other limits such as gender, age, or research method. The year 1998 and beyond was of specific interest for this review because it coincided with Hurricane Mitch and the proliferation of NGOs in Honduras.

Initial electronic literature searches using terms such as ‘health’ or ‘health care’ with the key concept term of ‘non-government organizations' were found to be very broad, yielding thousands of results. Subsequent searches using various combinations of key word terms had more focus and included key refining concepts such as ‘primary health care’, ‘developing country’, with and without country specific terms such as
“Honduras”, “Central America” and other priority country names. Bolivia, Guyana, Honduras, Haiti and Nicaragua are PAHO’s highest priority countries. These countries represented the lowest ranking in terms of life expectancy and per capita income. The PAHO Director Mirta Roses described their health situation as “ethically intolerable and avoidable” (PAHO, 2004).

The review of the literature was an iterative process (Thorne, 2008) where new directions were defined and refined through both the gaps and connections uncovered. This also meant adding different key terms and word combinations. Hand searches of salient article reference lists uncovered additional publications not found during key word searches. This may have related to the extensive number and variety of terms used in the literature to describe this study’s key components, for example, the country of Honduras was uncovered using labels like ‘developing country’, ‘low income country’, ‘low-middle income country’, ‘third world countries’, ‘priority countries’ and/or ‘Central America’. Other terms such as ‘NGO’s and ‘Medical Missions’ also have a variety of descriptive terms. To ensure accuracy of correct terminology, a university librarian in Ontario, Canada, was engaged to assist in conducting independent electronic database searches for verification of key terms, subject headings and title search terminology. The preliminary and detailed scoping review of the literature using different key word search terms as illustrated in Appendix C assisted in the refinement of terms and headings for the final two literature reviews, which will be presented in this chapter:
1. Non-Governmental Organizations (NGOs), Primary Health Care (PHC) & Central America (Appendix D);

2. Short Term Medical Missions in Central America (Appendix E).

3.2 Non-Governmental Organizations & Primary Health Care & Central America

3.2.a. Search strategy.

The table, Appendix D, emanated from the search term ‘non-governmental organizations’ with the concept of ‘Primary Health Care’ and within the context of ‘Central America’ and the country of ‘Honduras’, first using OVID MEDLINE database and then switching to others (as cited in Section 3.1). All abstracts were reviewed. Most of the articles were personal, descriptive accounts and testimonials relating to the healthcare professionals’ role and NGO, and donor community documentation of their various volunteer activities in the missions. Though interesting, these reports were not evidence based or evaluative in nature and were excluded. Using criteria relevant to the central research questions, articles which discussed NGOs, primary health care and Honduras (or other developing countries) and their health related roles were examined in greater detail.

3.2.b. NGOs as agents of development in health.

Mercer, a lecturer in Human Geography at the University of Leicester, UK whose research seeks to recast the discussion of civil society actors such as NGOs produced a critical review of the NGO literature (2002). She suggests that some NGOs can actually strengthen a developing country’s state, while others argue that strengthening through NGO efforts will further undermine any future democratic
development. The paper calls for the need for “greater contextualization of the role of NGOs in the politics of development” (p. 7) while focusing on the complex and diverse relationships of NGOs as intermediary organizations between citizens and state. The implications from this review call for a wider description of context; the political and economic forces within which NGOs are working in Honduras as mediated through international financial institutions, the state, and donors.

Nichter (2008) also discusses the role of NGOs and questions whose interests they truly represent. This discourse further challenges health social scientists to contribute to research beyond the mere documentation of demonstration projects and travelogue reviews. According to Nichter (2008), two important issues requiring examination “are the role of NGOs as agents of development and how increased NGO activity contributes to the strengthening of a resource deficient government health sector by providing adjunct services, or does it result in a deterioration of the government sector and health workers leaving government service to join higher-paying NGOs” (p.139). To illustrate, Pfeiffer (2004) provides a practical example in the context of Mozambique where his ethnography research found that professional health workers would often leave the government’s public sector to work for NGOs who offered better benefits. He challenged NGOs to find ways of strengthening rather than diverting human resources away from the public sector in the countries they are trying to help. Pfeiffer’s ethnographic case study pointed out that NGO activity in the health sector in Mozambique is far from cost-effective.
Both Nichter (2008) and Pfeiffer (2004) called attention to the need to develop an expanded role for a global dictum, inclusive of government that both guides and addresses the impact of health policy at the local community level and midlevel health infrastructures among all vested stakeholders.

3.2.c. Costs and funding of NGOs.

Next, Lewis, Eskeland & Traa-Valerezo (2004) explored health care access and cross-sector utilization and determined that alternative modes such as health promoters or through subsidies to NGOs to reach outlying communities could reduce costs and raise effectiveness of precious public funds. Another study of funding presents an overview of the literature on the impact of International aid on NGOs and concluded “context, circumstances and the quality of relationships between the actors are of crucial importance” (Edwards & Hulme [1998] p. 18). Fowler (1994) documents a common complaint among NGOs as the need for flexibility on the ground, “runs counter to the limited, logically framed, measurable outcomes favoured by many donors” (p. 335). Similar points are reiterated by Carroll (1992) who concluded that NGOs in Latin America who are dependent on short–term funding from donors, perform weakly in the process because they lack the time and incentives required to foster local organizational development. Fowler (1994) predicted an inverse relationship between dependence on official donor funding and the capacity to support and facilitate what he called “development as empowerment”. His notion was that donors are unable to support the long term, slow and careful work of development that sometimes have non-quantifiable results but which characterize successful, local institutional development.
The case study of a single primary health care NGO called Building Resources Across Community (BRAC), examined the cost recovery of the facility for future financial sustainability, focusing on a need to decrease donor dependency while achieving health coverage in the developing country setting of Bangladesh (Alam & Ahmed, 2010). This case study examined the financial sustainability of the primary health care facility by examining costs, revenue and cost recovery status. The results indicated an average cost recovery ratio of 59% (72% if excluding all capital costs). Of the total costs, 32% was for personnel while drug costs were 18%. Capital items were 17% and operational costs absorbed 12%. Many of the costs were variable (inpatient versus outpatient) and a need to prevent any resource waste was paramount. An average cost per patient was US $10 (US $67 for inpatient and US$4 for outpatient). The study provides a basis for other NGO led primary health facilities attempting to describe or undertake cost-effectiveness or cost benefit economic analysis for similar health focused work. Though the study indicates this facility was typical of government and private primary health facilities in Bangladesh, no comparative figure for other like facilities was recorded.

A cost-effectiveness study of a humanitarian hand surgery mission to San Pedro Sula, Honduras was found to significantly cost effective for patients (Tadisina, Chopra, Tangredi, Thomson, and Singh (2014). This study demonstrated, a USD $437.80 per disability-adjusted life years Disability-Adjusted Life Year (DALY) format for the weeklong surgical mission trip. This trips cost per DALY is within the two times per capita gross national income (USD $3,890) for Honduras, which is an accepted metric for program cost-effectiveness as previously demonstrated on another
orthopedic surgical trip to Nicaragua (Chen, Pedtke, Kobs, Edwards, Coghlin and Gosselin, 2012). Overall mission costs for 20 people for 7 days was USD $45,779.18. They were unable to obtain and therefore did not include in the calculation operating room costs, daily hospital stays costs, other fixed costs such as utilities and building costs because these figures were not available to the mission team. The surgery was provided for free, however patients were charged a symbolic fee based on their household income by the local hospital for services ranging from $0 to $50. This fee was described as nominal in nature and was therefore not included in the analysis. For many people such an additional fee would be considered expensive when your income was less than $1USD per day.

Cristia, Prado & Perluffo (2015), evaluated a coverage extension program in Guatemala that expanded access to health care services in the rural regions of the country through two contracting out modalities with existing NGOs. The idea allowed for the new outreach program to complement the existing network of public health centres owing to the countries weak transportation system and rugged geography. Programs supported basic health services such as prevention and focused on maternal and child health as well as basic curative care (malaria, dengue, sexually transmitted diseases, HIV/AIDS and environmental health [water quality surveillance, sanitation and food hygiene]). The two different modalities were contracting out (NGOs responsible for all administrative and clinical procedures) and contracting in (NGOs focused on administrative tasked and hired ministry of health employees and providers to provide services). Though both models achieved statistically positive effects in immunization coverage and prenatal care, contracting in performed better overall. The
evaluation highlights the importance of hiring local health care providers who selected catchment areas that they had previous experience or had lived with the target populations. A limitation of the study was that in the contracting-in modality, data were only available for 4 years and information was not available as the second expansion wave of the program progressed. This was attributed to the lack of longer-term political sustainability when the discontinuation of programs commonly occurs with the end of a government’s term in office.

3.2.d. NGOs and the impact on health outcomes.

In rural Bangladesh, one study sought to validate a six year decline in Neonatal Mortality Rate (NMR) from 39 deaths per 1000 live births in 1996 to 20 deaths per 1000 in 2002 where a large NGO program was providing reproductive health outreach services (Mercer, Uddin, Huq, Haseen Khan & Larson, 2006). They hypothesized that if the findings were accurate, the decline may be attributable in some measure to the impact of the reproductive health outreach services and subsequent scaling up NGO services. The authors suggested that data recorded by field workers may underreport neonatal mortality unless data collection is regularly supervised and audited. The study validated a substantial decline in NMR in 12 areas of rural Bangladesh. However as suggested by the authors, “any causal link between improved reproductive health outreach services and neonatal mortality decline cannot be demonstrated retrospectively” (p.121). Other confounding factors could have contributed to the decline in infant mortality. The study does provide evidence that NGOs with a strong community base can achieve high coverage of reproductive health outreach programs. The statistical evidence could, on the other hand, be considered a sizeable
achievement, given that the areas served were specifically allocated to NGOs because they were too difficult for government services to reach.

A large scale retrospective evaluation of the United Nations Children’s Fund’s multi-country Accelerated Child Survival and Development program and the authors found great variation in effectiveness of the 14 interventions such as oral rehydration therapy, antimalarial treatment, continued feeding for diarrhea, care seeking for suspected pneumonia; components that were implemented steadily throughout the course of the study (Bryce, Gilroy, Jones, Hazel, Black & Victoria (2010). They were not able to account for the associated causes of the differences. The authors suggested a revised approach to evaluating programs to account for “contextual variation in timing, intensity and effectiveness” (p. 581). Retrospective databases are prone to methodological challenges such as reliability and validity, treatment effects, variable definitions and generalizability owing to the uniqueness of this data source (Motheral, Brooks, CLarkm Crown, Davey, Hutchins, Martin & Stang, 2003). In this study the authors accounted for proximity of the interventions to the actual outcomes however, the data measurements and assessments were not part of the actual intervention programs where data quality can be maintained prospectively. It is also unclear the impact of the actual outcomes given the programs operated in the most difficult areas of West Africa (Carden, 2010).

This is similar to the evaluation findings of Svoronos & Mate (2011) who developed a context-sensitive approach to respond to the need to identify and collect unique, local data (both quantitative and qualitative) by methods that varied by settings. One cited example of their context-specific design was the application of a multiple case-study method to organizations with the goal of understanding the
complexities of a program from multiple perspectives. The authors stressed the need to
not simply assess why certain interventions work (as some experimental designs do),
but also the circumstances as to why and how an intervention or program works similar
to a case study approach which appreciates a combination of factors for effectiveness.

The value of integrated long-term interventions were critically analysed in a
large-scale, multi-country, 10-year micronutrient and health (MICAH) program for
World Vision (Berti, Mildon, Siekmans, Main and MacDonald, 2010). The program
was implemented in selected areas of Ethiopia, Ghana, Malawi and Tanzania. The
evaluation reached over 6 million people and coverage and impact was monitored
through surveys at baseline, midpoint and at the end of funding. The results were then
compared with those observed in controlled trials that reported impact with the
rankings of high, moderate or low. Results varied by country with some countries
achieving results in vitamin A and iodine status (Ethiopian school-age children < 5
years), whereas decreases in anemia rates and malaria prevalence was reported in
women, pregnant women and school age children in Ghana, Malawi and Tanzania
however, increased in Ethiopian women. Although the study illustrated nutrition and
health improvements with long term interventions, the impact was variable by program
and country and did not account for confounding factors (Berti et al. 2010).

Shandra, Shandra & London (2010), suggested that International NGOs play an
important role in helping to improve health outcomes in poor nations. The World
Polity Theory, indicates that “international health and women’s NGOs should improve
health in poor nations by providing health, reproductive and educational services” (p.
138). The theory purports that this occurs in different ways and that health occurs on
three assumed levels: first, health NGOs provide financial and technical support for health services at the local level; second, health NGOs help to propagate cultural norms and values; and third, health NGOs help to shape the language of international agreements. Using this theory, the authors predicted that if these levels were accurate, then health NGOs should influence a decrease in infant mortality. They believed the findings support ideas of other scholars who contend that the ability of NGOs to improve health are hampered by their projects being small scale, limited in geographical scope, ad hoc, and reformist (Newell, 2000, as cited in Shandra, Shandra & London 2010).

On the other hand, the findings may also be related to implementing projects that meet the interests of the donors. The research design used a lagged dependent variable panel regression analysis to account for the change in infant mortality. With this sort of analysis the dependent variable (infant mortality) at a recent point of time is regressed on itself and other independent variables (key independent variables: health NGOs, women’s NGOs; other Independent variables: GDP, economic growth rate, gross secondary school enrolments, female secondary school enrolments, public health expenditures, democracy, skilled attendants at delivery, domestic investment, multinational corporate investment) and other independent variables at an earlier point in time. The results found that neither type of NGO (Health or Women) had an effect on infant mortality. The authors however, re-specified the models to include the interaction term of democracy to test a “political opportunity structure” and hypothesized that democracy enhances the ability of NGOs to deliver health services. Through their results, they found substantial support for this line of reasoning. Their
recalculation revealed that health and women’s NGOs decrease infant mortality in
democratic but not repressive nations. Possible directions for future research calls for
studies which investigate further at the country level and participate more in health
inter-governmental organizations (such as the WHO) and women’s NGOs (such as
United Nations Development Fund for Women) may have less infant mortality overall.

3.2.e. NGOs as collaborative partners in health.

The World Health Organization (WHO, 2006) recommends that sustainability
cannot rest with volunteers. “While volunteers can and do make a valuable contribution
on a short-term or part-time basis, the future of trained, in-country health
workers…should receive adequate wages and/or other appropriate and commensurate
incentives” (WHO, 2006, p. 1). In other words, volunteerism is not a sustainable
practice in any setting, most particularly because the lack of regular, predictable
remuneration leads to high turnover rates in volunteer workforces, and thus wastes
substantial resources on recruitment and training. Furthermore, it has been identified
that a major obstacle to achieving the health related Millennium Development Goals
(MDGs) is the weakness of a countries health system infrastructure, and the struggle to
effectively provide health care to populations in need (Mercer, Khan, Daultatzaman,
Reid, 2004; Shandra, Shandra & London, 2010).

Collaborative partnerships among governments, businesses and NGOs are an
effective way to improve standards of living and achieve sustainable, long-term
development (World Bank, 2010; World Health Organization, 2001). The recognition
and the evidence to support collaborative contributions to health have varied over time
(Maes, 2010; Pfeiffer et al. 2008). The struggle to integrate NGOs into the health sector
is part of a broader trend (Pfeiffer, Johnson, Fort, Shakow, Hagopian, Goyd, Gimbel-Sheer, 2008). Yet, little proof exists for NGO-based North-South delivery of aid and charity (Zakrison, Armada, Rai, Muntaner, 2012). “South” refers to developing countries while “North” refers to the industrialized developed countries. NGO-run hospitals are the most prevalent setting for cataract surgery in Guatemala, followed by private hospitals and eye camps which are short term improvised set ups by visiting ophthalmology surgeons (Limberg, Silva & Foster, 2009). This is in direct contrast to the South -South solidary partnerships of programs such as Mision Milagro (Miracle Mission) in Latin America and the Carribean (Zakrison et al. 2012), Cuba’s international collaborative cooperation programs in health such as Programa Integral de Salud (Integrated Health Program) (DeVos, De Ceukelaire, Bonet, Van der Stuyft, 2007) and the special program of Barrio Adentro (Inside the Neighborhood) in Venezuela (Muntaner et al., 2006; Muntaner et al. 2011). “South-South” refers to development assistance where developing countries apply their resources and expertise to support other developing countries. The preceding South-South partnerships are examples of alternative models of international collaboratives whose main objective is to ensure the basic right to health care on a structural and durable basis to populations that have been excluded from free access to basic health care.

**Conclusion**

Scoping reviews aim to describe and summarize research findings on a specific topic and highlight research gaps. This review of the literature identified a need to further collect systematic evidence on the role of NGOs in health, specifically those involved in primary health care both to improve knowledge and to illustrate their
contributions to government and other decision makers. The model of delivery continues to be widely debated. Not only would such evaluative research give visibility to good and effective practices, but also the evidence can begin to evolve regarding the complexity and the challenges in the setting/NGO interface (WHO, 2001).

In summary, the research gaps identified during this review highlight three key areas: First, a context sensitive approach is required in evaluation to account for variations in timing and effectiveness. A context sensitive design such as case study methodology can be applied with the goal of understanding the complexities of a program from multiple perspectives. Next, the phenomenon of an NGO and its mix of health related services and supports are a continued presence in low-middle income countries. The debate regarding their role of how best to contribute to a resource deficit government health sector by providing adjunct services remains understudied. Finally, alternative models of assistance and aid are being delivered in different ways from North-South collaborations with International NGOs and STMMs to South-South partnerships. Why and how these collaborative partnerships between International Health NGOs and local government support development continues to be debated and explored.

3.3 Short Term Medical Missions (STMMs) in Central America

While there are an increasing number of studies on International Health NGOs, there is a paucity of descriptive and scientific literature about the impact of STMMs.
3.3.a. Search strategy.

For the literature review of this topic, a search through OVID MEDLINE with key words ‘Medical Missions’, ‘Central America’ (listing all countries), and ‘Honduras’ and on Evidence Based Medicine (EBM) Reviews-Cochrane Database of Systematic Reviews, Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Web of Science with an additional keyword ‘brigade’. Appendix E provides a table of the details the Multiple Mission Strategies Searches by database with date parameters.

Two pivotal contributions, the first by Martiniuk, Manoucherhrian, Negin, and Zwi, (2012) and the second, a systematic review by Sykes (2014) acted as a guide for this section of the literature reviews’ key word searches. These publications are the only peer-reviewed publication on the topic of STMMs and revealed, “There is no one term strictly used for these types of visits” (p. 2). A plethora of terms is used in the literature and include for example “medical missions” “medical brigades” “volunteer trips” “medical service trips” and “humanitarian assistance.” Sykes (2014) identified 45 terms used to refer to short-term service trips. Similar to Martiniuk et al (2012), this presents a limitation to this review. However, it is postulated that by having the assistance of an experienced librarian, and including additional databases other than Medline served as a mechanism to further reduce this potential limitation. Both articles are included in this review and will be further discussed in this section.

Reading the 190 abstracts from Missions and Central America and the 94 related to Missions and Honduras narrowed the list significantly. Several of the articles included personal accounts of experiences of health professionals, conference
presentations, perspectives articles and NGO and donor community documentation of their various volunteer health related missions. Though thought provoking, these were excluded. Military medical missions were excluded. Medical missions’ participation during catastrophic acute events was also excluded because they vary in nature from STMMs in that they require complex humanitarian emergency assistance. Using relevant criteria relating back to the research question for the overall literature review, articles that discussed NGO-led STMMs, delivery of primary health care services in Honduras or Central America or other LMICs were examined in greater detail. Reading the references of the relevant articles revealed 4 additional sources. This resulted in 19 articles and 2 dissertations (1 Doctoral; 1 Masters) for this review. Utilizing a coding sheet adapted from guidelines cited by Arksey & O’Malley (2005) and Shi (2008), the final full text articles and dissertations were reviewed in detail. Coding sheets were used for collecting relevant information from articles (Shi, 2008). (Appendix F: Summary of STMMs studies).

In an effort to disclose some of the available writings on this topic, reasons regarding the exclusion of articles are described. For example, hundreds of perspectives, personal reflections, commentaries, letters, advertisements, conferences, descriptions and how tos for medical missions are available in electronic databases. Virtually every health profession is represented. Some article titles clearly represent the glamorization of volunteer mission related services, for example: “A Nurse on a Mission,” “Chiropractors Still Work Miracles,” “To Boldly Go Where No Man Has Gone Before or Prosthodontist,” “Amigos de Honduras-Texas Medicine,” “AA Flight #941 to San Pedro Sula: A First Timers Perspective on a Medical Mission,”“Medical
Tourism Can Do Harm,” “Save a Child’s Heart: We Can and We Should,” “Duffle Bag Medicine,” and “Volunteering: Beyond an Act of Charity.” These accounts of personal reflections illustrate the altruistic benefits of medical missions to individual and team participants. However, they add limited value to the complex issues of impact, cost effectiveness, and quality of STMMs that continues to be widely debated in the literature. The next section provides a summary of the key findings from the more structured and scientific articles included in this review.

3.3.b. STMMs: the current reality.

The current reality is that health professionals volunteer in large numbers in developing countries and although strong debate arises through editorials and perspectives, little formal research has been conducted on the topic. Sending health professionals abroad to volunteer their services is not a new idea as evidenced by the abundance of articles in this review. The 1999 Nobel Peace Prize award to Doctors without Borders (Medecins Sans Frontieres) demonstrates the extent to which international NGOs and health professionals have become key participants in health work in low and middle-income countries. With the relative ease of travel, there are an increasing number of NGOs involved in international medical work. There are over 1600 International NGOs with offices in Geneva alone (Gainor & Epps, 2002). Each brigade or mission has its own special skills and program focus. Many are religious or faith based however, since there is no mandatory registration for foreign-based NGOs providing health care in low and middle-income countries, the actual number and type is unknown.
Medical, nursing and other student trainees also volunteer or complete clinical placements abroad (Dowell & Merrylees, 2009; Haskell & Rovinsky, 2002; Green, Comer, Elliott, & Neubrander, 2011; Mill, Astle, Ogilvie, Gastaldo, 2010; Wallace & Webb, 2014).

3.3.c. Medical missions – general.

The 2012 article by Martiniuk and colleagues, as noted in the introduction to this section, was the first comprehensive review of the literature over the last 25 years on medical missions to LMICs and aimed to identify the type of healthcare provided, its possible impact on the local health care system and the need to analyze trends regarding STMMS. The paper calls for more information on the issues, concluding with many questions for further research. Examples include the following questions. Do countries know who departs and arrives to provide STMMs? Do STMMS refer patients back into the local system for follow up care? What impact have STMMs had on students who participate in the experiences? What are the ethical obligations?

Although the field of STMMs is growing, its empirical literature is limited. Sykes’ (2014) systematic review aimed to appraise the current STMM (referred to as short-term medical service trips) literature. This review indicates that nearly 95% of all publications lack any significant data collection and outcomes monitoring from the interventions provided by STMMs. He noted that of the 1164 identified in his search process only 67 studies were deemed appropriate for quantitative and qualitative analysis. Eighty-one percent of the 67 studies were reported on surgical trips. Furthermore, only 50 (75%) of the publications focused on patient outcomes and only 13 (26%) reported late outcomes (after the services were provided). All of those
reporting were related to surgical interventions and “there seems to be no data regarding the late outcomes of any intervention performed by a strictly medical team” (p. e45). The review highlights a need for evaluation and activity reviews of all interventions performed while noting the vulnerable nature of the patient populations served by missions. The data would be valuable for decision-making and quality improvements.

Ethical perspectives of neurosurgeons who had participated in pediatric neurosurgical outreach missions in Central America, South America, Eastern Europe and sub-Saharan Africa (Hughes & Jandial, 2013). The perspectives were from both the visiting mission team and the host team that supports the in-country effort. No methods or research approach was articulated of medical missions to ensure follow up care for their patients. The authors provided a descriptive analysis based on person experiences and cite Suchdev’s (2007) seven guiding principles as a model for sustainable Short term international medical trips, including: common mission purpose, collaboration with the community and its available infrastructure, education for the community and volunteers, relevant service provision for the community’s health needs, advocacy for teamwork among diverse specialties, fostering sustainability and work to build capacity in the local community, and a final evaluation of outcomes as to whether goals are being met. In Honduras, the online newspaper, Honduras Weekly (http://www.hondurasweekly.com/) records a Mission Calendar of NGO-led volunteer groups working in Honduras. In 2012, the mission calendar recorded, on average, 28 International NGO-led STMMs arriving monthly in Honduras and I provided a more current medical mission only review which highlighted over 167
different short-term services trips working in Honduras (Appendix A). The growing ease of travel between the developed and developing world has led to a proliferation of NGO-led STMMs to address the health problems of those living in poverty.

Martiniuk et al (2012) reported that health professionals from Canada are reported as one of the top four countries in the world who engage in STMMs and Honduras is one of the top two destination countries.

3.3.d. Medical missions – Honduras.

Data from health records collected during three years of STMMs in Honduras were reviewed and published (Martiniuk et al, 2012). The review focused on an ongoing STMM (Friends of Honduran Children, Peterborough, Ontario, Canada) in conjunction with Honduras’ largest national NGO, Sociedad Amigos de los Ninos (this study’s case STMM and country). The descriptive study offered data on all patients presenting to STMMs across Honduras from 2006 and 2009. For the more than 2500 clients who presented for services at the temporarily constructed clinics, 67% of the patients were female, with an average age of 23 years. Vitamins and parasite medications were the most commonly prescribed treatment. The most predominant diagnoses were gastrointestinal infections and malnutrition (36.3%), upper and lower respiratory tract disease (32%) and skin infections (15.3%). The report recommended a need for more robust research designs regarding the STMM’s effectiveness in order to increase the quality of short-term mission services. The article raises concerns regarding cost effectiveness and continuity of care for those treated by STMMs. The actual total budget costs for a STMM can be recorded utilizing and adapting the Harvard evaluation survey tools as presented by Maki and colleagues (2008).
Similar issues and concerns were also raised by that study. Follow up and ongoing monitoring of patients who present for health care services at STMMs is noticeably absent in the literature.

Primary health care service utilization studies the spatial patterns of health care utilization in an effort to develop a model that may be useful to explain health-seeking behaviour (Baker & Lin, 2006). The results indicate that walking time (walking distance to health centre) is a significant factor in all utilization models (Baker & Lin, 2006). These results from three rural clinics in Southern Honduras indicate that the use of primary health care facilities increases with proximity to the people themselves. Additionally, this research identifies a need to focus on finding additional ways to explain utilization behaviour, particularly in clinics such as STMMs, which tend to operate in rural, developing regions of the world. The authors suggest that more resources be made available within the Honduran health care system. However, as previously stated, support for alternative models of health service delivery is a viable option in rural regions of Honduras to compensate for the Ministry of Health’s limited capacity and frank inability to deliver and manage services in poor and remote regions (Prado & Peña, 2010).

VanderWielen, Halder, Enurah, Pearson, Stevens & Crossman (2015), document a short perspectives report of the non-profit organization, the Honduras Outreach Medical Brigade Relief Effort (HOMBRE) who collaborates with health professional students within Virginia Commonwealth University to arrange short-term medical service trips to different areas of Honduras and Dominican Republic.
The authors indicate a two-pronged evaluation process strategy to assess community and participant impact and report these findings to the local community leaders and health ministry. However, details are not presented and the reference indicates “a survey of patient satisfaction with short-term mobile clinic care in Northern Honduras” and was presented at an Annual meeting of the American Society of Tropical Medicine in Washington, DC (2013) and not available in the academic literature for review.

3.3.e. Patient perceptions – Central America.

Patients’ perceptions of health care quality are important to consider in PHC service delivery. Leon (2003) in his focus group study, discussed with patients the available health services, their access to and use of services, their satisfaction with different aspects of care, and their suggested improvements. Three focus group studies were conducted in selected rural and urban regions in Honduras, Costa Rica and Panama in 1997-98 (n=351). Participants considered private care the best but it was too costly. The main preoccupations focused on “prompt access to trusted physicians, effective and inexpensive medications and quality attention in public hospitals” (p. 70). A general concern of all participants focused on the time consuming and costly travel of getting to distant hospitals. One participant stated, “sometimes you have to spend half a day getting to the city to obtain medication, and then you don’t have enough money to pay for it; you spent it getting there” (p. 69).
In Honduras, of note, was that rural participants preferred the personal care offered in public clinics and rural hospitals to urban hospitals because of their physical proximity and the perceived diversity of services provided. They continue, “to hope for improved and available services” (p.69). Hondurans regarded themselves as passive recipients of any existing services. The participants in both Honduras and Panama report those outside the SS system (Social Security System which is based on mandatory worker-patron contributions), which are mostly those in the rural areas, consider themselves “a disenfranchised sector and are preoccupied with obtaining a basic modicum of health care and medications in their communities” (p.70). Those with lower socioeconomic class “feel excluded from the system and report being treated in an undignified way” (p.69).

Another qualitative pilot study explored perceptions of health and health practices in a group of rural Hondurans (Marson, Prohaska, Burris, Richardson, and Crigger, 2006). The 32 participants were recruited during a STMMM from three different rural villages. Participants were asked nine open ended questions around three main themes of maintaining health, regaining health and support. The results were varied. The majority reported “spiritual faith played an important role in health issues” or “used herbal or folkway remedies to improve health” while others preferred “western medicine to treat their ailments.” The authors recommended that future study should attempt to explore health perceptions more deeply through different methodologies. They also recommended strategies to enhance language and cultural barriers. A major limitation of this study was having students with limited knowledge,
experience and understanding of the culture and beliefs conduct the interviews. The background and educational level and training of the students is not disclosed however, they reported using Honduran interpreters who had been living and working with the STMM for over nine years.

Similarly, Green and colleagues (2009) studied perceptions about STMMs among providers and patients. Their study involved, semi structured interviews with 72 individuals, including Guatemalan healthcare providers and health authorities, foreign medical providers, non-medical personnel working on the health projects, and Guatemalan parents of children treated at the site. Informants identified a need for increased access to PHC services and believed that STMMs were in a position to offer access to care in rural communities. The frequent suggestion to improve STMMs was coordination with and respect for local Guatemalan healthcare providers and their communities as insufficient understanding of the existing health care resources and needs may result in lack of knowledge and potential harm. It was recommended that future studies should seek to understand who pursues care from STMMs, why, and under what circumstances. The authors concluded with a statement of their hope “to stimulate studies into the economic, political and health outcomes of STMMs to critically assess their quality and effectiveness” (p.13). The study provided evidence regarding perceptions of people directly or indirectly involved with the work of STMMs in Guatemala. Green et al. reported similar results of healthcare needs of communities, matching services with needs of the community, coordination, follow up care and a need for resource and information sharing however, the participant sample of 72 informants was predominantly healthcare providers and government health officials
(Guatemalan healthcare providers [23], United States healthcare providers [21], non-medical personnel [16], 5 Government Officials) and included 7 parents whose children were treated by short-term medical volunteers.

Oken, Stoffel and Stern (2004) determined that STMMs could be used for nutritional surveillance. They explored whether a visiting volunteer mission could effectively measure growth status among children in the Yegure region of Honduras. The program was a collaborative effort between the US and Honduran medical, educational and social services institutions in the department of Zamorano College. Their cross sectional study explored the services of a volunteer medical group to measure growth status among 3284 Honduran children aged 2-11 years whose parents availed themselves to care from the volunteer medical brigade. Measurement of growth and diagnosis of clinical conditions were made and reported. The results indicated that 10% of the children were moderately underweight, while 13.7% were moderately stunted and 6.4% were severely stunted. The authors cautioned that all the children (brought by a parent) in the cohort were seeking medical care and thus may have been sicker than the overall population. This collection of growth data provided useful information for local public health initiatives. The study indicated a concurrent reporting of findings however, because medical missions are episodic, it is difficult to suggest anything other than the outcome of minimal improvement in the overall health of the population served. Children were treated for parasites (treatment is effective for 6 months) and given vitamin supplements for 30 days and were referred for follow up care to the local system as required. It is not clear if those requiring follow up were able to integrate into the local public health system for services or if the data provided
to local public health initiatives were actualized. The authors reported concern that communication with local organizations such as public health and rural development systems may be limited.

They suggested isolating STMMs to a geographically localized region, to allow integration with local health care services for studies of effectiveness.

DeCamp, Enumah, O’Neill, & Sugarman (2014), presents the perceptions of the recipients of care of a short-term medical programme in the Dominican Republic, which includes both a permanent NGO-led hospital (Batey Verde) whose focus is cataract surgery and four mobile rural clinics (Altagracia, San Pedro, Batey Nuevo and Majagual). Local Dominican Republic health care providers operate this hospital and clinics with augmented short-term supports provided annually by the Medical Ministry International group of volunteers (two weeks per year (hospital) and one day per year at the other four clinic sites). The results from the rural clinic participants report similar findings, which included the important dimension of offering access to care and services (specifically medicines) with a greater availability of health care providers closer to where they lived. Similarly, clients in the rural regions of the Dominican Republic also illuminated the emphasis on transportation as a barrier to health care goods and services.

3.4 Research in Gracias a Dios, Honduras

Arps’ 2009 and 2011 studies were completed in the health region for this thesis research. In discussion with Dr. Arps, I have been informed that these are the only health related research studies completed to date in this region. Her research reinforces a need for further investigation of local patient experiences and expectations towards
primary health care. Her 2009 report described an ethnographic study in the health region of Gracias a Dios (Honduras) where local perspectives of factors that contribute to maternal mortality were presented. The study described the risks that women in Honduran villages encounter during pregnancy and childbirth. Data were used to examine emic understandings of the underlying causes of maternal death. Participant observation, community discussions, and individual interviews with 218 women and 5 midwives along with a maternal mortality survey (n=927) were conducted from November 2004 to November 2005. Community members identified, “poverty, gender inequality, witchcraft, and sorcery as major threats to safe motherhood” (p. 582). All of these factors influenced women’s health related behaviors and each deserves attention to fully comprehend the primary health care system in this region.

Her other research (2011) was an investigation of multiple evidence sources related to the nutrition transition among women in communities in this same region of Honduras. Large scale forces of change (such as economic transformations, market integration and cash- dependence) appeared to promote higher dietary intake and lower physical activity levels in indigenous and non-indigenous populations. The hypothesis was that socioeconomic status is positively associated with body size and fatness and dietary and physical activity patterns among socioeconomic status (SES) groups. Over 200 non-pregnant women in Miskito villages along the Ibans Lagoon area, Gracias a Dios, participated in the study. More than 70% of the participants were overweight or obese. Women with higher SES were significantly fatter than low SES women.
Women with high SES had lower rates of physical activity and higher rates of obesity, perceived food sufficiency, meat consumption, milk/dairy intake and general dietary diversity (Arps, 2011).

### 3.5 Monitoring and Evaluation

A common theme throughout this literature review was the identification of a need for significant improvements in monitoring and evaluation of STMMs (Martiniuk, et al, 2012; Maki, Qualls, White, Kleefield & Crone, 2008; Stevens & Bearman, 2007; Oken, Stoffel & Stern, 2004; Farmer & Kim, 2008; Suchdev, Ahrens, Click, Macklin, Evangelista & Graham, 2007). Three key articles are presented in this section. In all of the literature reviewed to date only three articles present actual suggestions or tools for improving the quality of care and processes of STMMs. The first in the form of a code of conduct, the second as guiding principles based on experiential learning, and the last a health impact evaluation tool consisting of surveys.

The need for a code of conduct for NGOs providing health services in “poor countries” is presented by Pfeiffer, Johnson, Fort, Sakow, Hagopian, Goyd and Gimbel-Sheer (2008) in order to maintain a focus on strengthening local health systems. The article argues for a return to a public focus for donor aid, and for NGOs to adopt a code of conduct that establishes standards and best practices for NGO relationships with public sector health systems. A description of negative and positive impacts of NGOs on national health systems are reviewed specifically for management, operations and human resources. The authors conclude with their assertion that NGOs will continue to play a key role in many developing countries and call for the necessary and added
elements of a code of conduct. Their code of conduct looks to strengthening local health
systems and includes: 1. Hiring practices that ensure long-term health system
sustainability (limit hiring out and obtaining consent from the local MOH); 2.
Compensation practices that strengthen the public sector to limit pay inequity between
the public and private sectors and compensate community health workers, support pay
incentives for rural service, grant similar privileges to expatriate and national
employees; 3. Human resources support for local health systems (increases in the
number and capacity of health professionals, training and building management and
service capacity; 4. NGO management supports for MOHs in a commitment to joint
planning, follow MOH geographic, administration and personnel norms, advocate for
flexible donor funding to mitigate the effects of vertical funding; 5. Health system
community support to enhance community’s linkages to health systems while
promoting government accountability, and protecting oppressed populations; 6.
Advocacy to eliminate wage bill caps and limitations on health system investment
promoted by IFIs (International Financial Institutions). The elements do not indicate
how to organize these activities or recognize the country’s context, or other specific
practices. The authors call for policies that restrict investment in public sector health
systems such as structural adjustment programs. Structural adjustment loans/programs
are provided by the World Bank and International Monetary Fund and are described as
“non-profit lending to support programs of policy and institutional change necessary to
modify the structure of the economy so that it can maintain both its growth rate and the
viability of balance of payments in the medium term” (Greenaway & Morrisey 1993, p.
A model for sustainable short-term medical trips is detailed by Suchdev, Ahrens, Click, Macklin, Evangelista, & Graham (2007). The authors discuss ethical issues of STMMs and use their experiences and lessons in developing the Children's Health International Medical Project of Seattle (CHIMPS) to outline and illustrate a set of 7 guiding principles for improved mission trips. CHIMPS is a resident-run, faculty-supported, international medical program founded in 2002 by pediatric residents at the University of Washington in Seattle. Participants work with a rural community in El Salvador to support ongoing public health interventions and provide sustainable medical care in collaboration with the community and a local non-governmental organization. Their reported 7 principles include: collaboration, education, service, teamwork, sustainability, and evaluation. The importance of collaboration and partnership is a common theme presented in the literature and was echoed again through the evaluation of the CHIMPS program.

A study by Harvard University presents a health impact assessment tool, a survey with several subsections, for STMMs to evaluate the quality of care (Maki et al. 2008). They developed and implemented an evaluation tool to assess patient safety, quality control and mission impact. Through the use of the survey, multiple perspectives were gathered from mission program directors, foreign health care professionals, local in country hosts, and clients. The tool was tested and demonstrated an acceptable degree of validity and reliability. Their efforts were relevant, thoughtful and significant. Recently, in personal communications with the researcher and article co-author Dr. Sharon Kleefield, I learned that their online mission database (STMMconnect.org) and evaluation tool was no longer
going further developed or being maintained. However, according to Sykes (2014), only 1 of the 21 publications citing this article described using the proposed health assessment standardized evaluation tool in any form.

The Harvard evaluation tool (the term adopted for this instrument and further described in Chapter 5) represents the first comprehensive publication and a key step in evaluating STMM performance from different stakeholder perspectives. Several limitations were identified by the researchers who recommended that further adaptation should include the types of STMMs (e.g., surgery or primary health care) and the type of operational details of the care, the translation of the tools into other languages such as Spanish, and the actual brigade costs. On review, the combined, five survey instruments revealed a predominant focus on a biomedical model of health care delivery. The overall tool would require further adaptations for a focus on a primary health care approach that includes an expanded list of in country service providers such as community health workers, non-traditional healers, and regional or local health professionals. It would be valuable to capture these details to allow for more specific data on the actual number of human resources (per capita) working in a country. There is an “other” category for describing the mission provider and this should be updated for the international health care providers such as dentists, pharmacists and ophthalmologists, among others in the inter-professional team. This evaluation tool with its internal surveys will be adapted and used in this study. More discussion regarding the fit with the conceptual framework and the operational methods will be detailed in Chapters 4 and 5, respectively. Current evaluative measures do not consider the follow up or unintended outcomes from short-term medical missions.
Conclusion: Gaps in the Literature

In summary, an exhaustive review of the literature was undertaken with a view to appreciating the state of the scientific evidence on the achievements and deliverables of NGOs delivered STMMs. The academic and scientific articles that surfaced reinforced an appreciation of contextual factors, the issues in methodological rigour in outcome monitoring, and the value of stakeholder perspectives. However, this researcher agrees with Maki et al. (2008) that few articles are published on the topic of STMMs and those that are lack the ethics, policies, standards or evaluations required currently for STMMs.

There is collective support by most authors for the notion that research concerned with equitable and effective development strategies needs to broaden the analysis of the NGOs as organizations while fully describing the regional context (Svoronos & Mate, 2011). NGO-delivered STMMs are a social, voluntary network of health care volunteers who are gathered together making decisions about health care for communities in most LMICs. For the foreseeable future, NGOs continue to be significant providers of health care services in the remote regions of Honduras. An opportunity exists to begin to more fully understand the benefits of their short-term health services and apply frameworks to evaluate and enhance decision-making practice of these services in the future. Insight gained from this study will be useful to support the growing interest and documented need for more robust evaluation information of NGOs, which may improve health system performance in developing countries (Alliance for Health Policy and Systems Research, 2007).
Global health care organizations endorse health care service delivery based on the concept of Primary Health Care. This concept has been embraced for this dissertation and research. The following (Chapter 4) will explore the conceptual framework of Primary Health Care (PHC) highlighting its four, key principles. It is this framework that serves to inform and guide the various steps in the case study.
Chapter 4 Conceptual Framework

Evidence from international studies and organizations supports a health system based on the concept of Primary Health Care (PHC) as the most equitable and efficient way to organize health care for people (Greenhalgh, 2007; Starfield, Shi & Macinko, 2005; Paim, Travassos, Almeida, Bahia, & Macinko, 2011). For this reason, I will utilize a PHC perspective to underpin the research project regarding the activities and outcomes of a STMM in Honduras.

The review of the literature in Chapter 3 illustrates that the health care delivery services in Honduras have developed as a complex mixture of private, public and not-for-profit. Hospital care in urban settings and a primary health care, community-based model in the rural settings (Jareg and Kaseje, 1998; Lewis, Eskeland, & Traa-Valerezo, 2004). The literature review for this study reveals a significant presence of International NGOs working in various capacities within the country. NGO-led Short-Term Medical Missions (STMMs) are present and working predominantly in the rural and remote regions where the Ministry of Health (MOH) capacity remains limited.

For the purposes of this chapter, the core principles of PHC will be identified and examined as a relevant framework to evaluate the approach, practice and the impact of STMMs. To begin this discussion, the rationale for STMM evaluation will be explored. In the next section, a comprehensive discussion of the PHC framework will be presented as the substantive, core conceptual model that supports the focus and methods of the research.
4.1 STMMs – Rationale for Evaluation

Short Term Medical Missions (STMMs) are an established means of providing primary and secondary level care in the rural regions of Honduras. Despite the prevalence of this type of health care delivery, no standard evaluation model was uncovered to assess the structure, processes and outcomes of patient care and quality. Although the number and popularity of STMMs continue to grow from 6,000 in 1990 to more than 50,000 in 2006 (Union of International Organizations, 2009), no formal evaluation mechanisms for missions globally or in Honduras specifically were uncovered in the empirical literature (Sykes, 2014; Martiniuk, Manoucherhrian, Negin & Zwi, 2012). The current situation indicates significant growth without the lack of empirical evidence available in scholarly publications, and coupled with the non-existence of an authoritative, regulatory international body governing STMMs for a collective understanding of goals, structures, expectations (professional or lay), regulations, or outcomes. Evaluation, therefore, may be haphazard and begs a more comprehensive approach to promote accountability in practice for health care professionals working internationally.

A typical STMM is comprised of a multi-disciplinary team of health care professionals and can include some or all of the following: physicians (family physicians, surgeons, paediatricians, ophthalmologists, and other specialists), nurses (nurse practitioners, registered nurses, and registered practical nurses), dentists, dental assistants or dental hygienists, pharmacists, pharmacy technicians, physiotherapist, occupational therapists and students from all disciplines. The teams also include various support staff (interpreters, security) and other volunteers without healthcare-
related experience (Martiniuk et al. 2012). According to Canadian professional regulatory bodies, health professionals have an ethical obligation to provide safe, competent and ethical practice that meets the needs of the constituent population served (Canadian Nurses Association, 2008; Canadian Medical Association, 2004; Ontario College of Pharmacists, 2006; College of Nurses of Ontario, 2002; Canadian Dental Hygienists Association, 2012). Most of these health care professionals are governed in terms of written standards for education, practice competencies, and licensure by regulatory bodies in virtually all of the developed countries (Health and Care Professions Council, 2013). I propose that all health professional volunteers working internationally share one common ethical obligation enshrined in the classic medical dictum *primum non nocere* or “first, do no harm”. Non-maleficence is the value expressed in this dictum. This warns health professionals to exercise due care and caution in the provision of effective, safe, beneficial care and services (Yeo & Moorhouse, 2001).

Given that Honduras does not currently have legislative requirements and credentialing for international health professionals working within the country, it would be incumbent on the practitioner to ensure that his/her practice and conduct meet the same high level of regulated expectations from their home country. It is therefore assumed that professionals working within STMMs in foreign countries carry over their clinical skills, abilities and credentials (Maki et al., 2008).

The current reality is that STMMs have no objective and consistent means of evaluating their performance; the quality of practitioner, care or outcomes. The literature review illustrated that pre mission logistical details regarding engaging
communities and local leaders and criteria for volunteer health care practice was inconsistent and variable (Martiniuk et al., 2014; Sykes, 2014). Even more limited were the lack of follow-up data on the patient care provided and the information regarding the relationships (if any) with the existing local health care infrastructure (Sykes, 2014). In the current context of STMMs, evaluation standards, issues of patient safety, quality outcomes and impact assessments are easily overlooked as missions are often locally organized (in the high income countries of origin) and funded by individual mission personnel or through private donations (Maki et al., 2008).

4.2 Primary Health Care (PHC)

The Alma-Ata declaration on Primary Health Care issued in 1978 and signed by 175 countries marks a milestone in international agreements and priorities regarding the health of populations. From the declaration, Primary Health Care (PHC), is described as “essential healthcare based on practical, scientifically sound and acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination” (WHO, 1978, p. 2). In the document, PHC is discussed as both a level of care and an overall approach to health policy and service provision. The following figure (Figure 3) provides important excerpts describing primary health care from the declaration of Alma-Ata (WHO, 1978).
The 1978 conference and subsequent declaration shifted the focus from a disease-control, medical model philosophy to a broader context of the relationships among health, social and economic development. From the beginning, PHC was viewed as the instrument by which to achieve the goal of *Health For All* by the year 2000. PHC programs were to be an integrated, permanent part of the health care system in every country and not seen as separate or add-on programs to the former.
disease-focused medical paradigm. The declaration called for health needs to be addressed as a fundamental human right through integrated social and health measures tailored to local country conditions.

A PHC approach emphasizes equity and the right to health and is therefore essential to the development of equitable health systems. As documented in the declaration, a key understanding was that governments hold the responsibility for the health of their people. One key to this strategy was a commitment to tackling the underlying causes of principal health problems from a community based orientation such as unclean water, poor sanitation, social and economic inequality (Birn, Pillay & Holtz, 2009). A second strategy included a commitment to universalist policies based on equality of rights to benefits and services, full employment, gender equity, and reducing various levels of social exclusion (WHO, 2008).

While several debates have surrounded the concept or interpretation of the concept of PHC since Alma-Ata, this thesis advances the argument that the core elements should be shared within all health systems. The focus should shift from the mere understanding and definition of the principles of PHC, to an ability to operationalize the core elements into the current practice environment of the work of STMMs. Evidence will be presented throughout the chapter of advancements that have been made in countries who have utilized a health system based on the foundations of PHC. For example, the position paper written by Macinko, Montenegro and Nebot for Pan American Health Organization (PAHO)/WHO (2007) illuminates some of the main developments in PHC worldwide. Appendix G presents highlights from 1900 to 2005 for both global developments and subsequent outcomes in the countries of the
Americas. The summary of key events demonstrates the improvements in life expectancy from 55.2 years in 1950-1955 to 72.9 years in 1995-2000 (this represents an average of all countries in the Region of the Americas as defined by PAHO, 2007). Honduras’ life expectancy is 72 to 76 years (WHO, 2009).

Despite a document that was introduced thirty-seven years ago, the concept, values, and principles of PHC per Alma-Ata remain strong and applicable today (World Health Report, 2003; PAHO/WHO, 2007; WHO, 2008). In the years since the declaration, no universally accepted definition of primary health care exists (The World Health Report, 2003). Four approaches have used PHC terminology, and certain terms such as “primary care” or “selective primary health care” have been used interchangeably despite their different meanings. The following table (Table 3) summarizes and defines the four main approaches to PHC.

### Table 3: Approaches to Primary Health Care

<table>
<thead>
<tr>
<th>Approach</th>
<th>Primary Health Care definition or concept</th>
<th>Emphasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective PHC</td>
<td>Focusses a limited number of high-impact services to address some of the most prevalent health challenges in developing countries. Main services came to be known as GOBi (growth monitoring, oral rehydration techniques, breast-feeding, and immunization) and sometimes included food supplementation, female literacy, and family planning (GOBi-FFF).</td>
<td>Specific set of health service activities geared toward the poor</td>
</tr>
<tr>
<td>Primary Care</td>
<td>Refers to entry point into the health system and the place for continuing health care for most people, most of the time. This is the most common concept of primary health care in Europe and other industrialized countries. Within its most narrow definition, the approach is directly related to the availability of practising physicians with specialization in general practice or family medicine.</td>
<td>Level of care in a health services system</td>
</tr>
<tr>
<td>Alma Alta “comprehensive PHC”</td>
<td>The Alma Alta Declaration defines PHC as “essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at the cost that the community and country can afford to maintain...Informs an integral part of the country’s health system...and of the social and economic development of the community. It is the first level of contact of individuals, the family and community...bringing health care as close as possible to where people live and work, and constitutes the first element of a continuing health care process.”</td>
<td>A strategy for organizing healthcare systems and society to promote health</td>
</tr>
<tr>
<td>Health and Human Rights approach</td>
<td>Stresses understanding health as a human right and the necessity of tackling the broader social and political determinants of health. It differs in its emphasis on the social and policy implications of the Alma Ata Declaration more than on the principles themselves. It advocates that at the social and political focus of PHC has lagged behind disease-specific aspects and that development policies should be more “inclusive, dynamic, transparent and supported by legislation and financial commitments”, if they are to achieve equitable health improvements.</td>
<td>A philosophy permeating the health and social sectors</td>
</tr>
</tbody>
</table>

Source: PAHO, 2007
4.2.a. Selective Primary Health Care.

The Alma-Ata declaration was criticized for being too broad, idealistic and not having a realistic timetable for the outcome of the “Health For All by 2000” vision (Cueto, 2004). Later the same year, the Rockefeller Foundation sponsored a conference based on a published paper where the focus was termed selective primary care as it related to a single condition or the control of a specific disease (Walsh & Warren, 1979). The authors reported the mortality statistics and key cause(s) of death of infants in developing countries, such as lack of immunization. They presented an interim strategy through which basic health services could be developed and delivered. The narrow focus of the interventions were described as vertical programming, i.e., targeted, technically based solutions (such as vaccines for childhood diseases) or vector control mechanisms (for malaria and dengue). Their selective approach replaced the broader view of PHC, which originally was criticized for being too ambitious and costly (Walsh & Warren, 1979; Warren 1998).

The new term, selective primary health care implied a package of low-cost technical/technological, or medical interventions to address the main disease problems in low-and middle-income countries (LMICs). In the ensuing years, the interventions were reduced to 4 key items and known as GOBI, an acronym for growth monitoring of infants, oral hydration techniques, breastfeeding, and immunization. As the concept grew, some agencies added FFF: food supplementation, female literacy, and family planning. The interventions were easy to monitor and evaluate. Target indicators were simple to define and track. The concept of selective primary health care attracted support from donor agencies, scholars and international agencies (Evans, Hall &
Warford, 1981; Warren, 1988; UNICEF, 2001). As a result, during the 1980s, many international agencies were interested in short-term technical programs with defined budgets rather than broad and comprehensive health programs (Rifkin, Muller & Bichman, 1988).

**4.2.b. Primary care.**

The majority of health care systems are generally organized to include three levels of care that are referred to as primary, secondary and tertiary. In low-and middle-income countries these levels are established (organized) to account for a ratio of service elements per a defined number of people within a geographic location (Skolnick, 2012). In Honduras for example, primary care facilities known as Centro de Salud Rural (CESARS, nurse led rural health clinic) and Centros de Salud con Medico (CESAMOS, physician, dentist and nurse health clinic) for every 5,000 to 10,000 people, secondary care settings (hospitals) in their 18 health regions, and tertiary level hospitals in the two largest cities (San Pedro Sula and Tegucigalpa). It is common for countries to staff the lowest level of the system with community health workers or auxiliary nurses. In Honduras, an auxiliary nurse goes to a special school (non-university) for 2 years of training. They are commonly found as the sole workers in the CESARS in the rural regions. This level of care typically finds services that support well baby care, common infant conditions, maternal health care, family planning and diagnosis or treatment for common countrywide diseases such as malaria, dengue, or human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS).

The first level at which there might be a trained professional health care provider such as a physician or professional nurse (5 year university program) would be in the
larger primary care centers or regional level hospitals (Skolnik, 2012; F. Caballero, personal communication, May 15, 2013). Therefore, primary care refers to the first level or entry point of health system services. In the years following Alma-Ata, the confusion over concepts resulted in people using the terms of primary health care and primary care interchangeably. The latter focus of providing first line primary care service delivery was widely accepted and implemented. This narrow and selective focus resulted in a lack of engagement in the more comprehensive assessment of population-based conditions in which health problems are created for impoverished communities (Bhatia & Rifkin, 2010). Not only were the wider social determinants of health ignored but activities to promote equity and community participation overlooked. The social determinants of health are the social characteristics within which living takes place (WHO Commission on Social Determinants of Health, 2007). They include the *societal* determinants of health, which are the “political, economic, social and cultural structures that shape health and health patterns” (Birn, Pillay & Holtz, 2009, p.310).

**4.2.c Health and human rights approach.**

The right to health approach places emphasis on health as a basic human right and focuses on the necessity of tackling the broader social and political determinants of health (PAHO, 2009). The right to health means that the state must generate conditions in which all people can be as healthy as possible. In 2000, in an effort to operationalize policy messages the United Nations’ Committee on Economic, Social and Cultural Rights, which monitors compliance with the International Covenant on Economic, Social and Cultural Rights (ICESCR, 1966), adopted a General Comment on the Right to Health.
The General Comment dictates, “the right to health extends not only to timely and appropriate health care but also to the underlying determinants of health, such as access to safe and potable water and adequate sanitation, an adequate supply of safe food, nutrition and housing, healthy occupational and environmental conditions, and access to health-related education and information, including sexual and reproductive health” (General Comment No. 14 – Committee on Economic, Social and Cultural Rights, 2000). This general comment also include that the right to health contains four elements relating to health care (public health, health care facilities as well as goods and programs): availability, accessibility, acceptability and quality. An additional five core content areas were identified to guide priority setting for the state and these include: essential primary health care, minimum essential and nutritious food, sanitation, safe and potable water and essential drugs.

This approach has expanded over the years and differs from selective primary care, primary care and primary health care based on the requirement for tackling the larger social and policy implications of the Alma Ata declaration as opposed to the core principles of PHC itself. The next section examines the Alma-Ata comprehensive PHC approach that provided the foundation for this thesis.

4.3 Principles of Primary Health Care

PHC is variously described as a vision, a set of values, a philosophy, a conceptual framework or a model (PAHO, 2002) whose ultimate goal was Health For All by 2000. Despite the reality that the goal was not met within the defined time parameter, support for the philosophy, its values and underlying principles remained strong (The World Health Report, 2007; WHO, 2008; Macinko, Starfield, & Erinosho,
2009). The year 2008 celebrated 30 years since the inception of the term PHC. The World Health Report 2008 and the Report of the Commission of the Social Determinants of Health (WHO, 2008) provided major contributions to the revitalization of PHC. Both reports reaffirmed the relevance and principles of the PHC goal. The World Health Report (2008), “Primary Health Care Now More Than Ever” revisited the vision of primary health care and created avenues for system-wide changes in health care as a set of five reforms. The reforms included: reducing exclusion and social disparities in health (universal coverage reforms); organizing health services around people's needs and expectations (service delivery reforms); integrating health into all sectors (public policy reforms); pursuing collaborative models of policy dialogue (leadership reforms); and increasing stakeholder participation (community development?). The Report of the Commission of the Social Determinants of Health (2008), “Closing the Gap in a Generation” supports universal health care and indicates “health systems should be based on the PHC model, combining locally organized action on the social determinants of health as well as a strengthened primary level of care, and focusing at least as much on prevention (of illness) and promotion (of health) as treatment” (p.94). These examples are presented to illustrate the commitment to revitalizing and reframing the original policy work from the 1978 Alma Ata declaration.
When integrated in a comprehensive manner, PHC is associated with better health outcomes, improved equity and lower health care costs in the private and public sectors. The evidence across countries and population groups, demonstrates that health care systems, anchored in primary health care, are considerably more effective and equitable, and less costly than systems based on targeted, disease-oriented interventions and high levels of medical specialization (Macinko, Starfield & Shi, 2003; Starfield & Shi, 2003; Starfield, Shi and Macinko, 2007). The evidence is, however, limited by only a few studies with small and selective sample sizes within countries (Chavez, Bender & Gastaldo, 2012). Furthermore, there is debate about how effective PHC strategies may be in improving population health in LMICs (Filmer, Hammer & Pritchett, 2000; Lewis et al. 2004). In the Region of the Americas, the experiences of Costa Rica illustrate evidence of promise in their system of broad PHC reforms (increased access, reorganized health professionals into multidisciplinary teams with improved comprehensive and integrated care) which began in 1985 (Rosero-Bixby, 2004). From 1985 to 2001, the PHC reforms were associated with an overall 8% reduction in deaths among children and with a 2% reduction in deaths among adults. Also, the percentage of people without equitable access to primary health services dropped by 15% between 1994 and 2000 in areas where health sector reform was implemented in 1995-1996, whereas areas that had not yet initiated health sector reform in 2000 experienced only a 3% reduction (Rosero-Bixby, 2004).
This study illustrates that for every five additional years of PHC reform, child mortality was reduced by 13% and adult mortality was reduced by 4%, independent of other improvements in health determinants (PAHO/WHO, 2007).

In their review, Macinko, Starfield & Erinocho (2009) assessed 36 peer-reviewed studies on the impact of primary health care on health outcomes in low and middle-income countries (LMICs). The results indicated that most of the evidence for PHC effectiveness was concentrated on infant and child health (Mercer et al., 2004; Perry et al., 1998; 2003; Macinko et al., 2006; 2007; Morsch et al., 2001), however, there was also evidence of the positive role PHC has on a population over time (Macinko et al., 2006; Franco et al., 2007; Perry et al., 2006; 2007).

Recommended by virtually all researchers was the strong recommendation for both a clear conceptualization of PHC, including specification of each of its component features and for studies that begin with a conceptual framework to guide the overall evaluation, design characteristics, and a description of relationships among different levels and types of data to be collected as part of the evaluation process (Macinko et al., 2009). Realistically, in LMICs, the need is to build a health system or structure with strong infrastructure elements. This requires “inclusive leadership that engages with a variety of stakeholders beyond the boundaries of the public sector, from clinicians to civil society and from communities to researchers and academia” (WHO, 2008, p.12). Notwithstanding the value of leadership, inclusivity, and stakeholder engagement, the infrastructure for a successful system must include clear goals, strategies, resources, and monitoring of focused, targeted outcomes.
The examination of the literature to identify the intricacies of the core principles of PHC proved challenging. The chart presented in Appendix H details a summary of the main concepts identified for primary health care from eight different sources (The World Health Report, 2003 & 2008; Canadian Nurses Association, 2003; Seear, 2007; PAHO/WHO, 2002; Birn, Pillay & Holtz, 2009; PAHO/WHO, 2007; WHO, 2008). Key themes were evident and interwoven throughout all eight different sources. However, the four core principles from the World Health Report (2003), *Shaping the Future*, specifically addresses health systems and the principles of integrated care. Therefore for the purposes of this research regarding STMMs, the following principles are most applicable and will be described in detail:

- Universal access to care and coverage on the basis of need
- Commitment to health equity
- Community participation in defining and implementing health agendas
- Intersectoral approaches to health

The following framework (Figure 4) will provide the conceptual model that underpins and informs the focus and methods of this research proposal.
These principles are described in the next section and will provide substance for an appreciation of the adaptations to the assessment tool used in the research of this thesis: the Harvard Model survey form for the health impact assessment of STMMs. The PHC principles were also used to inform the data collection (pre, during and post mission) and methods for this study (Chapter 5) and to outline the relationship between the two primary research questions posed, their related propositions and rival explanations from the research findings (Chapter 7).

Figure 4: Principles of Primary Health Care
4.3.a. Universal access.

Universal coverage and access to care on the basis of need form the foundation of an equitable health system. Universal coverage combines mechanisms for fiscal support and service provision. Universal coverage means that financing and organizational structures are adequate to cover the geographic population, removing the barrier of payment for accessing health services thereby protecting people from financial risk, while providing additional supports to limit inequities between individuals and population groups as well as implementing health promotion and public health activities (PAHO/WHO, 2007).

Accessibility is one aspect for the provision of health care services. Inaccessibility implies a reduction in geographic, financial, organization, socio-cultural, and gender-based barriers to care (PAHO/WHO, 2007). Essentials of universal coverage and access also include appropriate financing to prevent hardship, a strong health workforce, access to essential medicines and health products, a health statistics and information system (to measure and understand problems and assess impact), national policies and service delivery and safety (WHO, 2015). Accessibility further demands that a system must rationalize the location, operation, and financing of all services at each level of the health system (primary, secondary and tertiary). Access also acknowledges the need for a system that takes into account local health needs as defined by the community, personal preferences, culture, and values. Acceptability on the other hand, is the determination as to whether people will actually use services that are made available and accessible to them. Acceptability can influence perceptions about the health system, including people’s satisfaction with services provided, the
level of trust they will have in providers, and the extent to which they will understand and follow medical or other educational advice (Leon, 2003).

As discussed in the previous section, first contact care means that primary care services should be the main entry point to a health care system. I should be at this point where all new health problems are assessed and the place where many health issues are resolved or prevented. The terms, comprehensive, integrated and continuing refer to the range of services available within the entire system (primary, secondary, tertiary) and that should be sufficient to provide for the broad continuum of needs of the population. Typically these include the provision of health promotion, disease prevention, early diagnosis, curative, rehabilitative, palliative care and other forms of supportive self-management.

In 2014, a global coalition of leading health and development organizations came together and are currently urging governments to accelerate reforms to ensure that everyone, everywhere can access quality health services and supplies without financial hardship. The coalition of over 500 + organizations, academic institutions and global partners led by the WHO, the World Bank and the Rockefeller Association is calling for a universal health coverage ‘day’ throughout the world on December 12, 2015. The significance of this day marks the third anniversary of the passing of the United Nations resolution that endorsed universal health coverage as a pillar of sustainable development and global security. The reality is that over one billion people worldwide have no access to effective and affordable health care (WHO, 2010). In Latin America, “notwithstanding country-specific differences in models and processes of reform, health care has become less of a human right guaranteed by the state and
more of a commodity acquired in the marketplace, leaving approximately 130 million individuals (out of a total population of 450 million) without access to quality health care” (Muntaner, Chung, Mahmood & Armada, 2011, p. 226).

4.3.b. Equity.

Both the International Society for Equity in Health (ISEQH) (2001) and the WHO Commission on the Social Determinants of Health define equity in health as the absence of systematic and potentially remediable (or avoidable) differences in one or more aspects of health across populations or among groups defined socially, economically, demographically, or geographically. For the purposes of this thesis and in keeping with the Sixty-second World Health Assembly’s resolution (WHA 62.14; World Health Assembly, 2009), this definition of health equity will be adopted.

There is a difference between equity in health of a population and equity in the delivery of health care services. Equity in health, as a notion, is where the entire population should enjoy the highest level of physical, psychological and social wellbeing notwithstanding selected biological limitations (WHO, 1996). Equity in health generally used to describe and compare the outcomes of morbidity and mortality experienced by different social groups.

On the other hand, equity in the delivery of health care services implies that the resources and services of the health sector are distributed and delivered in accordance to the needs of the population, and that they are financed in accordance with the
population’s capacity to pay. Therefore, equity (or conversely, inequality) in the
delivery of health care services refers to the various levels of access, utilization and
financing of health care services experienced by different population groups.

Equity in health care services may also be referred to in other ways and can be
defined by the following terms (Flores, 2006).

- Equity in access to health care services- physical (distance, topography)
  organizational (where limited schedules exists at health facilities), or
  cultural accessibility (providers not acquainted with local culture or
  language).

- Equity in the utilization of health care services - tied to the costs of care
  (services) and modes of financing (user fees in public facilities);

- Equity in resource allocation - tendency of government to favour (with a
  higher allocation of public resources) urban settings over rural and rich
  or influential regions;

- Equity in the quality of services-tendency to deliver services richer and
  of higher quality to richer or more enfranchised population groups;

- Equity in the delivery of health services – tendency by which new and
  effective interventions and/or services are delivered preferentially to
  population groups with more resources (related to cost and availability);

- Equity in health – utilization of effective services with the aim of
  reducing inequalities in health (or other social determinants of
  health such as education, employment or income).
Health care systems that are based fundamentally on a primary health care model achieve greater health equity among population groups (Starfield, 2006; Starfield et al. 2005). Many of the PHC reforms in low and middle-income countries began in the most deprived areas, such as in Costa Rica where the rates of insufficient access to essential health services declined by 15% for the districts when primary health care services were implemented (Rosero-Bixby, 2004). Another example is in Venezuela where PHC coverage was extended to over 19.6 million people (73% of the population), many in the barrios outside of Caracas (Blas et al. 2008; Muntaner, Chung, Mahood & Armada, 2011; Muntaner, Salazar, Benach & Armada, 2006). Both examples represent significant contributions to improvements in equity within countries when concerted PHC reforms were operationalized.

Health inequalities, involve more than inequality whether in health determinants or outcomes, or in access to resources needed to improve and maintain health. Also emphasized is that a failure to avoid or overcome such inequality that infringes on human rights is otherwise unfair (WHO, 2009). Health inequalities may be individual health differences, differences in health among population groups, health differences between groups linked to broader social inequalities and unequal social structures (Graham, 2007). In Honduras, infant mortality is reported nationally as 30 deaths/1000 live births however there are substantial differences in the health regions. For example, in the Bay Islands, infant mortality is 17/1000 yet in Octopeque the incidence is 82/1000. A second example of within country inequality is illustrated in the indicator of stunting which is low height for age. The national average is 13% whereas the range is 0% in the Bay Islands to 60% in Intibuca (INE, 2009). These examples illustrate health inequalities or difference between population groups and are
attributable to broader social inequalities and unequal societal structures (Graham, 2007 as cited in Birn, Pillay & Holtz, 2009).

4.3.c. Community participation.

A central principle of PHC is facilitating active community input for participation and support in developing and managing their health care. Community partnering and social empowerment activities enable meaningful involvement in the planning, implementation and maintenance of the people’s own health services. Social empowerment can be defined as peoples’ ability to act through collective participation by strengthening their organizational capacities, challenging power inequalities and achieving outcomes on many reciprocal levels in different domains: psychological empowerment, household relations, transformed institutions, greater access to resources, open governance and increasingly equitable community conditions (Wallerstein, 1992). Social empowerment strategies can increase awareness of health and the health-care system, while strengthening health literacy. Health literacy implies people’s ability to access and understand basic health information and health systems, and to use such information and systems in ways that are health-enhancing and that support action on health (Health Systems Knowledge Network (HSKN), 2007. One of Barrio Adentro’s (Inside the Neighborhood) key primary health care program elements are the ‘neighbourhood health committees’. The elected local residents are from within the neighbourhood itself.
They oversee strategic development and promote local social cohesion that spans all levels of health care. The committees are registered through coordinating offices with the Ministry of Health and are involved in implementing other much needed social projects (Blas et al. 2008; Muntaner et al., 2011; Muntaner et al., 2006).

4.3.d. Intersectoral approach.

Many factors combine to affect the health of individuals and communities. Access and use of health services that prevent and treat disease have an influence on health, however, the major influences that shape the health and the equitable distribution of services are located outside of the health sector (WHO, n.d.). An intersectoral approach for health refers to actions by other stakeholder networks or sectors outside the direct health sector that collaborate and share knowledge regarding health or health equity outcomes or on the non-medical determinants of health (WHO, 2009). The application to PHC implies an extension beyond the sole provision of health care services to coordinating with those public sectors and stakeholders involved in the population’s health outcomes and/or human development. Relevant sectors may include: employment and labor; education; housing; agriculture; food production and distribution; environment; water and sanitation; social care; justice/law enforcement; transportation and urban planning. All too often, sectors operate as individual silos however this component of the PHC model demands a commitment from all sectors to maximize the alignment of available resources for coordinating programs and public policy that influence or determine health.
Intersectoral Action for Health (IAH) recognizes the relationship between part or parts of the health sector with part or parts of another sector. The IAH was formed to deliberately take action on an issue to achieve improved health outcomes in a way that is more effective, efficient or sustainable than could be achieved by the health sector acting alone (WHO, 1997). By definition then, this can include actions between different departments within government, as well as between actors within and outside government, such as civil society organizations, NGOs, for-profit organizations and communities. The ability of the health care system to address public health concerns depends on levels of cooperation among various sectors. IAH is rooted in the principles of population health. The 1970s and 1980s brought awareness, through the developmental work in health promotion, to the various health risks associated with individual behaviour and lifestyles. In the late 1980s, more attention was focused on the role that social, economic, environmental and personal factors play in determining health status. The determinants of health is a phrase that emerged to encompass the factors and conditions that influence a population’s health. Fundamental to the population health approach is an acceptance that these determinants do not act alone, that is, their interactions are complex and can have an impact on health in both positive and deleterious ways. Therefore, addressing the broader determinants of population health demands leadership and actions beyond the realm of, but in coordination with, multiple government systems or regional health programs.
Conclusion

To summarize, the four core principles of universal access, commitment to health equity, community participation and an intersectoral approach provide the foundation for a PHC framework. PHC has been recognized for more than 25 years as one of the key components of an effective health system, which through its core, principle elements, aims to guarantee universal coverage and access to services and to provide comprehensive, integrated, and appropriate care over time (PAHO, 2007).

This chapter began with a background on the STMM as an entity providing focused primary care to vulnerable populations. The review of the literature identified a paucity of published evidence on STMM outcomes or systems for quality monitoring and evaluation. The Harvard Model (Maki et al., 2008), while dated, defined a beginning structure for assessment however, little else has emerged in the development of standards for structure, process, and outcome evaluation for STMMs. Primary Health Care, as a model has been identified as an apt framework upon which to plan an evaluation of STMMs, the elements of which are rooted in an appreciation of the social determinants of health. In the next chapter, the principles of PHC along with the adapted survey tool from the Harvard Model will be used to guide the case study of this thesis that explores the health impact assessment of one STMM.
Chapter 5 Methods and Design

This chapter describes the rationale for a Type 2 single case study embedded evaluation design using a mixed methods approach. Case study, as the research method for this study, is largely based on the work of Yin (2003; 2009; 2014) and Stake (1995; 2004). Although the two authors have very different conceptualizations of case study methods, they both seek to ensure that the issue of interest, through the research question(s) and propositions, is thoroughly explored and the essence of the phenomenon is uncovered (Baxter & Jack, 2008). Incorporated where appropriate, are relevant aspects of each author’s approach to provide a comprehensive approach to the study. Yin’s (2003; 2009; 2014) work specifically influenced the development of propositions a priori, which are based on knowledge gathered extensively in the literature. The work of Stake (1995; 2004) informed the qualitative data collection (semi structured interviews and document review) and a description of the context in which the research took place. The specific case for this study was a Short-Term Medical Mission (STMM) that occurred within seven communities in the region of Gracias a Dios, Honduras.

Case study research is defined as an empirical inquiry that uses multiple sources of evidence to investigate a real-life social phenomenon (Yin, 2003). Case study evaluation is a focused, in-depth description, analysis, and synthesis of a case (Stufflebeam & Shinkfield, 2007; Yin, 2014). Case study research provided a method to study the specific questions related to the STMM connected to selected participants (or units of analysis), thereby allowing the analysis of the delivery of health care services at a community level from multiple perspectives.
Data collection aimed to purposefully gather information through direct (interviews) and indirect (documentation and survey questionnaires) means. Also included in this chapter are sections describing the planned analysis, ethical considerations and aspects of methodologic rigor.

5.1 Single Case Design Rationale

A single case study approach with multiple embedded units design methodology (Yin, 2009; Stake 1995) was employed in this research project. Case study is an appropriate research strategy when a “what” or “how” or “why” question is asked while taking into consideration how a phenomenon is influenced by the context within which it is situated (Baxter & Jack, 2008; Hancock & Algozzine, 2011; Stake 1995; Yin, 2009). The case study approach is appropriate in broad, descriptive evaluation. It requires no treatment regimens or control subjects, rather it explores programs as they naturally occur (Stufflebeam & Shinkfield, 2007). The method is appropriate when researchers look to define research topics broadly and not narrowly, cover contextual or complex multivariate conditions and not isolated variables, and rely on multiple and not singular sources of evidence (Yin, 2009; 2014).

Case study research is defined as an empirical inquiry that uses multiple sources of evidence to investigate a real-life social phenomenon (Yin, 2003). Case studies are designed to bring out the details from the viewpoint of the participants by using multiple sources of data (Stake, 1995).
Employing the case study design enables the researcher to gain a supported, in-depth understanding into the case. By gathering data from a variety of sources the researcher then converges the data to illuminate the case.

One of the primary considerations in designing a case study is distinguishing between a single and a multiple case design (Yin, 2009; 2014). “A single-case study is analogous to a single experiment, and many of the same conditions to justify a single experiment can also justify a single-case study” (Yin, 2009, p. 47). The rationale for a single-case design is threefold. First, this single case is representative or typical of STMMs working in Honduras. The lessons learned from this case are assumed to be descriptive of the reality of the rural, remote STMM in Honduras.

Second, this single-case is revelatory. This situation exists when an investigator has an opportunity to observe and analyse phenomena previously inaccessible to other researchers. I have worked as part of STMMs in Honduras with the current NGO and others for fifteen years. These short-term efforts have been guided by one of the largest and most well established Honduran NGO in the country, the Sociedad Amigos de los Ninos (SAN). Furthermore, I have had the opportunity to meet and interact for two years with the regional health director in Gracias a Dios along with the respective health care providers working within this region. To my knowledge only one other investigator has conducted research in this health region (Arps, 2009; 2011) however those efforts were not germane to the role and impact of a NGO-led STMM.

Third, this single-case study is a longitudinal case. The same single case was explored at three points in time (pre mission, during the mission and post mission services). Case studies require an extended period of time for data collection; however
they provide greater depth that is otherwise impossible (Hancock & Algozzine, 2006). This single case design had the potential to minimize the chances of misrepresentation and to maximize the access needed to collect the design-appropriate evidence (Yin, 2009).

The study was an instrumental case study because of a desire to focus more broadly than on the case itself (Stake, 1995). For example, this study aimed to examine the perspectives (pre mission) of community members from the different villages regarding their expectations of the services provided by a STMM. Also, post mission information was gathered from clients who received health care services in an effort to better understand the client opinion and the outcomes of the short-term health care mission.

The instrumental case study design provided a unique opportunity to build a database for further qualitative and quantitative study. The challenge with this evaluation scenario as articulated by McDavid, Huse and Hawthorne (2013) was that I was evaluating a program - a STMM that had already been in place for many years. As such, defining or creating control groups without baseline (pre-program) data to construct before-after comparisons was limited.

5.2 The Case

The case was a short-term medical mission (STMM) provided by a Canadian non-governmental organization (NGO), Friends of Honduran Children (FOHC) in conjunction with Sociedad Amigos de los Ninos (SAN), one of the largest Honduran national charities (FOHC 2015; SAN, 2012). FOHC Canada was founded in 1979 by Dr. Jim McCallum, an orthodontic surgeon who went to Honduras as part of a medical
mission. During his work, he met Sister Maria Rosa from SAN, and through her influence, returned to Canada and founded FOHC. He has continued the connection with SAN and Sister Maria Rosa for over 34 years. FOHC Canada’s mission is simple: “to improve quality of life for impoverished Honduran children and their families, meet their basic needs, and empower them to break the cycle of deprivation and hardship that controls their lives” (Friends of Honduran Children, 2015). The NGO delivers and supports the following programs: Child sponsorship, Short Term Medical Brigades (STMMs), Building and Educational Brigades, Education and Scholarship for Secondary School, University or College in Honduras, as well as providing ongoing support to two SAN projects: Reyes Irene School for Girls and the Flor Azul Boys Community. On average the organization sends ten different educational, building or medical missions to Honduras annually.

The case for this research was a 12-day STMM that provided primary health care services to 7 different villages in the rural region of Gracias a Dios, Honduras. This mission team consisted of 20 people. The typical team includes Canadian and Honduran health care professionals such as physicians, nurses, dentists, dental hygienists, pharmacists and allied health providers along with nursing and physician students from Canadian universities and various support staff and volunteers. FOHC STMMs have been traveling and working annually in Honduras for over 15 years in all regions of the country. This STMM, the case study, occurred in February 2014, under the leadership of a Canadian physician.
5.3 Setting

The setting for this field research and case study location was the region of Gracias a Dios, in the municipal region of Puerto Lempira, one of Honduras’ largest, most rural and remote health departments. This is an extremely isolated, sparsely populated region in northeastern Honduras referred to as “La Mosquitia” by locals. As mentioned in Chapter 2, transportation infrastructure is very limited in this region. People travel mostly by foot or boat. The region itself is still not accessible by roads from anywhere in the country. The region has only one public hospital located in Puerto Lempira and 2 Clinicas Materno Infantil; No CLIPERS; 11 CESAMOS; 27 CESARS; no IHSS hospitals and/or clinics; and no private facilities. The Regional Health Director indicated that only 4 health related NGOs (Civilian Volunteer Group from Italy; Global from the United States; the Association of Miskito Women, a Honduran/Italian collaboration; and this studies case, Friends of Honduran Children, from Canada) operate within this department (Dr. L. Everett, personal communication, February 21, 2012).

5.4 Selecting the Villages

The STMM villages are chosen by a Honduran logistics person (C. Aguilar) in partnership with SAN, and the local municipal health division based on the following 9 established selection criteria: 1) primary health related issues such as “diarrheal conditions or chronic disease” as identified by the municipality; 2) higher than normal poverty levels (which villages are the poorest of the poor). In-country logistics specialists indicate they search for village homes without cement floors, adequate stoves for heat and cooking (vented and functional) or children without shoes, 3) lack of public health infrastructure within the homes in the villages such as no access to a
clean water system, no proper latrines, or a water storage system within the homes; 4) No CESAMOS or CESARS (public health centers) or the village may have the structural building but limited to no access to human resources and/or supplies and medications; 5) 2 hours maximum distance by vehicle or boat from the established base camp (Puerto Lempira); 6) safety and security (per assault rates with local police and military) along the roads to the villages. “The villages are not the problems, it is the roads that give access to the villages where safety is an issue” (C. Aguilar personal communication February 22, 2013); 7) Average village size of no more than 450 people. It is estimated that one-third of the village population will access the mission services; 8) Villages who have not had the services of a medical mission within the last 6 to 12 months; 9) A village that has a central location, with adequate shelter and privacy to allow for the services of a mission. Schools or churches tend to be more organized, clean and offer an enclosed space. Such an enclosed space allows for client privacy during care and also allows for crowd control and client flow around the site (C. Aguilar, personal communication, March 1, 2013). Village locations were confirmed in September 2013, and 7 village locations fit the criteria: Rondin, Sirsirtara, Tapamlaya, Aurata, Uji, Cocota and Cancu.

5.5 Case Study Design Components

The case study research design components included separate but connected steps. The five components of a good research design as described by Yin (2009, 2014), will be reviewed in this section.
These include: a study’s questions, its propositions, the units of analysis, the logic linking the data to the propositions and the criteria for interpreting the findings. The following summary figure (Figure 5) illustrates the single case study design elements.

Figure 5: Single Case Study Design Elements

- **The Case**: a 12-day NGO delivered Short Term Medical Mission (STMMs)
- **The Context**: the 7 remote villages in the region of Gracias a Dios where the STMMs will provide health services
- **Embedded Sub Units of Analysis**: the key informant stakeholders (Community Members; Clients; Honduran Regional Health Official; Canadian Mission Personnel; Host/Local Health Providers).
- **Data Collection**: field work takes place at 3 points in time; pre mission, during and post mission.
  
  *Data Sources*: Documentation, Survey Questionnaires, Interviews.

5.5.a. Orientation to the single case.

When a single case (STMM) involves more than one unit of analysis (in this case, more than the mission itself), it considers such aspects as subunits or areas that also require investigation. These subunits are called embedded units therefore the resulting design was called a single embedded case study design. Embedded case studies involve more than one unit of analysis and usually are not limited to qualitative analysis alone (Scholz & Tietje, 2002). Yin (2009), classifies such cases as Type 2 single-case embedded designs. Figure 6 provides an illustration of the multiple embedded units (Community members, Clients, Canadian health care (H.C.) providers, Honduran health care (H.C.) providers and Regional health officials). The context in which the case took place was the selected villages.
5.5.b. Research study questions.

Two primary research questions guided the study:

1. What are the processes and outcomes of health services delivered by a STMM?
2. How do different stakeholders assess health care services provided by STMMs?
5.5.c. Study propositions.

A case study proposition directs attention to something that should be examined within the scope of the study. The research questions ask what it is the study is interested in answering however, they do not point to what should be studied (Yin 2009; 2014). Propositions assist the researcher in determining boundaries of the case study with regard to time periods covered, the relevant social groups or stakeholders participants to include, the type of evidence to be collected and the priorities for data collection and analysis. The propositions were developed both from the literature and through personal experience with STMMs:

1. STMMs that provide health care services enhance access to health care for communities, especially in regions where the government does not offer regular services.

2. STMMs are not dependent on donor funding exclusively. The participants cover individual brigadier costs and expenses. However, missions are dependent on donations to provide and purchase medications and necessary supplies.

3. STMMs typically provide services for common preventable diseases such as gastrointestinal parasites or worms, malnutrition, upper and lower respiratory tract diseases and skin infections and infestations of lice or scabies.

4. STMMs in and of themselves are not a sustainable practice in any setting.

5. Community members in the 7 participating villages in the rural regions of Gracias a Dios require STMMs and they know what to expect from this type of care delivery.

6. Clients receiving care have a low level of compliance to treatment, advice and referral from a STMM’s Health Care provider.

7. Clients receiving care are accepting of the services of the STMMs.

8. Regional health care leaders vary in their willingness to accept the services of the STMMs.
5.5.d. **Unit of analysis.**

The case is a specific, complex and functioning entity system. In this study, it was a program, the Canadian NGO-led STMM provided in partnership with an in-country Honduran organization – Sociedad Amigos de los Ninos (SAN). The case had boundaries and working parts. The case was a part of an integrated system. The NGO-delivered STMM was the case or unit of analysis, and its boundaries were less defined because much of the logistical work began months before the actual set up and provision of primary health services in a village. The boundaries for this case were defined and bonded by time pre, during and post mission services. The mission date was planned for February 2014 to last 12 days. The boundaries for the case were estimated to be one month pre mission until one month post mission thereby allowing for adequate investigation of the research questions and propositions during mission preparation and follow up. The context for the case, or STMM, was the 7 villages where the STMM provided health care services. The embedded units of analysis were the participant stakeholder groups, as previously described. The mission set up and provided services in different villages each day. It was typical for this STMM to provide health care services to 6-8 different villages during one mission trip.

5.5.e. **Linking propositions to data collection.**

The design was a logical sequence that connected the study’s main research questions to the propositions and relevant sources of data to collect. The following table (Table 4) summarizes these features and the proposed timeline for data collection.
<table>
<thead>
<tr>
<th>Research Question</th>
<th>Proposition</th>
<th>Sources of Evidence</th>
<th>Timeline</th>
</tr>
</thead>
</table>
| 1. What are the processes and outcomes of health services delivered by a STMM? | 1. STMMs that provide health care services enhance access to health care for communities especially in regions where the government does not offer regular services. | Client information sheets  
Documentation (Regional data)  
Host/Local provider survey | During Mission  
During and Post Mission  
During Mission |
| 1. What are the processes and outcomes of health services delivered by a STMM? | 2. STMMs are not dependent on donor funding exclusively. The participants cover individual brigadier costs and expenses. However, missions are dependent on donations to provide and purchase medications and necessary supplies. | Health care providers and Mission director surveys  
Documentation (budgets and expenses) | During Mission  
During and Post Mission |
| 1. What are the processes and outcomes of health services delivered by a STMM? | 3. STMMs typically provide services for common diseases such as gastrointestinal parasites or worms, malnutrition, upper and lower respiratory tract diseases and skin infections and infestations of lice or seabeas. | Client information sheet (clinical data)  
Client follow up interview | During Mission  
Post Mission |
| 2. How do different stakeholders assess health care services provided by STMMs? | 4. STMMs in and of themselves are not a sustainable practice in any setting. | Regional health officials, Honduran health care provider and Mission director surveys. | During Mission |
| 2. How do different stakeholders assess health care services provided by STMMs? | 5. Community members in the 8 participating villages in the rural regions of Gracias a Dios require STMMs and they know what to expect from this type of care delivery. | Pre mission interviews with community members | Pre Mission |
| 2. How do different stakeholders assess health care services provided by STMMs? | 6. Clients receiving care have a low level of compliance to treatment, advice and referral from a STMMs Health Care provider. | Client follow up interview | Post Mission |
| 1. What are the processes and outcomes of health services delivered by a STMM? | 7. Clients receiving care are accepting of the services of the STMMs | Client information sheet (clinical data)  
Client follow up interview | During Mission  
Post Mission |
| 2. How do different stakeholders assess health care services provided by STMMs? | 8. Regional health care leaders vary in their willingness to accept the services of the STMMs. | Regional health officials survey  
Documentation | During Mission  
During Mission |
5.6 Sources of Evidence

The methods for data sources in this study utilized a mixed methods approach. Case studies commonly employ numerous methods, both quantitative and qualitative (Yin, 2009; 2014). The aim of a case study was to deliberately give or illuminate as complete a picture as possible of the case being studied (Stufflebeam & Shinkfield, 2007). Data sources were chosen by the researcher in a way that made sense to the purpose of the study and aspects of the qualitative component were influenced by the methods of Thorne (2008). Each data source had both strengths and limitations and it was beneficial to use multiple sources whenever possible (Thorne, 2008; Yin, 2009). During a case study, it is possible that planned methods may change their form or new ones may be introduced according to the nature of the circumstances as they are illuminated (Stufflebeam & Shinkfield, 2007; Yin, 2014). Record keeping by way of extensive field notes is essential in case study research (Yin, 2014) and a field notebook was a continuous part of the research documentation for the recording all of the thoughts, questions, and ideas that occurred as the study unfolded (Thorne, 2008).

The 4 principles of PHC (community participation, intersectoral approach, equity and universal access to care and coverage) were interwoven throughout the methods and informed the inclusiveness of the data collection for this evaluation case study. The following figure provides a visual illustration of how the PHC principles were applied in terms of the data collection.
For the purposes of this study three potential sources of evidence were used in data collection: documentation and archival records, interviews, and survey instruments.
5.7 Documentation

Documentation and archival records were available in many different formats in Spanish, Miskito (indigenous language in Gracias a Dios) and English. These included administrative documents, proposals, progress reports from the community primary care clinics, other formal evaluations of NGO related work (where available), news clippings and articles appearing in the mass media or community newspapers. Other regional and federal, archival documents were accessed, such as census and other statistical data, service records from the community CESMOS and CESARS, maps and charts of the geographical characteristics of the villages within walking distance of communities, and any survey data previously collected by the NGOs or public health workers.

5.8 Survey Questionnaires: Health Impact Assessment for STMMs and the Original Harvard Model

In 2007, the Harvard Medical School, Harvard University in Boston, Massachusetts developed an evaluation tool to determine factors critical to the quality of care provided by STMMs. Their goal was to create a systematic way to evaluate the performance of STMMs, and to use the tool to foster self-analysis and promote quality improvements within short-term missions. This work was conducted in three phases (Maki, Qualls, White, Kleefield & Crone, 2008). Phase one developed a need-based analysis with missions in Honduras, Guatemala and Venezuela. Several factors were highlighted as relevant to the quality of STMMs and resulted in 6 major and 30 minor factors. The six major factors were; Cost, Efficiency, Impact, Preparedness, Education and Sustainability and are defined in Table 5. The factors are not listed in order of
priority and are listed as they appeared in the original work. These six factors were identified as common benchmarks, or target areas for missions regardless of type, services provided or health care goals. The 30 other factors were identified as impacting quality by at least one of missions involved in phase one interviews and were therefore designated as minor factors. The 30 minor factors were not comprehensively defined and included: total cost, per patient cost, host cost, financial evaluation, diagnostic methods, standard of care, measurable outcomes, morbidity and mortality, staffing plan, patient census, services, resources, orientation, risk management, language proficiency, cultural awareness, organization and management, triage, referral process, time management, communication, patient health education, host provider training, resident/student training, record keeping, exit strategy, clarity of goals, personnel satisfaction and patient satisfaction. For the purposes of this discussion, the minor factors are listed after the definition of a major factor. However, one of the challenging aspects in understanding the orientation of this tool is that several of the minor factors can inform more than one major factor. For example, the minor factor of language proficiency could be considered an element that threads through all of the major factors.
These 36 factors (6 major and 30 minor) from the needs assessment became the basis for items in the survey. There were 159 items in total (16 general information questions, 15 host, 26 personnel, 15 patient, and 87 administrator questions). Cost was then evaluated by 7 questions, Efficiency 17, Impact 41, Preparedness 29, Education and Sustainability 21. An additional 24 questions were categorized as “general information” and were used to obtain data regarding the characteristics of the mission (type of mission and patient information). The designated 5 survey recipients in the work by the Harvard group included: the host/local provider, mission director,
patients, health care personnel, and mission administrators. The 5 original Harvard surveys are available in Appendix I. Their final draft versions of the surveys were pilot tested during Phase 3 of their study period. Validity and reliability coefficients were not published. The Surveys were tested in areas of Honduras, Ecuador, Brazil, Zimbabwe and Namibia. The original evaluation by the Harvard Medical School authors did not continue and the online database, STMMConnect.org, is no longer active or maintained.


The Revised Harvard Model (as it will be referred to in this thesis) represented a first effort to create an objective evaluation tool for STMMs. This original work represents a positive step for STMMs to self-evaluate their services. The tool offered STMMs a means for performance evaluation from the perspectives of those key mission personnel and patients involved in STMMs. Pilot testing was conducted in five different countries (Honduras, Ecuador, Brazil, Zimbabwe and Namibia) with five different missions (3 medical and 2, surgical). Participant groups were selected to provide broad heterogeneity of size, goals and affiliations. Honduras was the only country selected for both phases based on established selection criteria: the overall number of missions annually (had to be over 5), the experience (more than 5 years experience), openness to researcher participation on their mission, and commitment to ongoing discussions about quality of the missions themselves working in this country. This research study’s STMM was not involved in the Harvard work.

Another strength of this original effort was that survey information could be completed online or on paper and entered later into the online database
(STMMconnect.org). The database included an evaluative report writing capacity for missions. Reports of synthesized evaluation information by the 6 major factors calculated a percentile evaluation, allowing the missions to quickly and broadly analyze their performance. Responses could be compared to a “universal average” which was the mean score of responses of all other missions to each of the questions. These features allowed a quick snapshot of a given missions performance on a detailed and aggregated level compared to other STMMs. Following the pilot phase of this study, momentum and ongoing voluntary participation by missions waned. The database is no longer maintained, neither are the benchmarking data available for comparison.

In its original format, there are limitations to this evaluation specifically in the final phase of their work. These aspects for consideration will be captured in the following section. The original authors’ personal feedback and other relevant adaptations will be incorporated into the first set of revisions to the five original surveys.

5.8.b. Limitations of the original Harvard model.

As identified by the authors, there are limitations to their evaluation research. First, was the issue of response bias by the key informants. The tool relied on medical directors and volunteer health personnel to honestly evaluate their own missions. Leaders such as medical directors of a program tended to emphasize the positive and minimize the negative aspects (Maki et al., 2008). The funding and supports for future missions depended on their abilities to create a positive image of international relief efforts. Altruistic mission personnel are motivated by their belief in the good and
positive aspects of their volunteerism. The excitement and the camaraderie of STMM personnel is well documented in the literature through descriptive, personal reports and reflections, and therefore may also be a source of response bias. A social desirability response bias of the respondents in this evaluation would be high (Maki et al., 2008; Shi, 2008).

Next, it is not clear how the clients were selected from the missions themselves. The results indicate 5 STMMs (3 were medical and the other 2 were surgical [listed as ophthalmology “retina and cataract”]) with results compiled from a total of 118 surveys – 5 general information, 10 host/local provider, 5 mission directors, and 55 patient surveys. The results indicate that only 56% of patients received medical treatment for their presenting problem. From the mission’s data, 1832 patients attended the 5 missions however, only 55 patients (or 3% of patients) completed the detailed patient surveys. It is not clear if they were randomly selected or if it was merely the most enthusiastic who agreed to participate in the surveys or if the patients were surveyed or had the capacity to independently complete the tool. Though the information produced by this sample of patients had meaningful aspects, it is difficult to draw substantive inferences about the representative population who visit STMMs. Others have criticized the evaluation as not having a fully representative sample (Cohen, 1987; Munro, 2001).

Comprehensive clinical documentation such as presenting complaint, assessment findings, diagnosis or treatment for patients is not possible using the 5 survey tools themselves. If these data were gathered as part of the mission itself, the findings were not reported or recorded with the original survey data or using existing
tools. Recording of baseline clinic data represents an important first step in STMM evaluation. Developing an understanding of impact, that is and whether or not their practices promote good and avoid harm, is challenging to appreciate without substantive clinical information. Not only does this clinical information need to be recorded and documented, but it also the data should be shared with the local health care providers. The question of whether or not STMMs are administered in conjunction with local priorities needs to be further explored by key stakeholders within the health region where the work is being conducted.


For the purposes of this study, and with the permission of the authors, the five original Harvard Model survey instruments were adapted and revised. The revisions are based on two main areas. First, minor changes were undertaken based on the original phase three pilot study recommendations, and an identified need to subtly adapt the language of the surveys to better reflect a current primary care provider (vs. medical care provider) focus. The second area reflects more a change in process and methods in that data were collected on all clients presenting for health care services and for post mission client follow up guided by actual care needs deemed necessary by the primary care provider. These changes account for clinical data capture on all clients and the timing of data collection. The revisions also capture the persuasion of the principles of PHC that, guided the development of the final and revised health impact assessment.
**5.8.d. Minor revisions.**

The surveys were revised based on both the original pilot study (phase three) recommendations and the need to have the language of the surveys reflect a more primary health care focus. The chart of revisions presented in Appendix J details the changes from the *original* Harvard Model surveys, to the *revised* Harvard Model along with a rationale for the changes. A brief overview of the revisions will be provided.

The pilot study recommendations included the need to identify both the type of care provided (e.g., medical, surgical, paediatric, dental, ophthalmology or other type of service where applicable) and further operational details such as health care interventions (treatments, medications, education). Other recommendations included the need for detailed financial forms and budget information. The original cost (one of the major factors) parameter called for an analysis of the STMM’s total and per patient costs. It was recommended and deemed informative to also objectively assess mission costs including airline and lodging costs, resource utilization, and forfeited wages on the parts of the mission personnel (Maki et al., 2008).

The original client surveys were difficult to administer because of the limitations of the setting in allowing for privacy and confidentiality. Another aspect was the low illiteracy of clients and their ability to understand the language of the self-administered survey method. These challenges were typical of the region and required careful consideration as part of the case study data collection protocol. A private client interview with the assistance of an impartial translator was required.

All surveys in the research were self-administered questionnaires except for the revised client tool, which was accomplished through an interview using the items on
the survey. The plan was for all questionnaires to be self-or researcher-administered and completed during the STMM. In an effort to improve respondent readability of the questionnaire, additional subtle changes to the language and readability were implemented. For example, where, in the original surveys, two questions were double-barreled, the questions were separated. Another example was that the 5-point likert-type scale used in the mission director questionnaire was reversed so that completely disagree changed from a code of 5 to a 1 and completely agree, from a 1 to a 5. The change was made for consistency in scoring with the other questionnaires. Another strategy to improve the ease of responding for participants was to include ‘yes or no’ segway questions before asking more detailed questions. Using this approach complemented a subsequent instruction to provide rationale for an affirmative response. If however, the respondent answered ‘no’ or ‘do not know’, they could move to the next question or set of questions (Shi, 2008).
Finally, minor language revisions of the surveys were undertaken to reflect a more primary care provider focus of current day practice as opposed to one focused solely on the medical model of health. Terms such as “medical care” were changed to indicate “health care.” More details were asked of the mission director to document the list of all team participants (not only physicians) and to include their role, title and area of expertise. While the original surveys asked about participating students, the revisions ask specifically about their educational curriculum and scope of these participants’ practices in an effort to clearly capture their roles. Two additional open ended survey questions were added to all questionnaires for the purposes of this case study evaluation. The rationale was to allow for any additional general comments or to prompt further commentary from all stakeholders. The additional questions were: Do you have any suggestions for improving this mission? and Do you have any additional comments about the mission or this survey?

In summary, the final surveys include 180 questions in total (17 general information, 19 host/regional health provider, 32 health care mission personnel, 21 client items asked during follow up, along with a detailed client information sheet for documentation of client demographics, diagnoses and treatments, 91 mission director or team leader). The final recommendation from the original Harvard Model pilot phase was the need to better assess the participant client population. In the context of the current research, this represented a major revision and is discussed next.
5.8.e. Major revisions (client data).

The efforts to adapt and revise tools used in the Harvard Model for client data required significant development for the content and administration/use. These changes were based on the limitations identified in the original survey to capture details for all clients, and the timing of data collection. The revised tool also captured the principles of PHC, proposed to serve as a guide for the ultimate development of the final health impact assessment.

Given the recommendation from the pilot phase of the original Harvard study for better details on client selection and client information, the revisions included the client’s level of education, income, an opinion of care (over normal services in the region). The complete, client information sheet, as revised is provided in Appendix K. This sheet was completed on all clients who presented to the mission for services.

A major limitation from the original Harvard Model was that survey information was only collected on a small percentage (10%) of patients during the day of the actual mission and surveys were the only methods of data collection for all participants involved. The Revised Harvard Model Health Impact Assessment and Evaluation of a STMM was collected at three points in time (pre mission, during or day of the mission and post mission). Also, for the purposes of this case study of a STMM, clients, health care providers (Honduran and Canadian) or mission personnel, the mission organization and regional health care officials represented the key stakeholder informants. The addition of regional, in-country health care providers as key informants and the clinical data collection for all clients who are the recipients of care represents a major change to the process of this revised evaluation.
Finally, language and questions relating to the 4 principles of PHC were interwoven throughout the study methodology. As an example, the inclusion of data from key community members pre mission was garnered in an effort to understand their expectations of the STMM and their perspectives of the needs of their community.

5.9 Interviews

Qualitative research incorporates the holistic context in which individuals assign meaning to experiences (Roper & Shapiro, 1999). Denzin & Lincoln (2005) note that qualitative researchers “turn the world into a series of representations, including field notes, interviews, conversations, recordings, photographs, and memos to the self” (p.3). This means that researchers study phenomena in their natural settings, attempting to make sense of, or interpret perspectives in terms of the meanings people bring to them. Other definitions of qualitative research highlight similar characteristics. For example: data are collected in the field or natural setting, the researcher is the key instrument of data collection, outcome is a process rather than a product, analysis of data is inductive, and the focus is on community members’ perspectives (Creswell, 1998; Denzin & Lincoln, 2005; Thorne, 2008).

One of the most important sources of case study evidence is the interview (Stake, 2004; Yin, 2013). A semi-structured nature is most typically used in qualitative research, and usually occurs with a single individual, is scheduled, and the researcher has a list of pre developed questions to guide the interaction (Patton, 2002). It is important to consider the setting where the interviews will take place. In this study, semi-structured interviews were conducted in a neutral context within the research
setting (Coreil, 1994). The natural setting of the community members’ village would enhance the realism of the interview, however, it is important to seek a private, neutral and distraction-free interview location that is mutually agreed upon to maintain the comfort of the participants and maintain the likelihood of attaining high-quality information (Hancock & Algozzine, 2011). In this study, the community member’s home or a familiar location such as the village school or church served as appropriate settings. Interviews were conducted pre and post mission in the 7 villages with community participants who received care during the mission and then with those who were expected to attend their expected follow up with local health care providers or the regional hospital. Community participants were also interviewed before the mission arrived. Verbal (oral) consent was a component for community participants and clients involved. All interviews were conducted in Spanish or Miskito, according to the participant’s language of choice, with the assistance of a local Honduran interpreter.

Charmaz (1991) asserts that when conducting a qualitative interview, the researcher’s training in interviewing skills can remarkably impact (positively or negatively) the quality and the consistency of the data collection. A predetermined set of open-ended questions were flexibly worded, the answers to which would contribute to answering the research propositions and research questions. The first sets of interviews (pre mission) served to explore the community members’ perspectives on health care needs and expectations regarding the upcoming STMM in their village (Appendix M). The client follow up interviews explored their level of compliance to treatment, advice and referral (Appendix K).
5.9.a. Sample size.

According to Kuzel (1999), the “unit of analysis” and the overall purpose of a case study will guide the sampling decisions (p.38). The STMM was the focus of the analysis and the purpose of the study was to understand both the expectations and perspectives of the various stakeholders to disclose the achievements and deliverables when a short-term mission delivered primary health care. Both the unit of analysis and the purpose of the study guided the sampling. Patton (2002) clearly asserts that the power associated with the various types of purposeful sampling employed in qualitative research does not reside in the number of participants but in the quality of the information obtained from the study participants. Therefore, in qualitative research, statistical computations to determine a sample size are not used. However, the appropriateness of the type of purposeful sampling in conjunction with the methods used can help researchers and reviewers to decide whether the research findings are credible (Sandelowski, 1995). Three types of purposeful sampling are described by Sandelowski (1995) & Coyne (1997): maximum variation, phenomenal variation and theoretical variation. Based on the delineation of these types of purposeful sampling, the maximum variation strategy was used to obtain an information-rich sample (Patton, 2002). In maximum variation sampling, a sample size of 10 may be considered too small to capture a wide range of participants however, a researcher is encouraged to obtain a sample size that will maximize the understanding of the study’s diverse group (Sandelowski, 1995). Furthermore, the type and scope of the qualitative methodology employed by a researcher can also contribute to determining the sample size (Morse, 2000; Sandelowski, 1995). The concept recognizes that in any research, different
participants can have diverse opinions. The guiding principle for the sample size for this study will be guided by the concept of saturation (Glaser & Strauss, 1967; Mason, 2010). Qualitative samples should be large enough to assure that most or all of the perceptions that could be important are disclosed, however, if the sample is too large data becomes repetitive (saturated). The point of saturation is “when the collection of new data does not shed any further light on the issue under investigation” (Morse, 2010, p. 2). In the conduct of the interviews, redundancy was considered.

Purposeful criterion sampling was used to select the community members in the different villages, pre-mission. This allowed for timing and feasibility issues within the different villages. According to Patton (2002), purposeful sampling allows the researcher to select individuals who have a great deal of knowledge about the phenomena of interest, allowing for information-rich data from these individuals. In Time 1, pre-mission, community members who had general health knowledge of the village and had lived in the village for over 5 years were randomly approached. The purpose was to gain insight into their perceptions of health care services provided by the impending STMMs. For the follow up interviews a convenience sample was considered. That is, as many mission clients with referral or follow up expectations as could feasibly found and interviewed would make up the Time 3 sample.

5.10 Data Analysis

Unlike other research methods, there was no predetermined cut-off point for analyzing data. According to Yin (2009), the aim in case study research is to collect sufficient data for both confirmatory evidence from two or more sources for most of the main topics (in this project, the research questions and the propositions), and to
investigate major rival explanations if warranted. One of the major strengths of case study data collection is the opportunity to use different sources of evidence. The most important advantage presented by using multiple data sources is the development of converging lines of inquiry (Yin, 2014). Yardley (2009) describes how the desired level of triangulation follows from the principles of navigation, whereby the intersection of different reference points is used to calculate the precise location of an object. This supports that any case study findings are more convincing and accurate when they are based on different sources and types of information, and follow a similar convergence (Yin, 2014). Regardless of the steps involved in data analysis ultimately it is the job of the researcher to take the raw data and provide an interpretation that is meaningful and useful to practitioners and decision makers (Thorne et al., 2004). The cognitive processes involved in any interpretive description study are described as

“(a) comprehending the phenomenon under study (b) synthesising a portrait of the phenomenon that accounts for relations and linkages within its aspects (c) theorising about how and why these relations appear as they do, and (d) recontextualising, or putting the new knowledge about phenomena and relations back into the context of how others have articulated the evolving knowledge.” (Thorne, 2000, p.70)

In assessing data from all sources, content analysis procedures were used (Stufflebeam & Shinkfield, 2007). The data provided information about the structures, processes, perspectives of participants, and outcomes of the STMM, the villages and the regional health departments and services. Materials from all data sources were read and ultimately organized to describe the region, villages, work and outcomes of the STMM and patterns and themes relative to the propositions and research questions.
The processes for data analysis were as follows:

- All quantitative data (Appendix L – client information sheet) were entered into a Microsoft® (Version 8), excel matrix by four trained, second-year undergraduate BScN students using a predeveloped codebook; Each client and health care provider had a unique numeric identifier to ensure confidentiality;
- Every 25th entry was audited by the researcher for accuracy;
- The Excel template was uploaded into SPSS® (Version 17) for the purposes of descriptive analyses
- Basic statistical procedures were executed (e.g., frequencies, percentages, means, standard deviations) to describe client variables and questionnaire responses from other key stakeholders; Client variables included age, gender, mission location, community of residence, prior medical/nursing contact, method of travel to the mission, distance to the mission, educational level, monthly income, history of drug allergies, current medications, presenting complaints (up to three), chronic conditions, diagnoses and treatment/medication/health education prescribed (up to three each);
- the quantitative data were displayed, using tables;
- Field notes, regional documents, and mission data were reviewed to describe the context of the case and the STMM;
- All qualitative data (written notes and all comments from questionnaires) were transcribed verbatim;
- Two researchers (the Principal Investigator and a researcher skilled in qualitative analysis and external to the team) independently read all transcriptions. Key terms/words were identified, coded, and categorized as they lined up with the propositions and research questions and as they converged or complemented the quantitative findings. Care was taken to maintain an awareness of the conceptual framework (PHC) that influenced the data collection procedures;

- The researchers met on multiple occasions to discuss and arrive at a consensus on the patterns, levels of data (from client to regional), themes and/or threads (per Thorne, 2008), that occurred throughout the qualitative and quantitative findings in an attempt to arrive at an explanatory, composite model or framework;

Essentially, the data analysis consisted of “examining, categorizing, tabulating, testing or otherwise recombining evidence, to produce empirically based findings” (Yin, 2014 p.132). The process of data analysis depended on an intellectual ability of the researcher(s) as they implemented the steps in organizing and sorting data while regularly reflecting on the principal goals of the research project. The goals included responding to the research questions and the propositions which shaped the data collection and therefore were priorities of the analysis (Yin, 2014). A matrix comparing the propositions with the data was a defined intention.
5.11 Ethical Considerations

Prior to initiating the survey questionnaires, each study participant was asked to read an information letter and sign consent indicating their voluntary participation in the study. The written-and-sign approach was used with the Honduran and Canadian health care providers and the Regional health officials. The information letter and consent was available in English and Spanish. For the community participants, clients and some of the Honduran health care providers, the information letter and consent was read to them and the study participants were asked to provide verbal consent for their participation. All verbal consents were documented. Both Spanish and Mosquito interpreters were present and able to speak the language of the participants. Sufficient time was be given to the study participants to address any questions or concerns they may have.

The project, along with the consent procedures were approved by the Honduran regional director and the board of directors for both Sociedad Amigos de los Ninos and Friends of Honduran Children. The information letter and consent form (Appendix N) was developed according to the University of Toronto’s Research Ethics Board Informed Consent Guidelines (University of Toronto, 2010). The study received approval from the University of Toronto’s Institutional Research Ethics Board.

5.11.a. Privacy and confidentiality.

All field notes and documents were strictly protected during the STMM. To ensure confidentiality of all clinical information, and data were numerically coded with a unique identifier (client numbers were organized by village) for the purposes of
electronic data entry and data analysis. Data were stored in a locked briefcase while in Honduras and subsequently in a locked, metal filing cabinet at the Lawrence S. Bloomberg Faculty of Nursing. It is the intention that, following data analysis, all raw and analyzed case study data would be stored in the office of the thesis supervisor for 5 years following the acceptance and publication of the thesis. At the end of five years, all confidential paper documents will be shredded and all password-protected and encrypted computer data files containing confidential information will be erased.

5.11.b. Risks and benefits.

Having worked for many years in a hospital environment and now as a faculty member at large university in Ontario Canada, I was aware of the inherent risks and potential benefits associated with research studies. During the time periods of the study, I was mindful that some of the participants may experience some emotional distress speaking about their health problems and concerns for themselves, their families and/or their communities, while other may find it beneficial to have health-related discussions. Although I have worked on medical missions for many years, I continued to understand during the study, that I was considered an outsider in Honduras and in individual villages. I collaborated with local health officials, such as the nurses, who were familiar with the communities where I conducted the interviews, to help clarify certain Miskito terminology and to help the study participants feel comfortable and safe speaking with me about their experiences. Finally, I gave participants the freedom to choose not to answer any of the interview questions or to interrupt or leave the study session at any time without prejudice.
5.11.c. Compensation.

No costs were incurred to the various participants who agreed to partake in the study. I met the participants and/or key informants at a location convenient for them. No tokens of appreciation were given to the participants.
Chapter 6 Results

In this chapter, I present the results of the study in order to answer the two primary research questions: What are the processes and outcomes of health services delivered by a Short-Term Medical Mission (STMM)? How do different stakeholders assess health care services provided by STMMs? Each research question was guided by the study propositions (Chapter 5; Table 4) that were developed both from the literature and through my personal experience with STMMs. The case studies’ descriptive and analytic findings have been compiled from multiple sources and include a total of 24 community members (Time 1, T1), pre STMM), 1,120 clients (Time 2, T2), during the STMM), 35 clients post STMM follow up (Time 3, T3), as well as 1 Canadian Team Leader, 20 Mission personnel, and 5 host/local health/regional providers (1 Mayor, 1 Regional Health Director and 3 Nurses). The findings include both quantitative data on clinical aspects of clients and qualitative perspectives from clients and stakeholders. The data were collected from January 23rd and June 1st, 2014. A fulsome description of the design and detailed methods have been provided in Chapter 5.

This chapter is organized in four sections. In the first section, community member perspectives from the 7 villages describe both their health needs and regular challenges to accessing health care services in Honduras. In the second section, details of the socio-demographic characteristics of the mission clients from the same 7 villages who presented for primary care services are provided. This section also briefly describes the day-to-day context of the STMM. In the third section, findings are presented to answer the first research question related to STMM processes and outcomes along with the
examination of specific propositions developed to produce evaluative details of the mission health care service delivery. In the fourth section, the assessment of health care services by the STMM presents multiple stakeholders’ perspectives to examine the specific propositions relating to the second research question. Propositions 1, 2, 3, 4, 5 and 8 are accepted and confirmed as evidenced by two or more sources from the study data.

Proposition 6, *clients receiving care have a low level of compliance to treatment, advice and referral from a STMM Health Care Provider* and Proposition 7, *clients receiving care are accepting of the services of the STMMs* are rejected and contrasting perspectives of participant stakeholders are examined through rival explanations.

### 6.1 Community Member Perspectives on Health Needs and Access to Services in Honduras

In this first section of Chapter 6, community member perspectives from 7 remote villages illuminated both their health needs and regular challenges to accessing health care services in rural Honduras. Responses from the interviewer’s detailed hand-written notes from 24 interactions were organized in relation to themes and displayed in the following tables (Tables 6, 7, & 8).

The key issues included limited facilities, access to healthcare services, limited follow up, and the sense of government neglect. Community member’s (C15 & S5) described limited facilities, “*we have no resources to go to when our children are very sick*” (T1: CMC15), and lack of access to services “*the clinic (in the village) is really small ...no one is ever there ... if there is a nurse, there are no medications*” (T1: CMS5). For participants, especially those living in villages without a rural health clinic, the situation was extreme, “*it’s a 5 hour paddle to (city)...boat taxi costs 400-500 Lempiras*
(LPS) ($18.37 - $22.95 USD), if you need the express boat for an emergency it costs 1,000 LPS ($45.91 USD)” (T1: CMA19). Follow up after a STMM presents additional challenges for the community members with referrals for ongoing monitoring by a health care provider along with access to essential medicines. For instance, “a pufffer helped me then (after STMM)...I go now (to the nurse or the city) to get another but no medicines there” (T1: CMS6). Exemplars (verbatim quotes as written during the interchange, and via translators) are detailed in Table 6.
### Table 6: Pre STMM Time 1 (T1) Community Member Perspectives with Health care services

<table>
<thead>
<tr>
<th>Perspectives with health care services</th>
<th>Exemplars*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Limited facilities &amp; health human resources</strong></td>
<td>T1:CMR1 – we only get to medical care if really sick; T1:CMS5 – the clinic (in the village) is really small … no one is ever there … if there is a nurse, there are no medications; T1:CMT7 – the hospital will sometimes come to give vaccinations; T1:CMC15 – no resources to go to when our children are very sick…our children need to be healed; T1:CMU18 – people go to the health centre but they don’t have medicines to help; T1:CMA21 – I don’t know when a nurse will come.</td>
</tr>
<tr>
<td><strong>Access to healthcare services</strong></td>
<td>T1:CMR1 – takes 4 hours to walk, 3 if you are younger; the city is 2.5hrs by car; T1:CMT9 – it’s a 5 hour walk to the city; T10 it’s a 6 hour walk; T1:CMT11 – we have transportation problems; T1:CMC14 – it takes 3 hours to walk; T1:CMC16 – hard to get out (lagoon community) T1:CMA19 – it’s a 5 hour paddle to (city)…boat taxi costs 400-500 Lempiras (LPS) ($18.37 - $22.95 USD) If you need the express boat for an emergency it costs 1,000 LPS ($45.91 USD) T1K22 – it’s 30-90 min away depending on your motor (boat)</td>
</tr>
<tr>
<td><strong>Limited treatment follow up</strong></td>
<td>T1:CMS6 – a puffer helped me then (after STMM)…I go now (to the nurse or the city) to get another but no medicines there; T1:CMS7 – we had a Canadian mission here last year. It was good but we need follow up; T1:CMT10 – I have diabetes … I was given medicine but it ran out; T1:CMA21 – the brigade last year was good because they had medicines. They last for a little bit then nothing again.</td>
</tr>
<tr>
<td><strong>Neglect (governmental)</strong></td>
<td>T1:CMT8 – we feel bad, neglected … no education … little help. I worry about all the malaria…we sometimes get mosquito nets but not enough; T1: CMT10 – we have been abandoned by city hall and the health region; children are dying here. T1: CMT11 – if they fixed our roads we could move around; T1: CMC15 - Thank you for asking me…no one has ever asked me what I think. T1: CMT9 – once a year, they come with vaccinations only (referring to regional health). I have lived here since 1919, and the children are still dying here.</td>
</tr>
</tbody>
</table>

**Legend:** Time (T1=Time 1 Pre Mission; T2=Time 2 During Mission; T3=Post Mission Follow up)+ Participant (CM=Community Member) + Upper case letter identifies the first initial of the village(R=Rondin’ S=Sirsirtara; T=Tapamlaya; U=Uji; A=Aurata; C=Cocota; K=Cancu) followed by the participant’s unique identifier.

The Lempira is the currency of Honduras where $1US dollar=21.78Lempiras (LPS) (EX Online Currency Converter, March 20, 2015).
Similar comments relating to a specific health issue or problem were grouped and tallied in terms of frequency of the ‘like’ comments and displayed in order of the problems most frequently voiced (Table 7). All community members identified more than one health problem. While a long list of ailments was apparent, the predominant afflictions were stomach problems such as diarrhea, followed by fever, malaria, and skin rashes. For instance, community member participants indicated, “I worry about all the malaria...we sometimes get mosquito nets but not enough” (T1: CMT8) and “I have lived here since 1919, and the children are still dying” (T1: CMT9).

Table 7: Pre STMM Time 1 (T1) Participant-defined health care issues, tallied and in rank order

<table>
<thead>
<tr>
<th>Health Care Issue/Problem</th>
<th>N*(24)</th>
<th>% of participants citing the health care issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stomach problems/diarrhea</td>
<td>21</td>
<td>87.5</td>
</tr>
<tr>
<td>Fever</td>
<td>16</td>
<td>66.6</td>
</tr>
<tr>
<td>Malaria</td>
<td>15</td>
<td>62.5</td>
</tr>
<tr>
<td>Rash/skin problems</td>
<td>11</td>
<td>45.8</td>
</tr>
<tr>
<td>Cough/Chest infections</td>
<td>7</td>
<td>29.1</td>
</tr>
<tr>
<td>Pregnancy related problems</td>
<td>5</td>
<td>20.8</td>
</tr>
<tr>
<td>Dental pain</td>
<td>4</td>
<td>16.6</td>
</tr>
<tr>
<td>Other</td>
<td>16</td>
<td>66.6</td>
</tr>
</tbody>
</table>

*Other included: headache (2), anemia (1), vision problems (1), bone pain (1), chicken pox (1) women’s problems (1), AIDS (1), elder issues e.g., stroke (1), cancer (1), hypertension (2), dizziness, (1) diabetes (3)

*Multiple responses reflect a total greater than the sample (N = 24)

All respondents offered opinions about their health care service delivery and social determinants of health issues. Community member comments regarding needs in their villages included health care supplies, education/training, roads, water and sanitation and lack of food security.
For instance, “we have no clean water and no latrines” (T1: CMA19) and “we need food to eat” (T1: CMC15). Exemplars (verbatim quotes as written during the interchange, and via translators) are detailed in Table 8.

Table 8: Pre STMM (T1) Community Members suggested needs in their villages

<table>
<thead>
<tr>
<th>Suggested needs for their village</th>
<th>Exemplars</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health care supplies</strong></td>
<td>T1:CMR1 – we need some sort of house with medicines the people would need  &lt;br&gt;T1:CMT9 – could we have some sort of medicine kit? (multiple requests from participants received for this request)  &lt;br&gt;T1:CMT10 – we need toothpaste donation. It’s expensive;  &lt;br&gt;T1:CMC12 – need a kit of medicines for when we run out and the brigade is gone;  &lt;br&gt;T1:CMK24 – we need a health centre and more groups and government to support us on a consistent basis...we need help with our health</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>T1: CMT9 – we need training for deliveries (births). Women are dying during delivery  &lt;br&gt;T1: CMC15 – the teacher teaches children to shower, stay clean, wash hands and what food to eat… but it’s not enough;  &lt;br&gt;T1:CMK24 – children need more education about health…very little in the schools</td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
<td>T1:CMT11 – if they fixed our roads we can move around. I hear about some Brigade on the radio but it is never close enough;  &lt;br&gt;T1:CMK23 - it costs 400-600LPS ($18.37-$27.54USD )by boat (to get to city for medicines)</td>
</tr>
<tr>
<td><strong>Water and Sanitation</strong></td>
<td>T1:CMC13 – fevers from the malaria and the diarrhea is from the water;  &lt;br&gt;T1:CMC17 – there’s no maintenance for clean water;  &lt;br&gt;T1:CMA19 – we have no clean water and no latrines;  &lt;br&gt;T1:CMA19 - …too many mosquitos because of the lagoon water and the grass line [in the three lagoon villages, a village is predominantly made up of dirt paths and then, the grass or swamp areas which border the lagoon along the water’s edge. The latrines in the these villages are on docks extending out over the lagoon];  &lt;br&gt;T1:CMA21 – I know it’s all because of our water problems. We have had many attempts at clean water;  &lt;br&gt;T1:CMK22 – when we are in the dry season, we have to use the water from the lagoon, there’s no choice;  &lt;br&gt;T1:CMK23 – we have the black tanks [rain barrels] but no water [in them] in the dry season; some people have wells.</td>
</tr>
<tr>
<td><strong>Food security</strong></td>
<td>T1:CMC15 – we need food to eat. There’s not enough;  &lt;br&gt;T1:CMU18 – we need food – food is important too;  &lt;br&gt;T1:CMK23 – another problem is extreme poverty.</td>
</tr>
</tbody>
</table>

**Legend:** Time (T1=Time 1 Pre Mission; T2=Time 2 During Mission; T3=Post Mission Follow up) + Participant (CM=Community Member) + Upper case letter identifies the first initial of the village (R=Rondin’ S= Sirsirtara; T=Tapamlaya; U=Uji; A=Aurata; C=Cocota; K= Cancu) followed by the participant’s unique identifier.

*The Lempira is the currency of Honduras where $1US dollar=21.78Lempiras (LPS) (EX Online Currency Converter, March 20, 2015).*
The community member respondents described their thoughts about why the health care issues were occurring. Transportation was frequently cited. Travel on foot takes 3 to 4 hours and access via boat is dependent on whether the family has either their own canoe/motorboat or the money for the boat-taxi fee. The villages are remote and getting to larger villages, towns or cities is extremely difficult. Transportation influenced health through a variety of mechanisms specifically inadequate and unaffordable transportation to the available health care services. Their water is polluted and stagnant, both contributing to gastrointestinal infection and the propagation of mosquitos (fever and malaria): ‘children are dying of diarrhea’, ‘we wash, bathe, drink and go to the bathroom in the same water’, ‘the water in the lagoon is contaminated’, ‘I know it’s because of our water problems...we have had many attempts at clean water’, ‘a lot of problems with mosquitos’. Sanitation is an issue and many community members described the lack of latrines. Other issues were also cited, ‘...we have no pregnancy care’, ‘women die during delivery’, ‘there is no health centre, no medications’.

These perspectives illustrate that the community members are aware of the risks of their current daily living situation. Furthermore, they articulate the influence of these living conditions (availability of potable water and adequate sanitation, food security, income, limited transportation) as contributing factors to ill health. They know what the problems are (extreme poverty, lack of education, no clean drinking water) and that it is not only the need for access to health care services, health human resources and essential medicines but also the need for an immediate focus on basic circumstances of daily living.
6.2 Socio-demographic characteristics of STMM Clients

This second section details the socio-demographic characteristics of the clients who attended the STMM that set up for one day in each of the 7 villages. This section also provides the context of this study – the STMM case. The socio-demographic information was collected using a consistent form (Appendix L) from each of the 1120 clients who presented to the STMM (T2) from seven villages and are presented using the headings: village information, age and gender, education and income and poverty. This client sample may or may not have included the community members interviewed pre mission (T1).

6.2.a. Village information. The number of clients (n = 1120) represents approximately one-third of the overall population of the villages (Table 9), indicating that the mission assessed and provided health care services for approximately 1 in 3 individuals. Most clients (96%) walked to attend the missions, which were set up in schools or churches.

Table 9: Village population and clients seen at the STMM

<table>
<thead>
<tr>
<th>Village</th>
<th>Population*</th>
<th>Number of clients seen at the STMM</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rondin (R)</td>
<td>300</td>
<td>146</td>
<td>49%</td>
</tr>
<tr>
<td>Sirsirtara (S)</td>
<td>1500</td>
<td>207</td>
<td>14%</td>
</tr>
<tr>
<td>Tapamlaya (T)</td>
<td>300</td>
<td>114</td>
<td>38%</td>
</tr>
<tr>
<td>Uji (U)</td>
<td>500</td>
<td>128</td>
<td>26%</td>
</tr>
<tr>
<td>Aurata (A)</td>
<td>600</td>
<td>160</td>
<td>27%</td>
</tr>
<tr>
<td>Cocota (C)</td>
<td>800</td>
<td>190</td>
<td>24%</td>
</tr>
<tr>
<td>Cancu (K)</td>
<td>500</td>
<td>174</td>
<td>35%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3300</strong></td>
<td><strong>1120</strong></td>
<td><strong>34%</strong></td>
</tr>
</tbody>
</table>

*Municipal Census Data, Puerto Lempira, 2013
6.2.b. **Age and gender.** Of those presenting at the STMM, 385 (33%) were men and 722 (67%) were women (Table 10). The mean age was 19.9 years (range, 0.2 to 90 years; median, 13 years). Sixty-one percent were 19 completed years of age or less. This mirrors countrywide demographic information that reports the population as primarily young, with approximately fifty percent under the age of 19 years of age (PAHO, 2009). Self-reported pregnancy was noted for (40.8%) of the female clients.

**Table 10: Age of the clients (by gender) during the 7 STMMs**

<table>
<thead>
<tr>
<th>Age category**</th>
<th>Men N=395*</th>
<th>Women N=722*</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-19 years</td>
<td>280 (70.9%)</td>
<td>373 (51.7%)</td>
</tr>
<tr>
<td>20-49 years</td>
<td>57 (12.4%)</td>
<td>266 (36.8%)</td>
</tr>
<tr>
<td>50-69 years</td>
<td>45 (11.4%)</td>
<td>59 (8.2%)</td>
</tr>
<tr>
<td>75+</td>
<td>13 (3.4%)</td>
<td>24 (3.5%)</td>
</tr>
</tbody>
</table>

*2 cases had no gender and were omitted; total is less than full sample owing to missing data.  
**Stats Canada age categories (Government of Canada, 2014).**

6.2.c. **Education.** While public school education is mandatory in Honduras and offered from Grades 1 to 6, only 57% (of the adults) indicated public school attendance. The exact number of years attended or the completion rate was not specified. A small number (3.7%) had attended high school, and 0.3% had attended University. Of the total, 22% were of preschool age and 17% indicated no formal education. The average number of years of primary school attendance is 6.2 years at the national level but only 4.5 years in rural areas (PAHO, 2009). The adult literacy rate is 80% nationwide and 72% in rural areas, with no information available regarding functional literacy (PAHO, 2009).
6.2.d. Income and Poverty. The region’s reported per capita annual income was less than $2,056 USD, which is approximately $256 USD below the national Honduran average (UNDP, 2003). However, the mission clients’ monthly income was disclosed as follows: no income per individual (99.6%); more than 3,500.00 Lempiras ($167.00 US) (0.2%); more than 7,000.00 Lempiras ($333.00 US) (0.1%); more than 10,000.00 Lempiras ($476.00 US) (0.2%). This means that less than 1% of the clients who attended the STMM indicated a monthly income, leaving 99.6% of all clients reporting ‘no income’ whatsoever or were children living in families with no income.

Essentially, the people from this study’s villages report are, “living off the sustenance of the land and bartering or trading wood or extra supplies for additional food sources” (L. Hebered, personal communication, June 15, 2014). More than 50% of the population of Honduras lives in poverty. In the rural regions, where this study has taken place national statistics indicate 75% of the population lives in situations of extreme poverty (INE, 2003; PAHO, 2009). This study reports the situation is even worse in that the data collected represents obvious inequalities and disadvantages in the country’s most vulnerable populations – indigenous and rural.

6.3 Context of the STMM

The type of service provided during the STMM was primary care. Situational emergency care could be provided should an unexpected event occur during the period of time that the medical mission was in the village and the team was equipped to handle. No emergency events occurred during the study period. The team was prepared to manage emergencies through set safety strategies and evacuation plans. This team carried two emergency bags containing equipment such as artificial airways, intubation supplies;
peripheral intravenous set ups, and suture kits. The client carried and kept the client
information sheet (Appendix L) with them as they moved through the different mission
areas from registration and intake, triage, physician or dental assessment, and finally to
the pharmacy area where the information sheet was used as a prescription.

The 12-day STMM provided primary care in 7 villages across the region of
Gracias a Dios, in the municipality of Puerto Lempira, Honduras (Appendix B: Regional
Map). The mission team had worked in the region before but only in 4 of the 7 villages. A
survey item requested the team leader to categorize how team participants spend their
time during the mission in terms of the following preset activities. She itemized activities
as follows: down time, e.g., sleep, rest, tourism (42%); patient care (25%); team building,
e.g., social hours, discussions (17%); patient health education (8%);
administrative/logistical duties (8%); education of local health care providers (0%);
religious or social activities in the community (0%). Field notes indicate 58% or 7 days of
the time was spent delivering health care services (0700 to 1800 hours. Each evening
ends with a debriefing and educational session), 0.08% or 1 day preparing and organizing
medications and supplies, 0.2% or 2 days traveling from Canada to Honduras (this
includes the in country flight to Puerto Lempira from Tegucigalpa), and 0.2% or 2 days
rest and relaxation or attending cultural activities in the community hosted by the
municipality (the mayor hosted a barbecue lunch and shared local music and traditional
dance). Field notes indicate each brigade day began at 0630 am. The team would pack up
and leave the village site before dark (approximately 1600 hours) to allow safe travel
back to their home base in Puerto Lempira. Evening debriefs after dinner followed by
reorganization of supplies for the following day was commonly observed.
6.4 Processes and Outcomes of Health Services Delivered by a STMM

This section examines the 4 propositions relating to the first research question, *what are the processes and outcomes of health services delivered by a Short-Term Medical Mission (STMM)?* and presents stakeholder perspectives and descriptive study findings. Table 11 provides an analysis of propositions by source of evidence, study timeline and analysis. Propositions 1, 2, and 3 are accepted and confirmed as evidenced by the study data. Proposition 7 (Clients receiving care are accepting of the services of the STMMs) is rejected and an alternative rival explanation is examined. This proposition contributes to answering both research questions and will therefore be examined in the next section.
Table 11: Analysis of Propositions by research question #1

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Propositions</th>
<th>Source of Evidence</th>
<th>Timeline</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What are the processes and outcomes of health services delivered by a STMM?</td>
<td>1. STMMs that provide health care services enhance access to health care for communities, especially in regions where the government does not offer regular services.</td>
<td>Clients</td>
<td>T2 &amp; T3</td>
<td>Accept</td>
</tr>
<tr>
<td></td>
<td>2. STMMs are not dependent on donor funding exclusively. The participants cover individual brigadier costs and expenses. However, missions are dependent on donations to provide and purchase medications and necessary supplies.</td>
<td>Mission Personnel Team Leader</td>
<td>T2</td>
<td>Accept</td>
</tr>
<tr>
<td></td>
<td>3. STMMs typically provide services for common diseases such as gastrointestinal parasites or worms, malnutrition, upper and lower respiratory tract diseases and skin infections and infestations of lice or scabies.</td>
<td>Clients</td>
<td>T2</td>
<td>Accept</td>
</tr>
<tr>
<td></td>
<td>7. Clients receiving care are accepting of the services of the STMMs</td>
<td>Clients</td>
<td>T2 &amp; T3</td>
<td>Reject</td>
</tr>
</tbody>
</table>

**Rival:** Clients receiving care are unable to complete recommended treatment, advice and follow up referral from a STMM’s Health Care provider.

**Legend:** Timeline: T1= Pre Mission; T2=During Mission and T3=Post, Follow up Mission
**Proposition 1:** STMMs that provide health care services enhance access to health care for communities, especially in regions where the government does not offer regular services.

### 6.4.a. Proposition 1: Findings

No centralized coordination or formal reporting mechanisms for NGOs (Non-Governmental Organizations) providing health care services within different regions of Honduras is currently being recorded or maintained. STMMs to this region (Gracias a Dios) are less prevalent than other regions of Honduras. The Regional Health Director indicated that only 4 health-related NGOs (Civilian Volunteer Group of Italy; Global from the United States; the Association of Miskito Women, a Honduran/Italian collaboration; and this study’s case, Friends of Honduran Children (FOHC) from Canada) operate within this department (Dr. Everett, personal communication, February 21, 2012).

This STMM case study captured information as part of a client assessment form (Appendix L) during mission (Time 2) and included an area for the indication of when (and where) the client was last seen by a local doctor or nurse. About one-third (473/1120) indicated, they had seen a local health provider at some point in their lives, however, the timing was questionable (not reported or the client did not know) and of note, for 175 clients did not recall when or where they were assessed. The most common locations where the client had been last seen included: a rural clinic (n = 202); the hospital in Puerto Lempira (n = 94) and a STMM (n = 2). Whereas, Time 3 follow up clients (13.37%) acknowledged that they visited STMMs from this organization (same organization, different group) once before, earlier in 2014.
Of those who replied that they had visited a STMM twice, no attendance was prior to 2013. Only 2 clients answered that they had been to another mission from another organization; one in 2009 and the other in 2013 in Puerto Lempira.

Given the small population within such a vast remote region, the allotment of healthcare centers to individuals is proportionately higher in Gracias a Dios than the national average (UNDP, 2003). The majority of the follow up (Time 3) clients indicated that they see a health care professional (nurse) on a monthly basis. “I cannot get medications at the rural clinic (CESAR) but the nurse is normally available three times per week” (T3:CS2). The frequency (monthly) directly corresponds with the access to their having a village Centro de Salud Rural (CESAR; a nurse led rural health clinic). If they have a health centre (CESAR) in their village, those in need generally go weekly. The villages of Sirsirtara and Aurata had a health centre (CESAR). Cocota, Cancu and Uji had access to a nearby CESAR that was a one-hour walk away. None of the villages had CESAMOs (clinics with a doctor). Those clients with no CESAR in their village stated that they may go to Puerto Lempira once per year. Lack of medicines and the long trip was seen as not feasible, ‘in nearby Kauquirá, about 1 hour walk away, is a health centre with a nurse. But, they have no medications. Its 500LPS for a boat ride to Puerto Lempira, but there you can get medicines” (T3:CK2). Rondin and Tapamlaya had limited access and were 1-3 hours (by vehicle) away from a CESAR or the regional health hospital in Puerto Lempira. Those clients noted, “No health centre here. I have to go to Puerto Lempira [it’s 200LPS to catch a ride] (T3:CT1)” or “No, I can go to Puerto Lempira by boat or canoe. The boat is 300LPS” (T3:CU1).
The top three medications (parasite or anti worm medicine, vitamins, analgesics and topical ointments) given out at the mission (Time 2) are considered over the counter medication and do not require a prescription. They are readily available and sold in the pharmacies and stores in Puerto Lempira however, not in the villages where stores do not exist. Clients indicated that they can also obtain medications (if available) from the rural health clinic for 5 lempiras (0.25USD). My field note documentation indicates costs for some common over the counter medications are available however, they cost more in Puerto Lempira, Honduras than in Canada. For example: Vitamins 2.50 USD per tablet or 40 USD per bottle. Anti-parasite medication 1.50 USD per tablet (standard treatment dose is 2 tablets for those over the age of 2 years). Acetaminophen was 0.75 USD per tablet (higher cost for children’s liquid).

Follow up clients (T3) indicated a need for additional medications as prescribed and a need generally for additional over the counter medications to have “on hand, as needed” as part of follow up was a common (16/35, 30%) requirement of the people interviewed. Given that the Time 3 follow up interviews occurred ten weeks post mission, many clients were concerned they were already running out of medicines given to them by the STMM. For example, Client S4 was seen and treated at the STMM for hypertension and was able to have follow up monitoring of blood pressure by a clinic nurse, however, she did not have access or resources for additional antihypertensive medication, therefore the treatment stopped. Several clients requiring urological consultation for further reassessment of difficulty voiding because of enlarged prostate and probable benign prostatic hyperplasia (BPH) also required a medication not available
by the STMM called Tamsulosin (Flomax). During follow up, it was identified that this medication was not available at any pharmacy locations in Puerto Lempira.

The STMM (Time 2) did not have three medications available that were prescribed treatments for clients. These included: Valproic Acid for a client with a seizure disorder, the previously mentioned, Tamsulosin (Flomax) for 3 clients with BPH, and Combantrin an antiworm medication that kills parasites for pregnant or breast-feeding women (exact number not recorded). Neither were these medications available in the pharmacies in Puerto Lempira. The Mission personnel made several comments about medications that were brought with the STMM and rarely used, or that there needed to be more of the certain other frequently used medications such as vitamins and birth control pills or products.

Time 3 Clients provided further expressions of need and access to health care services “I am a poor man with no money, what do I know, I only work in the rice fields” (T3:CS10); “We have no other options here, it is too expensive to go to Puerto Lempira (T3:CC1); “Very thankful for the services. The local doctors or nurses cannot do what the mission does because they do not have medicines or cannot do tests” (T3:CC2).

One local Honduran health provider (clinic nurse) commented that the mission was, ‘…very good because you give attention and treatments to the people, you save them from paying high transportation costs to other regions and even from dying’.

This STMM case offered both limited access to health care services for communities (limited to 1 day per village per year) and a short-term supply (2 weeks to 6 months coverage) of essential medicines. This proposition is accepted as supported by the evidence presented from multiple sources in the study results.
**Proposition 2:** STMMs are not dependent on donor funding exclusively. The participants cover individual brigadier costs and expenses. However, missions are dependent on donations to provide and purchase medications and necessary supplies.

**6.4.b. Proposition 2: Findings.** The individual cost of the trip per team participant was $2,698 or $53,963 CAD (for 20 people). This included international and in-country flights, accommodations, meals, in-country transportation (truck rentals, drivers), interpreters (Spanish and Miskito), and a FOHC organization contribution (to cover office support for the charity and contribute to the in-country logistical person’s monthly salary). The STMM’s budget costing model is included (Appendix T). The team leader responded, “all costs are fundraised or paid by participants (team members)”. All medications and services are offered free to the client. More detailed cost analysis such as the cost per client, or other economic analyses were outside the scope of the study. Medication procurement was obtained through donations in Canada and transported to Honduras as checked luggage with individual mission personnel. Required mission medications (Appendix V) that were not procured within Canada through donations or with donor funds were then ordered in Honduras (Appendix U). Each team participant raised an additional $500 (minimum) each (for a team total of $10,000) for the purchase of medications and supplies. Additionally, each team participant was assigned an ‘item’ for the gathering of additional supplies for example: reading glasses and hats. The team leader reported that, based solely on the current financial situation of the organization and the cost of this mission, this work is sustainable into the future (>10 years).

The municipality of Puerto Lempira provided resources for the team’s daily transportation requirements that included either a bus or boat and a local driver. The local
health care providers (3 clinic nurses) worked with the team in the villages where a rural clinic currently was established and operating.

The Canadian team leader took overall accountability for financial planning, recruitment, logistical organization (travel/scheduling, team management), communication within the country, acquiring mission supplies, health care, and education. Along with these responsibilities, she provided onsite medical support and health care consultation to others during the mission.

Team selection began seven months prior to the mission while still in Canada. No set staffing complement is used to determine the number and category of team members. The team leader rated, at the level of 90-100% ‘essential’, the following categories (and numbers) for an ideal medical mission: physicians (4), nurse practitioner (1), Registered Nurses (4), Nursing students (4), pharmacist (1), dentist (2), interpreters (4), and helper volunteers (1 or 2). Orientation sessions take place prior to each mission (for cultural awareness, information sheet, code of conduct, signing liability waivers).

Most team members (16 first timers; 4 repeat members) felt that the overall experience of attending the STMM was a ‘great’, worthwhile experience. Several noted that it was an ‘amazing’ learning experience; one they would highly recommend to others. One individual felt that this STMM was superior to others, “care provided by the brigade was much more practical and needed by the communities than other missions I have been a part of.” There were positive comments and appeared to be reflecting the high level of team communication and camaraderie. More evening debriefing sessions was a recommendation from one member. Another thought that communication among the clients would be smoother with one rather than two interpreters (this would mean the
interpreter would need to speak three languages: Spanish, English and Miskito). Late trucks and waiting for food was an issue with one team member.

In summary, this mission’s team participants cover all individual costs and expenses ($53,963). They are however, dependent on substantial donations for obtaining the necessary medications and supplies to deliver health care services in Honduras ($10,000 plus additional medicines from Canadian donors). The total STMM cost was estimated at approximately $63,963. This proposition is accepted as supported by the team leader and mission personnel evidence presented in the study results.

**Proposition 3:** STMMs typically provide services for common preventable diseases such as gastrointestinal parasites or worms, malnutrition, upper and lower respiratory tract diseases and skin infections and infestations of lice or scabies.

**6.4.c. Proposition 3: Findings.** The client information sheet (Appendix L) was developed and completed for any clients presenting to the mission (Time 2). The clinical findings and health care interventions were documented on the same form used for the background, demographic information and are presented using the headings: current medications and known allergies; presenting symptoms and diagnoses; medications/decisions; consultative medical advice; and chronic health problems.

All presenting symptoms, corresponding diagnoses and treatments were recorded. After the STMM, diagnoses were coded according to the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD -10 Version 2015; WHO, 2015) nomenclature, whereby each diagnosis was segregated into the main diagnostic category classifications. Medicines were coded using generic names (International Non-Proprietary Name) and categorized into drug classes based on the
Compendium of Pharmaceuticals and Specialties (CPS) (Jovaisas, 2014). Descriptive analyses were computed for patient demographics (i.e., mean age, distribution of gender and communities, mean time to walk to clinic, education, income) (section 2 findings), previous histories of medications and drug allergies, presenting symptoms, diagnoses, and treatments.

The team leader reported that the primary method of diagnosis was by chief complaint, history of present illness, past medical history, chronic illness, social history and physical examination. On average, the diagnostic portion of the visit was reported to take 5-10 minutes. She commented that while access to laboratory and other diagnostic testing methods might assist 15-20% of the time for certain diagnoses, “we see a lot of viral illness and well children where additional investigations are not necessary.”

**Current medications and known allergies.** Only 27 (2.4%) clients reported that they were taking medications. Less than one percent of the clients (n =9) reported a known medication allergy.

**Presenting symptoms and diagnoses.** Data collected from clinical assessments (presenting symptoms, diagnoses) for each client were organized and rank-ordered to display the top three presenting symptoms and diagnoses. Multiple symptoms were recorded from the 1120 clients. In total, all 1120 had one symptom, 968 had at least two symptoms, and 575 clients had three symptoms documented.
The predominant symptoms were ranked from most common, as follows:
pain/bloating/parasites (n = 504, 20%); cough/cold (n = 334, 13%); body/joint pain (n = 318, 12%); fever (n = 305, 11%); headache (n = 267, 10%); other symptoms with prevalence <10% are listed in (Appendix O).

All clients (n = 1120) were assigned at least one diagnosis, 738 (66%) with two, and 333 (30%) clients had a third diagnosis documented. The diagnoses largely line up with the presenting symptoms. The top three most common ‘first’ diagnoses by ICD-10 main diagnostic categories were: certain infectious and parasitic diseases, A00-B99 (n = 176, 15.7%), diseases of the respiratory system, J00-J99 (n = 163, 14.5%) and diseases of the musculoskeletal system, M00-M99 (n = 140, 12.5%), (Appendix P) contains the complete list of the aggregated data of the three diagnoses, as documented. Of note is that the first diagnostic determination for 15% (n = 168) of the clients was normal exam, i.e., no medical diagnosis assigned, and that others were deemed otherwise ‘normal’ after the assignment of a first or second diagnosis. These clients were typically children and prenatal examinations.

Clients in this study who presented for primary care services are reflective of municipal morbidity statistics, which indicates the top 4 diseases as intestinal parasites, common cold, urinary tract infection and acute diarrheal syndrome as profiled in documentation provided by the Regional Health Officials (Regional Statistics 2010-2013). This illustrates the sample from the 7 villages is representative of the general population of the Region of Gracias a Dios.
**Medications/decisions.** The medications were all provided by the STMM at no cost to the clients. The supply of medication(s) given was directed by the physician’s written prescription and guided by best practice guidelines. The full course of antibiotics was supplied, and for other longer term medications such as inhalers for asthma or antihypertensive medication for high blood pressure, a three or four month supply was given. Over the counter medications such as vitamins, topical ointments, antacids, analgesics, anti-inflammatory and antipyretics a one-month supply was given.

Of the 2641 medication prescriptions, 1106 (98%) clients received at least one medication, while 921 (82%) and 614 (55%) clients received two and three medications, respectively. The most common class of drugs given were for parasites and for vitamin supplementation (n = 994, 89%), analgesics, anti-inflammatory and antipyretics (n = 712, 64%, consisting of acetaminophen and ibuprofen), and topical medications (creams, lotions, drops, n = 275, 25%). These topical ointments included antifungals, topical steroids, antibiotics, moisturizing and antibiotic drops. Antibiotic, antifungal and antiviral were the next category of medications given (n = 199, 18%), the most frequent being azithromycin and amoxicillin, prenatal vitamins (n = 186, 17%). Antacids (n = 101, 9%) comprised the final of the larger category of medications described in the summary (Appendix Q). Medications given less than 5% of the time included: bronchodilators (ventolin) and other asthma-related medication (atrovent, advair) (n = 45, 4%); angiotension-converting-enzyme (ACE) inhibitors such as enalapril or thiazide diuretics such as hydrochlorothiazide or acetylsalicylic acid (n = 39, 3%).

**Consultative advice.** The health care practitioner recorded education relating to the consultation or disease on the clinical form. Approximately one-quarter of the clients
(293, 26%) received some form of instructions, reassurance or supportive aid/assistance other than medication. Of those receiving consultative advice, 87 (30%) were instructed to drink more fluids for the purpose of hydration (for clients who do not have access to clean water). Following this, education about their disease was offered (n = 25, 9%), or instruction such as how to use an aerochamber (n = 3, 1%).

**Chronic health problems.** Chronic health problems identified by the clients (59, 5%) included high blood pressure (n = 17, 3%), and musculoskeletal pain such as back pain or arthritic conditions (n = 22, 4%), Diabetes (4, 0.07%), visual disturbances (cataracts; (n = 3, 0.05%)), or other ailments (including anemia, seizure disorder, congenital birth defects and stroke; (n = 4, 0.07%)). The reported national prevalence of diabetes mellitus is 7.8% and 19% for hypertension (PAHO, 2009). This suggests that chronic conditions are five to six times more prevalent in Honduras than observed in this sample. This could be related to the young age profile of clients presenting at the STMMs.

Confirmatory evidence by community members (Time 1: 68 participant-defined health care issues), and the representative municipal statistical documentation along with the descriptive statistical findings from 1120 clients who presented to the STMM illuminate the acceptance of this study proposition.

**6.5 Stakeholders assessment of health care services provided by STMM**

This section examines the 5 specific propositions relating to the second research question, *how do different stakeholders assess health care services provided by Short-Term Medical Missions (STMMs)*? and presents the different stakeholder perspectives and descriptive findings from the study. Table 12 provides an analysis of propositions by source
of evidence, study timeline and analysis. Propositions 4, 5 and 8 are accepted and confirmed as evidenced by the study data. Proposition 6, Clients receiving care have a low level of compliance to treatment, advice and referral from a STMM’s Health Care provider, is rejected and confirmed by the study findings. A new rival is proposed for future consideration and study. Proposition 7, Clients receiving care are accepting of the services of the STMMs, is also rejected and alternative perspectives and a rival explanation are examined.
Table 12 Analysis of Propositions by Research Question #2

<table>
<thead>
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<th>Research Question</th>
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<th>Source of Evidence</th>
<th>Time Line</th>
<th>Analysis</th>
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<td>4. STMMs in and of themselves are not a sustainable practice in any setting.</td>
<td>Local providers’ Host &amp; Regional health official; Clients; Mission personnel; Team leader</td>
<td>T2 &amp; T3</td>
<td>Accept</td>
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<td></td>
<td>5. Community members in the 7 participating villages in the rural regions of Gracias a Dios require STMMs and they know what to expect from this type of care delivery.</td>
<td>Community Members</td>
<td>T1</td>
<td>Accept</td>
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<td>6. Clients receiving care have a low level of compliance to treatment, advice and referral from a STMM’s Health Care provider.</td>
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<td>T3</td>
<td>Reject</td>
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<td></td>
<td><strong>Rival:</strong> Clients receiving care are unable to complete recommended treatment, advice and follow up referral from a STMM’s Health Care provider because of social, economic and political barriers.</td>
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<td>Clients</td>
<td>T2 &amp; T3</td>
<td>Reject</td>
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<tr>
<td></td>
<td><strong>Rival:</strong> Though conditionally accepting of STMM, clients receiving care view the services of the STMM as insufficient to meet their current health care needs.</td>
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<td>8. Regional health care leaders vary in their willingness to accept the services of the STMMs.</td>
<td>Local providers’ Host &amp; Regional health official</td>
<td>T2</td>
<td>Accept</td>
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**Legend:** Timeline: T1= Pre Mission; T2=During Mission and T3=Post, Follow up Mission
**Proposition 4: STMMs in and of themselves are not a sustainable practice in any setting**

6.5.a. Proposition 4: Findings. The mission personnel’s survey comments regarding their sense of impact of the STMM indicate that, notwithstanding the positive experience, there were expressions questioning the strength of the actual impact of the mission. Some wondered if the cost of the mission ($63,963 CAD) provided enough impact to justify the mission while others felt that the impact of the mission was significant to the communities served, ‘In my own experience, the brigade is a good help for the people in this country because they are really forgotten by the national government’. Another member suggested that working (or donating to) a “sustainable project” would provide additional value/impact.

The team leader indicated, there is a detailed electronic tracking system (an Excel sheet of medication inventories from previous STMMs by region [Appendix T]) and lists of needed supplies (medication labels, testing strips for the glucometer, dressing supplies, supplies for emergency kits, treatment protocols, among other items) in place to track medical supplies and medications used. No specific resources were specifically noted as continuously in short supply by the team leader. When asked if care was negatively affected by resource limitations (for example, lack of medical supplies, medications or examination space), the response was neutral (a ‘3’ on the likert-type response scale when 1 is completely disagree and 5 is completely agree).

She responded that no systems were in place for measuring the health outcomes in this population. The outcomes are not, therefore, measured in such a way that they can be compared with affiliated (Canadian or other) medical or nursing standards of care. It is
the individual practitioner’s responsibility to work within their scope of knowledge, skill and judgment. Typically, the level of follow up care is not sufficient to accurately evaluate the overall client impact of effectiveness, “Until this study, our ... clients were not even followed. We had no way of knowing if they were able to follow the advice given at the mission.”

The team leader responded that one of the goals of this particular mission is to develop a more formal training programs with Universities in Canada such as providing clinical electives for Canadian medical residents, and medical and nursing students, but only preliminary development is in place with one Ontario School of Nursing. Currently, no curriculum exists for the mission personnel to provide training for either the local Honduran providers or the mission providers. The team leader agreed, however, that opportunities do exist for mission providers to train local providers specifically “with the dentist” (the Canadian dentist worked alongside the Honduran dentist). Yet, when asked whether sustainable improvement and eventual independence of the host is a goal of the mission’s effort at training local health care providers, the response was “no”. No formal mechanism is in place for the mission personnel to train local Honduran health care providers.
Community members (Time 1) perspectives on missions generally was limited to only a few comments however, they described some of the challenges with unpredictable, short-term, episodic health care missions. “they [the Canadian STMM] came last year but I wasn’t seen. There was no time. We have a large community. They need to stay longer (T1: CMR1); “We had an American group last year but they ran out of medicines” (T1: CMK23); “I took the follow up sheet to the [city hospital] and was treated” (T1: CMS5); “Not everyone is seen who needs to be seen” [the Canadian STMM last year] (T1: CMC12).

It was reported that building a sustainable healthcare system in Honduras was not a goal of this mission. No criteria have, as yet, been established for judging the success of the mission. The team leader noted that this year “as part of the study participation, we did ask clients for suggestions for improvement.” The team leader noted that efforts were undertaken in “asking the team participants and the country host for suggestions for improvement”. No method of evaluating or integrating these suggestions into practice currently exists. Notwithstanding the strength of the Friends of Honduran Children (FOHC) organization and this mission, STMMs themselves are not a sustainable entity and should not be considered a predictable element in a country no matter how poor or disadvantaged. This proposition is accepted as supported by the evidence from mission personnel, the team leader, and community members presented in the study results.
6.5.b. **Proposition 5: Findings.** Each community member interview during Time 1 began with the question: “Did you know about the medical mission coming to your village in February?” Despite regional and municipal notification (verbally in January, 2014) by the in-country logistics coordinator, most (n = 22/24) were unaware of the impending STMM visit. Those (n = 2) who were aware had heard about the mission on the radio but the details of place and time were unknown. One participant recalled that there was a radio message to ‘stay close to the village’ in or around mid-February.

When asked, what types of services do you expect that the mission will provide? Several participants stated that they had experience with STMMs, however the experiences were limited to one or two in the prior year only, ‘I have lived here 46 years and we only had a Canadian group here last February’. The Canadian group referenced here was also from Friends of Honduran Children, Peterborough, Ontario, Canada and this researcher participated as a nurse in that previous mission. The other group was from the United States and specific details were not available. The services recalled were related to assessment, treatment, medications, and some were given “a paper” for follow up at the local health care centre if this was necessary.

Formal communication is difficult and limited in this remote region. The Time 1 (Pre STMM) data above revealed that only 2 people had indicated they had heard about the impending STMM however, the specifics were vague. The STMM’s in-country logistics coordinator notified both city hall and the health region one month prior to
team’s arrival. He shared the exact dates the STMM would be providing health care in each village. Municipal Hall in Puerto Lempira coordinates the radio broadcasts and the regional health officials communicated with the regional nurses.

In the Time 3 post STMM follow up, the clients were asked how they heard about the mission. From their recall, they indicated “radio” was the most prevalent response, followed by “word of mouth” and the local health care provider (clinic nurse) told two clients. It is believed that between Time 1 and Time 2 further “word of mouth” communication may have been circulated. The mere presence of the research team in the village two weeks prior to this STMM’s arrival may have provided an opportunity to spread the information throughout the villages. This proposition is accepted as supported by the evidence presented in the study results.

**Proposition 6: Clients receiving care have a low level of compliance to treatment, advice and referral from a STMM’s Health Care provider.**

6.5. c. **Proposition 6: Findings.** The post mission follow up (Time 3) occurred 10 weeks after the STMM. A referral notation from a mission Health Care provider during Time 2 constituted the sampling frame. Collectively, 54 (4.8%) of the 1120 clients required some form of follow up consultation, test or service back into the local Honduran health care system. It was anticipated that some clients may be lost to follow up but 35 (65%) in 6 villages were located and interviewed. Given the weather conditions and travel/safety concerns, I was not able to access one village (Rondin).

The Revised Harvard Survey for follow up (Appendix K5) was used to guide the Time 3 semi-structured interviews. The interviews took approximately twenty-five minutes to complete. All located clients agreed to meet in a designated area, typically a
church or school for the interview. The interpreters assisted in all exchanges and comprehensive field notes were hand-written during the interview. (Appendix R) contains data comparing the person’s recollection of their health problem with the actual, recorded diagnosis by the primary care provider and the reasons for follow up.

For most (87%), the reasons for attending the STMM correlated with at least one of the documented diagnoses, but rarely with all symptoms or diagnoses indicated by the health care provider.

Of the 35 clients requiring follow up 8 people required health services at a health center by a nurse, whereas 22 required follow up at the Regional hospital by a physician and 5 required more specialized consultative services at larger urban hospitals in Tegucigalpa, San Pedro Sula or La Ceiba. Along with the follow up consultative services of a health professional, about one-third (11/35) also required laboratory or diagnostic testing, such as an ultrasound, or electrocardiogram.

**Client Attempts at Follow up.** Five (14%) of the 35 people interviewed attempted some form of follow up care. Their diagnosis, treatment at the STMM and recommended follow up for the five clients are listed in Table 13 (below). Two people (S4, C2) required follow up and went to the rural health clinic. Client S4 indicated, he went for blood pressure monitoring with the nurse, however, “no medications were available.” Client C2 went to the rural health clinic instead of the hospital in Puerto Lempira. She described, “*I was told I needed a blood transfusion because my hemoglobin is low and they think I have anemia and probably malaria. I did get the blood tests done, but I have no money to travel to Puerto Lempira or pay for a blood transfusion*” (this is inconsistent
with the STMM documentation presented in Table 13). The other three people (S2, C1 and C5) completed the follow up and traveled to the regional hospital in Puerto Lempira.

**Table 13: STMM Follow up: Diagnosis, treatment and recommended follow up**

<table>
<thead>
<tr>
<th>Client</th>
<th>Diagnosis</th>
<th>Treatment at the STMM</th>
<th>Follow up (recommended/undertaken)</th>
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</thead>
<tbody>
<tr>
<td>S2</td>
<td>Hypertension, rule out cardiac chest pain</td>
<td>Acetaminophen 500 mg every 4 hours as needed. Albendazole 2 tablets now. Perindopril 4 mg every day (3 months supply given).</td>
<td>12 lead electrocardiogram. Follow up completed but ECG machine not working/available.</td>
</tr>
<tr>
<td>S4</td>
<td>Hypertension; migraine; bilateral cataracts; constipation</td>
<td>Vitamins 1 tablet per day. Acetaminophen 500mg to 1000mg up to four times a day for headache as needed. Albendazole 2 tablets now. Colace 100 mg twice per day. Perindopril 4 mg one tablet once per day.</td>
<td>Drink more water and follow up at the rural clinic with the nurse for blood pressure monitoring. Follow up completed but no medication at the clinic.</td>
</tr>
<tr>
<td>C1</td>
<td>Gastritis versus biliary colic; tension headache</td>
<td>Acetaminophen 500 mg every 4 hours as needed. Ranitidine 150mg twice a day for 6 weeks. Naproxen 500mg twice a day for pain (use limited due to gastritis and only if acetaminophen is not working).</td>
<td>Liver function blood panel (aminotransferases levels of AST, ALT, and bilirubin); ultrasound of the liver if Ranitidine not working. Follow up completed.</td>
</tr>
<tr>
<td>C2</td>
<td>Gastritis versus biliary colic; osteoarthritis feet/ankles; dry skin</td>
<td>Acetaminophen 500mg every 4 hours as needed. Ranitidine 150 mg twice a day for 30 days. Topical lotion for dry skin. Voltaran lotion for feet/ankles.</td>
<td>If Ranitidine is not working, needs liver function blood panel and ultrasound of liver. Follow up at local clinic for blood testing, no blood transfusion (could not afford further travel to the hospital).</td>
</tr>
<tr>
<td>C5</td>
<td>Menorrhagia, ?fibroids</td>
<td>Adult vitmins one tablet per day. Acetaminophen 500mg every 4 hours as needed. Palafer CF 150 mg one tablet per day. Albendazole 2 tablets now.</td>
<td>Gynecological consultation and Ultrasound. Follow up completed, health problem worsening; cannot afford further follow up.</td>
</tr>
</tbody>
</table>
Client S2 described, traveling to Puerto Lempira to have his electrocardiogram (ECG) only to find out that “the machine was not working.” He indicated he continues to have his blood pressure checked by the nurse at the rural clinic however, “I have run out of my pills (perindopril) and none are available.” Client C2 shared that he went for follow up because, “I got much sicker.” He described, “I had the tests done. They told me I had anemia and malaria. I was given a blood transfusion. I feel better now.” Client C5 said, “Yes, I went but I am not better. They gave me more pills. They don’t help. I have pain all the time.” When asked if she would seek additional follow up for her health problem. She began crying and said, “I have 7 children. It costs 500 Lempiras ($23.80 USD) to go for health care...I left my children home without food for two days to pay for the visit. I don’t know if I can do that again”

 Clients not able to follow up. At the time of the post STMM interviews 30 of the 35 (86%) had yet to attempt their follow up as prescribed. Client comments regarding their potential follow up and experiences are summarized. The key issues included limited access to healthcare services and essential medicines, and the associated cost and financial burden. Exemplars (verbatim quotes as written during the interchange, and via translators) are detailed.

 Consistent with the community member stakeholder data (Time 1), access to essential medicines and health care services is inadequate. Six individuals described issues related to medical treatment and medication. Medications were not available or taken and subsequently have run out. The cost of medication or travel was too high, or they could not obtain the prescription owing to illness in the family and they had to stay in the village to provide care to others. One client (T3:CC6) said that he was given
medications and showed the packages – Ranitidine and Acetaminophen - and said, “I ran out”; Client T3:CS3 stated, “Yes, (I got) medication and a prescription for more – but, it is not available here” (Valproic acid, 250 mg, TID). Client T3:CA9 described, “Yes, my ear was cleaned out and I was given pills for the pain. I am to go to Puerto Lempira for more treatment or surgery. I have not gone because my mother is ill and I cannot leave her.”

Other treatments noted were advice about follow up such as tests, treatments and referrals at another health facility (11 responses). Client A10 described, “I was given medicine and I am taking them. I need to go to La Ceiba for more tests but I cannot go. It is too expensive.” Another (Client U1) noted “No, I was told I needed to go to Puerto Lempira for an ultrasound. They explained once I had the Ultrasound, I would know what was wrong and what medicines I would need.” Client K4 said “I was treated with medicine and given a prescription for more. I haven’t gotten the medicine and I still cough up blood.”

All 35 Time 3 clients indicated no cost was incurred for their visit in the mission. However, many commented about the money required to pay to go for follow up: “I have no means of making extra money. When you get money, you need to buy the plant for the rice for food. You sell some for more rice and you eat some for food. I could try and cut more wood”(T3: CS6).

The cost varied from 160-500LPS to travel to Puerto Lempira. The medication costs 5LPS at the local health centre. Travel costs were significantly higher for those communities living along the lagoon (Aurata, Uji and Cancu). “The motor (referring to the boat taxi) is 400 LPS return. It comes by twice a month or for 350LPS you can try and
signal the Awas motor [referring to the boat taxi. Awas is another village along the lagoon] and sometimes he will stop for us …we do this when it is an emergency” (T3: CA7). A flight to La Ceiba or Tegucigalpa costs approximately $300 USD (return trip). “I need to see a [cardiologist] but, for that doctor I have to fly to La Ceiba or Tegucigalpa that is impossible for me” (T3: CS7). Several participants indicated they had no resources or money (“I have no income”) and others indicated they knew it was expensive to travel but, because they had never done it, they did not know how much.

When asked how follow up referral would affect your living conditions, the majority noted that they would not be able to provide food for their family. Some noted that they would need to do more work, “something extra to come up with the funds”, “its hard to cut more wood or catch extra fish. My wife tells me my sons can work more, but that I cannot use money from our food supplies or our children will suffer. It is very difficult” (T3: CC7); “it’s very hard to get the money to go to Puerto Lempira, I can do it but, if I use the money my children will not eat” (T3: CC6); “if I go for my follow up, I do without something else (like food), it’s that simple”(T3: CC3). The STMM makes referrals for client follow up back into the local health care system however, as expressed by several respondents, the referral may bring further hardship or emotional feelings of failure.

Life plagued by hardship and resource scarcity, a common theme throughout the study was identified by several clients who received instructions to go beyond their village for further follow up but could not or would not go. The reasons included no money and limited access, the need to stay and work in their village, or an expressed need to care for an ailing family member.
And again, they expressed awareness of the need for clean water while knowing the alternative choice to drink lagoon water causes ill health. “The biggest necessity here is clean water. We have wells but they dry up (like now) and we have to drink the lagoon water (T3:CC6); “do you know when they are returning?” (T3:CK3);

One mission member questioned the need to know more details about the feasibility and uptake of follow up instructions to clients; that this may influence the education/health teaching provided. Furthermore, another team member felt more data were needed on the tracking of referrals to see “if we are making a difference.”

The team leader commented, there is a client-initiated process in place for documenting follow up details (STMM health provider completes a referral form and gives the client a copy and advice for follow up) and/or for referring a client to a local specialist, health facility, or other mission if required (Appendix L). When asked about the ease of referral to a local specialist, health facility, or mission for treatment and follow up, the response, the number “One (1)” (completely disagree) was selected by the team leader indicating she completely disagreed that there was an easy way to refer clients to local specialists.

When responding to the question (Question 8) regarding the achievement of the expected standard of care, the team leader comment was, “Not compared to Canada however, yes for rural Honduras”. Limiting factors included: cost of travel to get clients to other services in bigger centers, rural health infrastructure, supplies and medical equipment for example, the availability for laboratory or radiological testing. This lack of standard of care is profoundly evident given the results that only one client was able to successfully complete the required follow up health care. Though clients were not able to
complete follow up this does not necessarily represent lack of compliance. The medical definition of compliance is defined as “the process of complying with a regimen of treatment or advice” (Merriam-Webster, 2015).

Study clients were legitimately not able to complete follow up for valid reasons owing to no money to support the cost of travel, broken testing equipment or a need to stay and work or provide for their families within their village. This initial proposition is rejected as supported by the evidence presented in the study results. A new rival explanation for future consideration and research would be that clients receiving care are unable to complete recommended treatment, advice and follow up referral from a STMM’s Health Care provider because of social, economic and political barriers.

Despite the extreme hardships, and inability of study participants to complete or comply with necessary medical follow up this case study did illuminate the client’s willingness and understanding, as indicated by client S2, “I will try again because I know my health is important. If I am sick, I cannot work.”

**Proposition 7: Clients receiving care are accepting of the services of the STMMs**

**6.5. d. Proposition 7: Findings.** As discussed in Section 1, this mission assessed health status, provided clinical and medical heath care services as required, and offered additional donated supplies for approximately every 1 in 3 individuals within the population of the 7 villages (Table 10).

The Time 3 clients were asked their suggestions for improving the mission in the future. The most frequent suggestion related to improving overall health care. Specifics were offered such as medicines, medical personnel, more STMM visits or for a “kit” of
first aid supplies and medicines that could be kept in a central location in the village and accessed when required. One client (T3:CA9) stated, “*is there a way to bring medicine and leave it in the community? That would help*”. This suggestion was in a village without a CESAR (nurse led rural health clinic). Other comments related a requirement for public health activities such as a need for a clean water supply and adequate sanitation or safety issues with the local school’s structure where the interviews were taking place. “*The needs are many and food is scarce. In the summer, we have to drink from the lagoon and it makes the children sick. Many are left as orphans and sooner or later they die. Look at this school, there will be an accident here anytime*” (T3:CC5). The school was built up on stilts and the floor was rotting. We walked only on the main beams to get to a safe location to sit and conduct the interview. The roof had significant termite damage.

Exemplars indicated client awareness that they lack basic services and resources “*It makes me very happy that the medical brigade came here and (some) people think of us. You know we have no medicines here and many cannot travel to get them, like my husband. He has diabetes. You know that people are alive today [only] because of the medicines you give them*”(T3:CK2); “*Our situation is critical. I think 2 brigades a year is better. We have a lot of problems with the water and not all our communities have a health centre*” (T3:CC7); “*I feel very happy [with the STMM]. We have no other place to go. We have had groups here three times and no one else comes or returns to our village to help*” (T3:CC2); “*I want to say thank you for coming, our health centre doesn’t always have medicines or our nurse is not always able to be here*”(T3:CS7).
Therefore, clients are, in fact, accepting and appreciative of the mission services however, they express that it is limited in its current form to adequately meet their needs. An alternative rival proposition is that *although they are conditionally accepting of STMM, clients receiving care view the services of the STMM as insufficient to meet their current health care needs.*

Providing supportive aid or assistive products and supplies was common for this mission and these included donations of items such as clothing, reading glasses, sunglasses, hats, food, and/or toothbrushes. For each village, the team brought 75 food packs to give to out in the village. The packs typically included beans, rice, corn flour, sugar, coffee and pasta. Providing a food pack was documented as a treatment on the client information sheet and given out to those in particular need, as identified and documented by the physician or nurse during the consultative portion of the mission. It was given out from the STMM’s pharmacy area as the client left the mission site. Anecdotally, it was observed that the food packs appeared to be given to the larger families (with five or more children) and where the children presented without clothing or footwear. As discussed in the previous section, community members (from T1) suggested needs in their villages to include health care supplies and medicines and many indicated, “*we need food - the poverty is extreme*” (Table 9). The provision of food supplies did meet their expressed need although not everyone received a food pack (approximately 50%).

Clients may attend the STMM because of a desire for overall general health and well-being. This perspective is supported by Time 2 client data, which indicated the first diagnostic determination for 15% (n = 168) of the clients was a normal exam and no
medical diagnosis was assigned. Clients may also have attended because they were curious. For instance, Time 3 follow up field notes indicated that our boat was met by many community members (25 or more people) as we made our way to the dock in Aurata (a two and half hour boat ride from Puerto Lempira). A woman greeted us and indicated, “you are the first boat to arrive here in two months – welcome, thank you for coming back” (personal communication, May 7, 2014).

Alternatively, clients may also present because they were simply capable of attending. As previously presented, village information indicated that one in three attended the STMM. This study however, did not gather the perspectives of those community members who chose not to come to the STMM. Field notes indicate that Time 3 follow up clients who could not be located for an interview were “out working in the fields” (during (T2) of the mission it was fishing season whereas, during follow up (T3) many were out in the rice fields harvesting the crops). Therefore, though clients are appreciative of the mission services and do require access to services and medical treatment, they have expressed that the existing STMM model is limited in its current form to adequately meet their needs. This study’s results provide limited evidence and support for the alternative rival however, further research would be required to adequately understand and support this perspective.
Proposition 8. Regional health care leaders vary in their willingness to accept the services of the STMMs.

6.5.e. Proposition 8: Findings. The local providers’ and host/regional health official survey (Appendix K: 3) added to the contextual elements within the data collection. It was given to and self-administered by the 3 nurses who worked in the village CESARs where the missions took place, a mayor and the regional medical director (n = 5). The survey took approximately 15 minutes to complete and participants completed it in their separate work locations.

Communication, integration/collaboration. All but one (a nurse) agreed that there was local collaboration for the medical mission. Pre-mission ‘training’ (mission specific details and pre meetings about the STMM staff and services) occurred for the mayor and director but not the nurses. The regional health director felt a better sense of understanding and skill following training on new equipment (the regional hospital was given an electrocardiogram machine and instructions were provided by the STMM providers). All respondents agreed that there was a high degree of communication and coordination between the brigade and the regional staff and leaders. The regional health director felt that the processes built well upon the pre-existing patterns (consistent in-country Honduran logistics coordinator) established for communication.

Follow up and documentation. All 5 of the interviewees were aware that this study included a follow up component (the Time 3 cohort, 35/1120) in all of the 7 villages. All felt that the data collected were sufficient in terms of knowing the details and outcomes of care. A scale was presented (see Appendix K for the survey form) for a response as to what percentage of patients returned to a clinic or had feedback about a
complaint regarding or an adverse outcome (e.g., a drug reaction or infection) from the care in the brigade (scale parameters: 0-5%, 5-15%, 15-25%, 25-50%, 50-75%, 75-100%). All respondents identified ‘0-5%’.

**Local costs incurred from the mission.** Two respondents noted that there were municipal costs associated with the STMM’s boat travel to the 3 lagoon villages (gas, two boats and drivers).

**Impression of brigade.** The satisfaction with the brigade was evident in the positive responses of those interviewed and who completed their surveys, and all verbalized that they wanted the mission to come again.

**Suggestions offered.** Suggestions made included more support for children, more medication left at the village, and more frequent STMMs owing to the cost burden for travel outside of the villages for medical referrals. The regional health director supported the need for comprehensive documentation so an understanding of the work of the STMM could receive broader recognition in the country. In showing appreciation for the STMM, the Mayor cautioned that consistency of care, documentation, and fragmentation may be affected by local personnel turnover, ‘Positions change here frequently and new people are in the positions. It can be difficult to connect with the right people. Thank you for coming here in person today to speak with me!’ Field notes indicate the regional health director was no longer in his position when I returned 2 months later for follow up Time 3.
A mission staff member respondent commented that better communication with local nurses would be helpful, “I think it would be really useful to see the local health care facilities. It really puts things in perspective in terms of understanding what they have access to and could be a potential donations i.e. it was great to have the RN in Aurata but it would have been great for perspective to see what equipment she had to work/deal with...”. Field notes indicate a tour of the local regional hospital had been planned however, was cancelled at the last minute for reasons not clear to the STMM personnel.

The team leader, when asked whether the host country’s ministry of health was aware of the mission, responded, “yes, I think so, through the regional health director... We do not receive formal approval from the country’s licensing board to bring the health care providers in the country.” No formal federal registration process is in place, but for the past three years, regional health officials have requested that a Honduran health professional be on the team (this has been complied with and arranged for by the Honduran logistics person).

The local providers’ and regional officials’ data are consistent and converged with the others’ views in terms of health care needs and issues, satisfaction with the STMM presence, communication, and outcomes of the mission services. From this perspective, the proposition is supported and accepted by two sources. However, the results did not adequately describe the overall conditions in which the coordination between health care providers (Canadian and Honduran) occurs. The local health workers are willing to coordinate, but the STMM must create or should recreate opportunities to interact with them. For instance, additional health care activities such as education (if requested) by the Honduran health professionals could be an example for partnership. No specific plans
were established regarding the suggestions for more comprehensive documentation and sharing of client information, transfer of care, or follow up requirements between the STMM and the Honduran health care providers. Additionally, the proposition was stated in a unidirectional manner and the use of the term “willingness” implies an inclination to act or respond to quickly and without reluctance (Merriam-Webster, 2015). This was identified as a limitation of the study questionnaire and will be further discussed in the discussion chapter.

Conclusion

In this results chapter, I answered the two primary research questions: What are the processes and outcomes of health services delivered by a Short-Term Medical Mission (STMM)? How do different stakeholders assess health care services provided by STMMs? To accomplish this goal, the two primary research questions that guided the study related to STMM processes and outcomes, and the assessment of services by multiple stakeholders. The propositions (previously described) guided the intent and the scope of the data collection. Six (1, 2, 3, 4, 5 and 8) of the eight study propositions that linked to the research questions have been affirmatively supported by the evidence and by two or more data sources within the time parameters identified.
Those affirmed include: STMMs that provide health care services enhance access to health care in remote communities, mission participants cover all individual expenses; missions in rural Honduras typically provide services for common diseases such as parasites, diarrhea, malnutrition, respiratory tract diseases and skin infections, missions in and of themselves are not sustainable practice, community members in the 7 villages of Gracias a Dios require STMMs and they know what to expect, and regional health care leaders vary in their willingness to accept the services of STMMs.

Proposition 6 & 7 are rejected and contrasting perspectives which emerged from participant stakeholders are examined through two new rival explanations: the first rival, Clients receiving care are unable to complete recommended treatment, advice and follow up referral from a STMM’s Health Care provider because of social, economic and political barriers; and second rival, though conditionally accepting of STMMs, clients receiving care view the services of the STMM as insufficient to meet their current health care needs.

The ensuing chapter (Chapter 7) will reflect upon the study’s methodological strengths and limitations, the findings, and discuss how the data holds the promise of informing meaningful dialogue on the need for a structured approach to quality care standards, monitoring and communication, shared knowledge dissemination, and considerations for future STMM research.
Chapter 7 Discussion, Implications, and Conclusion

In this discussion chapter, I situate the research findings within the main conceptual principles of primary health care and present the unique contribution of this case study, addressing key gaps in the empirical evidence. This chapter brings together the literature reviewed in Chapter 3, the conceptual framework of primary health care presented in Chapter 4 and the empirical findings from this Non-Governmental Organization (NGO)-led Short-Term Medical Mission (STMM) case study as presented in Chapter 6, as well as some methodological considerations based on content described in Chapter 5. The two primary research questions guided by the eight study propositions are answered as well as recommendations to consider the two contrasting rival explanations that emerged from stakeholder perspectives.

This chapter is organized in four sections which elaborate the contribution of the research findings. The first section summarizes the relationship between the research questions asked, the findings from the results Chapter 6 and positions the findings within the principles of Primary Health Care (PHC) which include: universal access to care and coverage on the basis of need, commitment to health equity, community participation in defining and implementing health agendas, and intersectoral approaches to health. In the second section, I examine how both the quantitative data on the clinical aspects of the clients in rural Honduras and the qualitative perspectives from clients, community members, mission health personnel and host/local/regional health providers expose the complexity and challenges within the rural settings of Gracias a Dios, Honduras within the four core principles of PHC. In the third section, the processes and outcomes of the research will be explored and I will discuss the strengths and limitations of the study. A
focus will be maintained on the key gaps that were identified during this study and through the literature review presented in Chapter 3. In the fourth and final section, I will extend the discussion to focus on the inherent responsibility of a STMM to act by proposing implications for practice, education, health policy and future research.

Figure 8 provides a representation of this thesis study, highlighting the core drivers, the two primary research questions, study design, findings and recommendations.

Figure 8: Representation of the study

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<tr>
<th>FOCUS/DRIVERS</th>
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7.1 Research Questions, Propositions and Summary of Evidence

This study details the experiences of a STMM and is the first longitudinal assessment of community member perspectives before (pre) the mission, client outcomes during and in follow up (post) to its health care services, and also includes other key stakeholder feedback and operational information. Table 14 summarizes the relationship between the two primary research questions posed, their related propositions along with the emerging two rival explanations from the key findings in Chapter 6. This allows a concise and targeted answer to the two primary research questions. The last column in the table applies the relevant principle(s) of Primary Health Care to the study findings and will be discussed and debated in section 7.2.
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<th><strong>Key Findings</strong></th>
<th><strong>Principles of Primary Health Care</strong></th>
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| 1. What are the processes and outcomes of health services delivered by a STMM? | 1. STMMs that provide health care services enhance access to health care for communities, especially in regions where the government does not offer regular services. | • STMM for primary health care - 7 villages, municipality of Puerto Lempira (1 day/village); supply of essential medicines (2 weeks to 6 months).  
• No centralized coordination or reporting mechanism for NGO-led STMMs providing health care services within different regions of Honduras.  
• One-third (473/1120) indicated, they had seen a local health provider at some point in their lives. Of these 175 did not recall when and where they had been last seen; most common location n=202 in a clinic; hospital in Puerto Lempira n=94; STMM n=2  
• Majority indicated they see a nurse in the rural clinic once per month (if they had a clinic in the village) or once per year (if they had no clinic in the village) if they had money to support the travel costs. | Universal Access to Care and Coverage |
| 2. STMMs are not dependent on donor funding exclusively. The participants cover individual brigadier costs and expenses. However, missions are dependent on donations to provide and purchase medications and necessary supplies. | | • Total cost = $63,963 CAD (Individual cost $2,698 or $53,963 for 20 people plus an additional $10,000 ($500 per individual) and substantial medicines donated from sending country (Canada).  
• Local health care providers (3 clinic nurses) worked with the team in the villages where a clinic existed.  
• The municipality provided daily transportation (bus or boat and local driver) | Universal Access to Care And Coverage |
| 3. STMMs typically provide services for common diseases such as gastrointestinal parasites or worms, malnutrition, upper and lower respiratory tract diseases and skin infections and infestations of lice or scabies. | • N = 1120 clients at the STMMs
• Predominant symptoms, ranked - pain/bloating/parasites (n = 504, 20%); cough/cold (n = 334, 13%); body/joint pain (n = 318, 12%); fever (n = 305, 11%); headache (n = 267, 10%); other symptoms with prevalence <10%. (Appendix O),
• Top three ‘first’ diagnoses by ICD-10 main diagnostic categories were: certain infectious and parasitic diseases, A00-B99 (n = 176, 15.7%), diseases of the respiratory system, J00-J99 (n = 163, 14.5%) and diseases of the musculoskeletal system, M00-M99 (n = 140, 12.5%) (Appendix P). 15% (n=168) no medical diagnosis assigned/normal exam
• Most common medications given – 1) parasite medication and vitamin supplementation (n = 994, 89%), analgesics, anti-inflammatories and antipyretics (n = 712, 64%, consisting of acetaminophen and ibuprofen), and topical medications (creams, lotions, drops, n = 275, 25%). Topical ointments included antifungals, topical steroids, antibiotics, moisturizing and antibiotic drops; 2) Antibiotic, antifungal and antiviral (n = 199, 18%), e.g., azithromycin and amoxicillin; 3) prenatal vitamins (n = 186, 17%); 4) Antacids (n = 101, 9%) (Appendix Q) |
| 2. How do different stakeholders assess health care services provided by STMMs? | 4. STMMs in and of themselves are not a sustainable practice in any setting. | • Positive expressions of experience and village outcomes due to the mission personnel; some comments questioning the strength of the actual impact on health, if high costs justified outcomes; if donating the money or doing a project in the village would lead to sustainable outcomes
• Tracking system maintained electronically (medications and supplies)
• This STMM has no way of linking their diagnosis and treatment data to compare with other STMMs
• Typically, follow up care is not sufficient to accurately evaluate the overall client impact of effectiveness.
• One objective - to develop more formal international training placements for health professionals within Canadian Universities for medical and nursing students. The team leader agreed that opportunities do exist for the mission providers to train local Honduran health providers or vice versa however currently; no formal mechanism is in place for such an exchange.
• No criteria have been established for judging the success of the mission other than seeing all of the clients who present for health care services on the day of the mission. |
5. Community members in the 7 participating villages in the rural regions of Gracias a Dios require STMMs and they know what to expect from this type of care delivery.

- Despite regional notification only 2/24 (8%) community members knew of the impending STMM 2 weeks (time 1: pre) and this was by radio.
- All (24) community members had experience with STMMs and knew what to expect.

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6. Clients receiving care have a low level of compliance to treatment, advice and referral from a STMM’s Health Care provider.

**New Rival:** Clients receiving care are unable to complete recommended treatment, advice and follow up referral from a STMM’s Health Care provider because of social, economic and political barriers.

- Post mission follow up (Time 3) occurred at 10 weeks. Collectively, 54 (4.8%) of the 1200 clients required some form of follow up into the local Honduran health care system. 35/54 (65%) follow up clients (6 villages), located and interviewed.
- Five (14%) of the 35 people attempted follow up care. Only 1 was able to successfully complete the recommended follow up.
- 30 of the 35 (86%) had yet to complete their follow up as prescribed. The key issues included limited access to healthcare services and essential medicines, and the high associated cost and financial burden of travel.
- Public school education is mandatory (to Grade 6). Only 57% (adults) indicated public school attendance; 3.7% high school; 0.3% University; 17% - no formal education.
- Less than 1% attending the STMM indicated a monthly income.
- 99.6% - ‘no income’ or were children with no income.

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7. Clients receiving care are accepting of the services of the STMMs

**New Rival:** Though conditionally accepting of STMM, clients receiving care view the services of the STMM as insufficient to meet their current health care needs.

- Approximately, one-third within each of the villages attended the STMM.
- Clients may attend because of a desire for overall general health and well-being. The first diagnostic determination for 15% (n=168) of the clients was a normal exam/no medical diagnosis.
- Clients are appreciative of the services and did require access to services and medical treatment however, they expressed that the existing STMM model is limited in its current form to adequately meet their needs.
- Clients may present because they are capable of attending and available on the day.

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Commitment to Health Equity
Intersectoral Approach
7.2 Primary Health Care in Honduras

Honduras is one of the poorest and most politically unstable countries in Central America (Johnson, 2010). The World Health Organization (WHO) identified Honduras as a “priority country” due to extreme levels of poverty, inequality, indebtedness, and poor health. Gang violence, political corruption, poverty, and unemployment dominate the domestic political agenda leaving limited time for prioritization of public and primary health care challenges (Johnson, 2010; Shiffman, Stanton & Salazar, 2004). This does not mean that the Government of Honduras and its Ministry of Health have been ineffectual in shaping health and health policy. The Honduran government’s National Plan 2021 and its Poverty Reduction Strategy for 2001-2015 indicate that the country recognizes health as a priority and directs resources to key sectors where the needs have been identified. However, health expenditure (8.7 % of the GDP) is among the lowest in the region of the Americas (WHO, 2006; World Health Statistics, 2013) and approximately 30.1 % of the population receives no health care, 83% are uninsured, and there is marked exclusion of ethnic minorities and rural populations (PAHO, 2009).

This study results suggest very limited outcomes deriving from the national policies and expose the deep-rooted complexities inherent in STMM health care service delivery. Rather than considering STMMs as part of the problem, this study presents an account of the reality experiences by multiple stakeholders. I sought to situate the current STMM model within the complex political and economic situation of Honduras and extend the discussion to include both what was intended, what remains to be accomplished, and draw attention to the apparent deep divide.
Throughout the next section, I will consider the study results within a Primary Health Care framework with the explicit intention of proposing a new way forward for STMM work in Honduras as this relates to the four key dimensions of equity–orientated PHC services.

7.2.a. Universal coverage and access to care.

Primary Health Care (PHC) is a key global policy for access and utilization of health care promoted by the World Health Organization (PAHO, 2009; Macinko, Starfield & Erinosho, 2009). Universal coverage and access to care on the basis of need form the foundation of an equitable health care system (WHO, 2015). Universal coverage combines mechanisms for fiscal support and service provision. In Honduras, the health system is described as fragmented with little coordination among providers, such as the Secretariat of Health (SS) (Ministry of Health), the Honduran Social Security Institute (IHSS) (a form of worker benefit), and the private sector (Prado & Peña, 2010; Secretaria de Salud, 2006). The result is duplication of service and/or a backlog of services in the urban settings, which leaves rural and remote regions, such as Gracias a Dios, unprotected. Considering that a health system includes “all the activities whose primary purpose is to promote, restore or maintain health” (WHO, 2010, p. 5), in Honduras, especially in the rural regions, foreign NGO-led STMMs are an integral part of health care service delivery.

Access to care.

This STMM offered limited access to health care services for communities (limited to 1 day per village) and a short-term supply (ranging from 2 weeks, to 6 months coverage depending on the classification) of several essential medicines. At all data
collection points, consistent findings emerged and converged regarding the insufficient and limited access to essential medicines and health care services by all interviewed and involved in health care delivery within this region. A common critique of PHC systems is the challenge of providing and maintaining human resources within facilities situated in rural and remote locations (Filmer, Hammer & Pritchett, 2000). The health department of Gracias a Dios represents a small population within a vast and remote region. Regional reports outlined the health human resources and health centres: 48 physicians, (5.6/1000), 7 professional nurses (0.8/1000), 81 auxiliary nurses (9.4/1000) and 1 dentist (0.1/1000) (Secretaria de Salud, [Ministry of Health], 2009); one public hospital and 2 maternal clinics, located in Puerto Lempira; 11 CESAMOS (Centros de Salud con Medico; Health centre with a doctor) and 27 CESARS (Centro de Salud Rural; rural health centre with a nurse) scattered throughout the region. There are no IHSS services or private facilities.

The provision of infrastructure and access to quality and culturally acceptable services are major health issues for rural dwellers (WHO, 2008). The allotment of human resources in healthcare centers per person is proportionately higher in Gracias a Dios than the national average. The regional distribution and an aggregated proportion of the population suggest that the health care professionals prefer to live close to the main port town of Puerto Lempira (UNDP, 2003). The study confirmed that basic access to health care in this region is hampered due to a scarcity of resources, such as health human resources, lack of an organized infrastructure and technologies to support diagnosis and treatment. The mission itself provided limited services while confirming the inability for clients to link back into the existing health care system or complete necessary follow up. Furthermore, less than 1% of the clients who attended the STMM indicated a monthly
income, leaving 99.6% of all clients who were either adults reporting ‘no income’ or children living in families with no income, despite the region’s documented per capita annual income as $2,056 USD (UNDP, 2003). The people from this study’s villages are “living off the sustenance of the land and bartering or trading wood or extra supplies for additional food sources” (L. Hebered, personal communication, June 15, 2014). More than 50% of the population of Honduras lives in poverty. In the rural region where this study took place, national statistics indicate that 75% of the population live in situations of extreme poverty (INE, 2003; PAHO, 2009). The study data suggest that the situation is even worse and represent clear inequities in the country’s most vulnerable populations – indigenous and rural.

The international scientific literature presents alternative starting points such as the successes of BRAC (Bangladesh Rural Advancement Committee) through the provision of health education and the installation of latrines and tube-wells to improve sanitation (WHO 2007; Schurmann, 2009). Alternatively, single-purpose, campaign-style activities, such as immunization drives do not require continual staffing of rural clinics and was reported as effective, though insufficient by study participants (Filmer, Hammer & Pritchett, 2002). Public health activities such as developing, maintaining and educating about safe water and sanitation practices can be done with episodic visits and does not require the PHC ideal of permanent residence in a village. This would address the immediate needs identified in this study and may well be a better focus for STMMs. Similarly, it is an imperative to invest and improve daily living conditions, such as access to clean water and sanitation within this region. Actualizing a PHC model by Government presupposes a level of structural public health that is currently absent in rural Honduras.
Access to essential medicine.

As early as 1946, International law indicated access to essential medicines as part of the right to the highest attainable standard of health (WHO Constitution, 1946; Universal Declaration of Human Rights, 1948). The WHO Action Programme on Essential Drugs (2000) further recognized and applied the principles of “accessibility, availability, appropriateness and assured quality to goods and services which included essential medicines” (General comment 14). The first progress indicator stipulated that a country’s national legislation or country constitution includes access to medical products and technologies as part of the right to health (WHO, 2008). The Honduran Ministry of Health allocates 57% of its budget to wages, 6% to service contracts, 21% to procuring materials and supplies (which includes medications), 5% to capital goods and 11% to transfers and subsidies (PAHO, 2012).

This scarcity of medications both over-the-counter and prescribed was a common theme throughout this study. Field observations revealed that, although inconsistently available, essential medicines had a high cost for such common medications such as Acetaminophen (anti-pyretic and analgesic) and Vitamins, a cost that could not be supported by the clients. Clients indicated they could obtain some medications for 5 lempiras (0.25USD), however they were often unavailable from the rural health clinic. A common over-the-counter medication, such as Acetaminophen, was commonly requested by community members and clients for the complaint of basic symptom management (body pain and fever) from communicable diseases like malaria or dengue.
**Universal coverage.**

Although the right to health is guaranteed in the Honduran Constitution, and universality and solidarity are declared as core values of the health care system (Johnson, 2009), a significant proportion of the population receives no health care at all. National and international reports indicate the public services are accessed by 60% of the population, and are limited and concentrated in major urban settings (Ministry of Health, 2006; PAHO, 2007). The total number of clients (n=1120) seen at this STMM represented approximately one-third of the overall population in each of the villages. This study, confirms that at the time of the follow up (Time 3) interviews, 30 of the 35 (86%) clients had yet to attempt any aspect of the follow up prescribed. The reason for such delay included limited access to healthcare services and essential medicines, the cost and financial burden to travel outside of their immediate village, and the need to feed or care for the family. This makes the current drive for universal health coverage promoted by WHO (2015) an ambiguous objective for people in rural Honduras, where extreme poverty is the norm. The proposed initiatives of health insurance and a unified tax-funded health system are presently unattainable for the individuals in this region (Heredia, Laurell, Feo, Noronha, Gonzales-Guzman & Torres-Tovar, 2015).

A predominant debate in the literature about the effectiveness of PHC strategies to improve population health in low and middle-income countries (LMICs) lies in the adequacy of government spending for health services and the outcomes – the actual
improvements in the developing country context (Filmer, Hammer & Pritchett, 2000; Filmer, Hammer & Pritchett, 2002; Rosero-Bixby, 2004). The authors indicate “weak links” in the equation of PHC in LMICs. For example, institutional (facilities, human and material resources) capacity is an important factor in providing effective services. When this capacity is inadequate, health spending, even on the right services, may result in little actual delivery of services (Filmer, Hammer & Pritchett, 2002). Typically, in developing countries, large portions of public budgets for health are spent on hospital services staffed by doctors to treat conditions in the urban settings meanwhile, in the rural regions, infants and children under 5 years of age die from diseases that could have been treated for a few cents or avoided altogether with improved access to clean water and better sanitation (PAHO, 2012). Despite improvements in child, infant and neonatal mortality in Honduras from 1991-2006, it has been impossible to reach the Millennium Development Goal 4 target, the reduction of child mortality by two-thirds by 2015. “The health care system needs to be designed and financed to ensure equitable, universal coverage with adequate human resources” (WHO, 2008, p.94). If the health care system would be based on the PHC model, a combination of local action on the social determinants of health as described, a priority for (Gracias a Dios community members) and a strengthened primary level of care which would lead to a balanced intervention on disease prevention and health promotion as well as medical diagnostics and treatment (WHO, 2009).

A recently published report, Tracking Universal Health Coverage: First Global Monitoring Report, identified four different causative pathogens (protozoa, helminthes, bacteria and viruses) as neglected tropical diseases (NTDs) (WHO & World Bank, 2015). In Gracias a Dios, NTDs include: malaria, dengue, soil transmitted helminthiases
(intestinal parasites), HIV/AIDS and TB (Regional Report, 2013). The study confirmed the most predominant symptom was pain, bloating and parasites (20%), the most common diagnosis was A00-B99 - certain infectious and parasitic diseases (15.7%); and the most common class of medications were anti-parasitic drugs (89%). Access to laboratory and other diagnostic testing methods both onsite with the STMM and/or within the villages themselves might provide relief for the 15-20% of the diagnoses of confirmed NTDs listed in this report. Costa Rica’s “bias-free framework” is an example of a country’s ability to foster dialogue with and among members of vulnerable communities by uncovering local practices of exclusion and barriers to access not readily perceived by health care providers (WHO, 2008). This dialogue resulted in action to address one of the underlying causes of poor health and led to, for example, the reorganization of a maternity hospital around people’s needs and expectations (Burke & Eichler, 2006).

Although Honduras is not represented specifically in the First Global Monitoring Report (WHO, 2015), the idea of bringing universal health coverage into focus is relevant to this discussion based on the findings of inequity. In the region of Latin America and the Caribbean, the report specifies a “lack of a strong political voice”, which results in people affected by NTDs being overlooked (WHO & World Bank, 2015). Further, the lack of pharmaceutical company interest has tended to discourage research and development in this area (WHO & World Bank, 2015). Despite the progress made toward increasing political legitimacy, the current situation in Honduras remains tenuous. Charges of alleged corruption have plagued all democratic administrations. There have been eight democratically elected presidents (from both Liberal and National parties) and
constituent assemblies since 1981 (US State Department, 2006). News media reports from Honduras recently described situations marked by corruption and mismanagement of health care funds (La Tribuna, 2015; Honduras Weekly, 2014). In June 2015, thousands of citizens marched in Tegucigalpa (the country’s capital) to protest a series of corruption scandals at the Honduran Institute for Social Security (IHSS) (which provides healthcare and workers’ compensation to over 1.6 million Hondurans). The protests are calling for the creation of an International Commission Against Impunity (via the United Nations) and were in relation to current president Juan Orlando Hernandez’s acknowledgement that his election campaign received financing ($280,000) from business investments linked to the social security embezzlement scandal (La Tribuna, 2015). Reports indicate that a former surgeon and head of the IHSS (2010 – 2014), Mario Zelaya, embezzled $300 million whereby shell companies were created that overcharged the IHSS for essential hospital equipment and supplies (BBC, 2014; Honduras Weekly, 2015). These corruption cases represent a situation of instability at the highest levels of government.

Cost-effectiveness of STMMs.

The information which was most often absent in the STMM-related literature was the funding source of missions. Fifty-six percent of the publications examined did not include how their mission to LMICs was funded (Martiniuk, 2012). For this STMM, the individual cost of the trip per team participant was $2,698 or $53,963 CAD (for 20 people). Additionally, each team participant raised an additional $500 (minimum) for a team total of $10,000, toward the purchase of medications and supplies.
Team participants are also assigned an ‘item’ to gather for additional supplies, for example reading glasses and hats. The STMM was dependent on substantial donations for obtaining the necessary medications and supplies to deliver its services in Honduras ($10,000 plus additional medicines from Canadian donors).

The total STMM cost was estimated at approximately $63,963 CAD. This study supports the widely held belief that the greatest expense associated with short-term missions (both medical and surgical) is not the medications or surgical supplies but rather the international flights, in country transportation, and overall general support and security for the visiting health professionals. Similar to the Davis, Than and Garton (2014) report that identified a 50% figure, this team’s cost for such expenses was over 50% of the total missions budgeted expenses. From a purely economic standpoint, the question that is often asked is whether this money would be better utilized as a donation directly to the regional offices for medications and supplies (Martiniuk, 2012; Sykes, 2014). I would counter that suggestion. The results of this study highlight contextual issues (e.g., lack of human resources and organizational factors in remote settings) that are much more complex than a simple, single monetary donation being given for health care supplies. The overarching need, however, is for a sustainable solution, including longer-term health policies and system planning that would ensure improved efficiencies to enable aid management and delivery when and where it is required (Mills, 2014).
Unregulated and uncoordinated activities: the need for quality assurance.

This dissertation has described that no formal approval from the country’s licensing board is required to bring foreign health care providers into the country. No regional/provincial or federal registration process is in place in Canada or Honduras to document health professionals working abroad. Additionally, no authoritative professional international regulating body oversees STMMs. As indicated by Maki et al., 2008, “these good intentions directed towards disadvantaged populations can lead to the misconception that in resource-poor environments any healthcare is good healthcare, regardless of the quality of the services” (p. 6). This study revealed that no systems (for the STMM) were uncovered for measuring the health outcomes for the study population. The outcomes are not collected and/or measured in such a way that they can be compared with affiliated (Canadian or other) medical or nursing professional standards. Essentially, it is the individual practitioner’s responsibility to work within their scope of knowledge, skill and judgment in accordance with their respective regulatory body. Typically, the level of follow up care is not sufficient to accurately evaluate the overall client impact of effectiveness. Constraints imposed by the inability (such as no follow up care) to fully apply their professional care are coupled with the lack of medical and environmental resources (Harrowing & Mill, 2010).

In a recent systematic review, a combined total of 59 deaths in association with care provided during STMM trips was reported (Sykes, 2014). There are varied models of care delivery (Chapin & Doocy, 2010; Whitney, Stevens and Bearman, 2011) and no standardization in care or establish treatment protocols are in place. The STMM studied does follow established treatment protocols for common diseases (Appendix W). It is not
acceptable or adequate to merely assume the care provided by regulated health professionals is safe and has minimal risks to the client. In this study, despite pre-mission orientation, personnel reported being generally unfamiliar with local health needs, the healthcare system, and local culture which included language. According to published evidence the current reality is that STMMs have no objective and consistent means of evaluating their overall performance, the quality of health practitioners, care practices, and outcomes.

Another feature of STMM work in Honduras is their uncoordinated nature. In 1998, Hurricane Mitch was Honduras’ worst natural disaster in the 20th century. This event marked the explosion of NGOs and STMMs flooding the country to offer emergency aid. Seventeen years later, many of the international organizations are still operating in a disaster relief response modality, which means they view work as short term, small scale, and are largely uncoordinated. Many STMMs working in Honduras are affiliated with larger NGOs (both foreign and Honduran), and have delivered care for many years, making them not short, but long-term missions that have remained small scale and uncoordinated. In part, this long-term uncoordinated nature is due to the complexity of the environment. As an example, this case study’s STMM has been unable to return to the same region of Gracias a Dios since 2014 because of regional safety concerns.

This subsection illustrates a dichotomy between the ability of the STMM to deliver the same standards of care as practiced in North America with an inability to achieve the same outcomes in rural Honduras given the current infrastructure and regional complexity. There is a resounding need for missions working in Honduras to coordinate
and expand their collective efforts as well as the categorical need to understand health care related rights as intrinsically political issues. However, the overall picture that emerges from this case study which considered the perspectives of several different stakeholders is one of complexity and ongoing instability.

7.2.b. Community participation.

A central principle of PHC is facilitating active community input for participation and support in developing and managing their health care. Article IV of the Alma-Ata document states “the people have the right and duty to participate individually and collectively in the planning and implementation of their health care” (WHO, 1978, p 3). This element of PHC, however, was missing at the local level in rural Honduras as evidenced by the following community member responses when asked about the health needs of their village: “thank you for asking me...no one has ever asked me what I think” and from another community member in another village, “once a year they come with vaccinations only [referring to the regional health service]. I have lived here since 1919 and the children are still dying.” Even in Costa Rica, where state commitment to social welfare is strong, community member participation is reportedly lacking (WHO, 2008; Morgan, 1989).

In this research, the community members were, without exception, aware of the risks of their current daily living situation. Clients were appreciative of the mission services, however they expressed that the existing STMM model is limited in its current form to adequately meet their needs. They articulated the influence of their living conditions (lack of availability of potable water and adequate sanitation, food security, income, access to transportation) as contributing factors to ill health. They are aware of
their core problems (extreme poverty, lack of education, no clean drinking water) and that their communities not only need access to health care services, health human resources, and essential medicines, but also the need for an immediate focus on the most basic conditions of daily living. Along with these facts, the missions themselves hold unpredictability for the end user (communities) owing to the lack of notification about upcoming visits. Only 2 of the 24 community members were aware of the pending mission’s services at Time 1. Clients suggested improvements for the future. Specific suggestions were offered, such as a need for clean water and adequate sanitation, medical personnel, more STMM visits or for a “kit” of first aid supplies and medicines that could be kept in a central location in the village and accessed when required.

The Commission on Social Determinants of Health (2008) advocates the financing of health-care systems through general taxation or mandatory universal insurance (Marmot et al., 2008). Single public health systems (SPHS) should be “de-commodified [meaning health is not considered a good or commodity within the market place], integrated, and publicly funded health care, granted by the State” (Heredia, Laurell, Feo, Noronha, Gonzalez-Guzman & Torres-Tovar, 2015, p. 36). Within this model, other Latin American countries such as Brazil (Paim, Travassos, Almeida, Bahia, Macinko, 2006) and Venezuela (Muntaner, Guerra Salazar, Benach, Armada, 2006) are using more comprehensive models that offer complete and comprehensive access and medical coverage while promoting social participation through health councils at the local levels. The client voice and community participation may be espoused in international reports or show promise as is illustrated in other Latin American countries, however in Honduras the client contribution in health and the need to tailor the health
service’s response to the specific context of each community represent a major shortcoming. As stated by William Osler (a renowned physician and founder of biomedical science), “It is much more important to know what sort of patients has a disease than what sort of disease a patient has” (as cited in WHO, 2008). The client voice remains under emphasized in the empirical literature regarding the role and impact of STMMs and health care generally in Honduras (Marson et al., 2006; Leon, 2003). A remedy needs to be developed given that the findings of this study identified the most vulnerable members of this population have been completed excluded from community participation in their health yet, through this study’s findings, have clearly identified their needs.

7.2.c. Intersectoral approach.

Many factors act in synergy to affect the health of individuals and communities. Access and utilization of health services that prevent and treat disease have an influence on health. However, many of the major influences that shape the health and equitable distribution of services are located outside of the health sector (WHO, 2009).

Local health providers’ suggestions included more support for children, more medication left at the village, and more frequent STMMs owing to the cost burden for travel outside of the villages for medical referrals. The regional health director supported the need for comprehensive documentation so an understanding of the work of the STMM could receive broader recognition and coordination within the region/country. The Mayor advised that the consistency of care, documentation, and coordination of services might be negatively affected by local personnel turnover. Another consideration is the challenge of transportation in this remote area of Honduras. Access to the region is
limited to air or boat. STMMs are much less common in this region of Honduras owing to the additional transportation costs (in country flight, approximately $500 USD) and security requirements in accessing the area. As previously discussed, clients indicated that both primary health care services and follow up referral activities were fiscally inaccessible.

Public school education is deemed mandatory in Honduras and offered from Grades 1 to 6, but our findings revealed that only 57% (of the adults) indicated previous public school attendance. The average number of years of primary school attendance is 6.2 years at the national level but only 4.5 years in rural areas (PAHO, 2009). The adult literacy rate is 80% nationwide and 72% in rural areas, with no information available regarding functional literacy (PAHO, 2009). This was a common theme throughout this study, whereby significant contextual data were defined as markedly less than reported regionally or nationally. Targets set for the Millennium Development Goal 2 (to achieve universal primary education) cannot be met by 2015 (nor the post-2015 development agenda) as long as the structural issues that affect the education system remain unresolved. Urban areas differ significantly to those living in rural areas within the country. Fifty-four percent of the population lives in urban areas, with 73% of the population within two large cities – Tegucigalpa and San Pedro Sula (WHO, 2013). For the sparsely populated, rural region of Gracias a Dios, the contrast presented in this thesis is one of dramatic health and social inequality amongst the rural, indigenous poor.

A logical connection across all sectors includes finance, education, housing, employment, transportation, law/order, and health; all collectively essential for improving health equity (WHO, 2008). However, as illustrated in this region, even the most basic
level of inter-sectoral structure is absent, therefore the solutions lie in the approach of addressing the inherent inequality of power, money, and resources. Internationally, fair financing and the reallocation of public finance to fund action on the social determinants of health are embraced as the way forward (WHO, 2008). However, it is difficult to imagine, in the short term, how the urgent needs of those living in the most rural regions of the country will be successfully addressed. The economically active population accounts for 42.1% or 3.4 million people. Of these, 36% are women and 53% live in rural regions (PAHO, 2012). This study reported that 99.6% of all clients reported ‘no income’ whatsoever. This means Honduras will continue to rely on external financing and debt relief. Evidence supports that international aid can contribute to economic growth in the receiving country (McGillivray, 2003) and directly improve health (Mishra & Newhouse, 2007). It can also create external debt and compromise the country’s ability to fund initiatives that are not supported by international funding agencies and programs (Bangura, Kitabire & Powell, 2000; IMF & World Bank, 2001). For the moment though, international aid and STMMs will remain important in Honduras for social development.

This thesis presented an on the ground perspective from one STMM however, statistically, the overall volume of aid is appallingly low when measured relative to the wealth in donor countries (Randel, German, Ewing, 2004). From 1960 to 2000 as the GNI per capita grew significantly (from $11,303 USD in 1960 to $28,500 USD in 2002), whereas, the aid per capita remained relatively constant (from $61 USD in 1960 to $67 USD in 2002) (Randel, German, Ewing, 2004). The current level of international aid commitment is 0.7% of the gross domestic product in donor countries (Marmot et al., 2008). Canada’s foreign aid spending dropped from $5.7 billion CAD in 2011 to $4.9
billion in 2014. This represents aid spending at approximately 1.75% of total federal budget expenditure. Thirty-four percent went to low-middle income countries with 68% being channeled through the former Canadian International Development Agency (CIDA) (Canadian International Development Platform, 2015).

Not only has international aid sources decreased but also the dominant international health donors (also called global health initiatives and global health partnerships) remained focused on prioritizing what Birn and colleagues (2009) call – *technical silver bullets*, such as vaccines and the provision of antiretroviral medications for HIV/AIDS at the expense or trade off from more integrated or comprehensive models of health care (Birn, Pillay & Holtz, 2009). Throughout history, evidence has illustrated that such selective, technical interventions do work, however the outcomes need to be examined and based on scale, importance of disease burden, measurable impact on population health, program duration of at least 5 years, and cost effectiveness (for example, disability adjusted life year) (Levine & Kinder, 2005). The literature shares the limitations of the single disease approach and campaigns as opposed to an integrated, comprehensive approach (Krieger, 2008; Mills, 2005; UNICEF, 1996). This study shared the challenges of rural Honduran communities who disclosed successful regional immunization strategies while, their resounding call for clean water, food, and basic sanitation practices remained unattainable.

In order to bring reforms in this extraordinarily complex health sector of Gracias a Dios, it will be necessary to pursue collaborative models of policy dialogue with multiple stakeholders (WHO, 2008). The 2008 World Health Report, *Primary Health Care – Now More than Ever*, urges ministries of health and other institutions, governmental and non-
governmental, to provide *inclusive* leadership for health. The report encourages public institutions to become “learning organizations” which requires leadership that engages a variety of stakeholders beyond the immediate boundaries of the public sector, and includes health professionals, civil society organizations, and communities of researchers and academia (WHO, 2008, p.xvii). The implications section of this thesis will forward the strategy of capacity building through exchange and exposure by suggesting training, development, and education of health care providers, local professionals, and students.

**7.2.d. Commitment to health equity.**

Equity in health is defined as the absence of systematic and potentially remediable (or avoidable) differences in one or more aspects of health across populations or among groups defined socially, economically, demographically or geographically (ISEQH, 2001; World Health Assembly, 2009). The core aspect for a just society is the equitable access and fair distribution of the conditions necessary for good health (Canadian Nurses Association, 2010). Equity in health services can relate to access, utilization and costs, resource allocation (urban versus rural or influential regions with higher allocation of public resources over others), and quality of care, whereby services offered reduce inequalities in health or other social determinants of health, such as income, education, and employment. “In order to describe a certain situation as inequitable, the cause has to be examined and judged to be unfair in the context of what is going on in the rest of society” (Whitehead 1991, p.219). Accordingly, such a judgment varies from country to country, and disparities that are avoidable or unnecessary are inherently unfair.
As described in the preceding sections of this chapter, the findings present a region of Honduras with significant disparities in health that can be deemed avoidable or unnecessary and inherently unfair as illustrated by the lack of access to essential services and medicines, and poor living conditions (unavailability of potable water and inadequate sanitation, food security, abject poverty, and isolation). The focus of this STMM was predominantly medical in nature with little focus on illness prevention and public health services. All stakeholders emphasized the need for more medications, lower costs of medications, and the STMM’s need to procure the appropriate medicines for the immediate and longer term requirements of each village.

The right to health is recognized and enshrined in the Honduran constitution, however to have effect it should be operationalized as an expression of a partnership and commitment among all sectors of a society. Given the examples of extreme poverty and unequal distribution of health care resources presented in the rural regions, the constitution seems to be only invoked when necessary, and not utilized as an instrument for the common good of all citizens. To narrow the inequality gap the collaboration of the relevant sectors of government and international partners could help to move the country toward a more equitable distribution of the wealth, power, and resources. Every government and economy has the potential to affect health and health equity (Marmot et al., 2008; WHO, 2008). One of public health’s biggest notions is that “human health and disease are the embodiment of the successes and failures of society as a whole, and the only way to improve health and reduce disease is by changing society by, therefore, political action” (Mackenbach, 2009, p. 181).
Conceptually, the four key dimensions (universal access to care and coverage, community participation in defining and implementing health agendas, commitment to health equity, and intersectoral approaches to health) provide a framework for understanding the elements of an equity-oriented approach to PHC services, however as these dimensions are dynamic, overlapping and interrelated (Brown et al., 2012; WHO, 2008). Health-care systems have the best health outcomes when based on primary health care (WHO, 2008). The requirements of PHC in Honduras are so enormous that I believe there is still a role for STMMs, but we must think of them differently. In the subsequent sections I will propose some different courses of action as a way forward, supportive of and aligned with the conceptual framework of PHC where Honduran local health supports could lead the way.

7.3 Strengths and Limitations.

This study addresses an important gap in the literature and provides an in-depth view of the complexity of STMMs operating in Honduras. The study’s strengths and limitations will be discussed, keeping in mind how these may inform practice, education, health policy and future research. The study design was a Type-2 single case study embedded strategy using a mixed methods approach based on the work of Yin (2003; 2009; 2014) and Stake (1995; 2004). As described in the methods chapter, Type 2 design is the term used when referring to a single-unit of analysis (in this case, the STMM) with multiple units of analysis (in this context, with the different stakeholders).

One of the main strengths of the study is that it extends the empirical and research-related literature and provides details regarding key stakeholders’ perspectives of the health care services and the perceived outcomes provided by STMMs. The case
study design allowed for the illumination of multiple viewpoints from community members, clients, health care providers (both Canadian and Honduran) and local host/regional officials in real time, within the context in which the phenomenon of a STMM as it was operating in Honduras. Other studies identified had a more limited participation of STMM clients. Green, Green, Scandlyn and Kestler (2009) studied perceptions about STMMs among providers and clients in Guatemala, however the client sample was small and only included 7 parents whose children were treated by STMM volunteers. This study reported the needs of communities through the voices of 59 recipients of STMM services and 24 community members.

Three other studies report the perceptions of the recipients of care of a short-term mission services. The first is a medical program in the Dominican Republic that included both a permanent NGO-led hospital (Batey Verde), whose focus was cataract surgery, and four mobile rural eye clinics (in Altagracia, San Pedro, Batey Nuevo and Majagual). Local health care providers operated this hospital and clinics with only augmented short-term supports provided annually by the Medical Ministry international group of volunteers (two weeks per year [hospital] and one day per year at the other four clinic sites) (DeCamp, Enumah, O’Neill, and Sugarman, 2014). Next, Leon (2003) conducted focus groups in Honduras, Costa Rica and Panama to ascertain the overall quality of health care services, but the services were not specific to STMMs. Finally, in Honduras, Marson, Prohaska, Burssi, Richardson and Crigger (2006), explored health status and health practices in a group of thirty-two recruited participants during a STMM, but the interviews were less about the STMM services and more about general themes such as maintaining one’s health, and regaining health and support after an illness.
The strength of this case study’s evaluative approach allowed a look into the STMM as it was naturally occurring in the 7 villages in rural Honduras to answer the research questions while gaining an in-depth understanding of short-term mission’s processes and outcomes. A recurrent theme in the literature was an urgent need for research concerned with equitable and effective development strategies and a call to broaden their analysis of the NGOs as organizations within a regional context and in coordination with local host services (Oken, Stoffel and Stern, 2004; Svoronos & Mate, 2011).

A need for improvements in the monitoring and evaluating of STMMs was another common expression throughout the literature (Martiniuk et al., 2012; Maki et al., 2008; Stevens & Bearman, 2007; Oken et al., 2004; Farmer & Kim, 2008; Suchdev et al., 2007). Though it is more uncommon for STMMs to complete and document follow up care (Bermudez, Marck, Griepe, Mark, Huijing & Werker, 2010; Chen, Pedtke, Kobs, Edwards, Coughlin & Goselin, 2012; Moon, Perry & Baek, 2012; McQueen et al. 2009; McQueen et al., 2010), this is among the first medical mission studies to record post-mission follow up. According to Sykes’ (2104) systematic review, only 13 of the 67 (19%) studies reviewed included a measurement of late outcomes (defined as 8 days after treatment or as the period after the trip on which the patient received initial treatment), but these related to surgical interventions and there were no data regarding outcomes of interventions performed by the medical team. In this study, results were presented from follow up completed 10 weeks post mission.
No untoward effects of medical treatment or advice were reported however, and regrettably, this follow up strategy disclosed that 30 of the 35 (86%) of those who required some form of follow up back into the Honduran healthcare system had yet to attempt their follow up as prescribed by the health care providers at the mission.

Evaluation instruments were adapted, revised, and pilot tested for this study from the five original Harvard Model survey instruments (Maki, Qualls, White, Kleefield and Crone, 2008) for the purposes of gathering multiple perspectives about the STMM case. This adaptation allowed for the extension and use of the health assessment tools, which can be made available for other STMM who may want to evaluate their overall effectiveness within a village context. Previously, only sample codes of conducts (Pfeiffer, Johnson, Fort, Shakow, Hagopian, Gloyd & Ginbel-Sheer, 2008) and models for short-term medical trips have been detailed in the professional literature (Suchdev, Ahrens, Click, Macklin, Evangelista, & Graham, 2007).

Some limitations of this study should also be considered and discussed. As reported by Maki et al and other researchers (Berry, 2014; Chiu, Weng, Chen, Yang and Lee, 2014; Martiniuk et al., 2012), potential bias exists among mission personnel and the team leaders who recorded positive evaluation comments given their significant personal and profession investment in the success of the mission. The overall sense of camaraderie of the team could have made it difficult for them to objectively evaluate the mission.
The host/local/regional Honduran providers may have had a similar bias given that they have also invested valuable time, energy and resources to support the STMM. For the regional director and host, the success of the mission could be seen as a reflection on their official duties relating to health of the communities within the region as both the mayor and regional health director are elected officials. A potential strategy to reduce response bias could be to employ additional sources of evidence such as participant or direct observations. Such evidence would provide further insight into interpersonal behavior, motives and uncover real time actions of the case’s context (Yin, 2015).

Though extensive field notes were gathered throughout the study, additional sources of evidence through observational data should be considered.

A next source of bias may have existed for myself, the researcher, as I was the primary instrument for recording observations (Morgan & Morgan 2009). The potential for confirmation bias exists when the interviewer could potentially distort the findings in support of pre-conceived beliefs or notions and sway findings away from contrary evidence such as rival interpretations. This bias could have been further enhanced given the cultural and language differences of the participants in this study. The community member (Time 1: Pre) and client (Time 3: Follow up) interviews were semi-structured. The decision to deliver the questionnaires as interviews was utilized because, as identified previously by Maki et al., fluency and literacy presented limitations in their study. Additionally, a case study researcher can be naturally prone to this bias given the requirement to understand the issues in-depth, beforehand (Yin, 2014). This limitation was mitigated in several ways. First, I anticipated such a potential prior to data collection and developed strategies to prepare myself for this inevitability through discussion with other colleagues, results review of data by committee members and developing
competencies in how to interview clients across different cultures ethically (Aronson, 2009; Maron & Maron, 1991; Yin 2014). Being an effective listener and staying adaptive in the field with daily reflection and note taking was key.

The study also incorporated and used two Honduran interpreters (Spanish and Miskito) fluent in the local languages throughout all aspects of data collection, to present a fair and unbiased view from all participants.

Another limitation identified in the study was that the results did not adequately describe the overall conditions in which the coordination between health care providers (Canadian and Honduran) actually occurs. This represents a limitation both in the survey questionnaire and the method of self-administration. The local health workers are willing to coordinate, but the STMM must create or should recreate opportunities to interact with them. For instance, additional health care activities such as education (if requested) by the Honduran health professionals could be an example for further partnership. No specific future plans were established regarding the suggestions for more comprehensive documentation or sharing of client information, transfer of care, or follow up requirements between the STMM and the Honduran health care providers. This will be discussed as a future implication for practice and accountability of STMM providers.

Lastly, a frequent concern in case study research is the ability to generalize from a single case study (Kennedy, 1976; Yin, 2014). This single case study is like a single experiment and the results are generalizable to the propositions and the region of Gracias a Dios and not to all populations or STMMs in Honduras or to other low and middle-income countries. Findings could be transferrable to similar contexts and the goal was to expand the literature on medical missions and the need for evaluation and documentation of their work in Honduras.
This case study aimed to corroborate, modify or reject established propositions about STMMs both from the literature and my 15 years of short-term medical mission work. New concepts for further study and replication through the use of rival explanations were derived from the study participant perspectives and have been developed and shared.

7.4 Implications for Practice, Education, Health Policy, and Future Research

In this section the implications of the study are presented with specific recommendations for further research. These implications and recommendations are situated within the scope for a STMM’s ability and rests on the commitment to the conceptual framework of primary health care. The primary purpose of the study was to evaluate the impact of a 12-day Canadian STMM on health care service delivery in 7 villages from a rural region in Honduras. Such exploration revealed several salient implications for both urgent and future consideration by STMMs and regional and national health officials. The implications have been divided into the four areas for discussion: practice, education, health policy, and future research.

7.4.a. Practice and accountability of STMMs.

This research highlights the complexity inherent in STMMs for health care providers. For the foreseeable future, the presence of STMMs is not going to end in Honduras, therefore several practices in the field should be reconsidered. Medical missions cannot continue to work in isolation and as such practice should be rethought. Reopening and using the web-based programs for connecting missions is a logical consideration. Collaboration and the requirement for comprehensive documentation and sharing of client information, transfer of care, or follow up between the mission and the Honduran health care providers needs to be negotiated. Dedicating time and resources to
pre-mission logical supports in the country provides valuable information and ascertains both the needs of the community members and the opportunity for discussion with local health care providers and regional officials before the mission arrives.

A single standardized measurement tool for evaluation to record a set of indicators is one solution to identify and measure good practices. The challenge is the comparative requirement of such information, region by region, to assure overall clinical quality and verify the impact of the mission. At a minimum, STMMs need to collect information on community demographics, socioeconomic status of clients, the availability of health care in the community, the associated costs of providing the services and, most importantly, information regarding the client assessment, and the outcomes of the treatment and interventions performed by the health care providers. This information is vital to future decision making and quality, consistent client care.

Canada is among the top four countries in the world whose health professionals engage in STMMs (Martiniuk et al., 2012). This presents an opportunity for our regulating bodies to begin to document the number and designation of health providers working internationally. This can be recorded as part of the existing annual college license renewal processes. The reality is that Canadian and other health care professionals are working in significant capacity abroad. This means that a regulated health professional has an obligation to share the same accountabilities and standards regardless of the location of practice.
7.4.b. Training, development, and education.

STMMs often illustrate their reciprocity in the form of bilateral, joint education whereby providers from high-income countries (HICs) learning from providers in low middle-income countries (LMICs). In a recent review 48% of all STMM literature indicated that the mission included an educational or clinical placement component for students (foreign) or local providers and community members (Sykes, 2014). The overall premise and strategy of capacity development through exchange, exposure, and sharing of training and education of mission health care providers, local and regional Honduran health professionals and students (both Canadian and Honduran) would allow the translation and use of knowledge development within current practice environments (Canadian Coalition for Global Health Research, 2014). The approach needs to be reciprocal and based on the identified needs of the participants, while promoting a strategy that will acknowledge the interconnectedness between local and global health challenges. This education implications section will have three formats: 1) education of students from HICs by providers from HICs and LMICs 2) education of providers in LMICs by providers in HICs 3) education of providers from HICs by providers from LMICs.

Students.

This study indicated that one of the goals of the mission is to further develop training programs with universities in Canada, such as providing clinical electives for residents, and medical and nursing students. Two studies focus solely on the education of pharmacy and medical students (Brown, Fairclough, & Ferrill, 2012; Campbell, Sullivan, Sherman & Magee, 2011). The later report (Campbell et al., 2011) argues that cultural
competence plays a role in the quality of the care provided to minority populations. However, in both reports sample sizes and limited scope of the evidence regarding the relationships between STMMs and educational benefits limit conclusions. Both surveys similar to this study’s questionnaire report positive responses among surveyed health personnel and students, however this raises concerns about social desirability bias.

Several gaps exist in this literature regarding STMM organizations and the role they play in the health professional education process. Further research will have to study these partnerships as a research topic as it is unclear to what extent benefits, challenges, and ethical issues can be addressed by students with limited global health experience may not be prepared to address.

In the short term, Canadian universities that send students abroad must provide students with adequate clinical supervision similar to home country placements and electives. Wallace & Webb (2014) discussed pre-departure training and a need to amplify accountability for all health disciplines that engage in international opportunities. In the longer term, academic organizations for all health disciplines that participate in international student opportunities (or not) should engage in the development of educational opportunities for a shared “dialogue that raises awareness of issues related to poverty, aboriginal health, immigrant health, international health, and other socially mediated disparities which contribute to global citizenship” (Mill, Astle, Ogilvie & Gastaldo, 2010, p. E7).
Local providers.

Honduras has yet to prioritize scientific research (Red de Indicadores de Ciencia y Tecnologia Iberoamericana e Interamericana (RICYT), 2010 [Network of Indicators or Science and Technology]). This, despite the global imperative for strengthening health research as an essential element for health and human development (Global Form for Health Research, 2002: Becerra & Cuervo, 2010). A research strengthening project for infectious diseases in Honduras is supported, aimed at the successful creation of a research-based graduate program for the continued training of researchers at the National Autonomous University of Honduras (UNAH) (Sanchez, Canales, Enriquez, Bottazzi, Zelaya, Espinoza & Fontecha, 2013). The study contributed to the development of “a capacity strengthening model away from traditional models imposing uncritical transfers of training, resources, or research paradigms” (p. 10). The project coincided with the UNAH’s administrative reform and the political constitutional crisis of 2009, however still managed to undertake MDG-related projects and successfully graduated the first cohort of students by 2012. Their study illustrates promise and a model for future development for other training and development opportunities.

Currently, no curriculum exists for the mission personnel to provide training for the local providers nor do we fully understand their needs or requirements for such assistance. Opportunities do exist for mission personnel to train local providers or for local providers to train mission personnel as cited specifically in this study. In the STMM under study here, the Canadian dentist worked alongside the Honduran dentist sharing experiences and reflecting upon differences in practice, treatment and regulation of health professionals between the two countries. It has been suggested in the literature that this
can sometimes be seen as a unilateral process focused on providing benefits to students or health professionals from the sending country (Hanson, Harms & Plamondon, 2011). This study confirmed that finding. Research demonstrates that a single, trained, local medical professional can perform ten times more surgeries than an individual visiting foreign surgical team (McQueen, Hyder, Taira, Semer, Burkle & Casey, 2010). The results of this study did not adequately describe the overall conditions in which the coordination between health care providers (Canadian and Honduran) occurs. The local health workers are willing to coordinate, but the STMM must create or should recreate opportunities to interact and build and develop mutual capacity. I would suggest, as a first step, high quality partnerships between communities that are inclusive and reciprocal with the local health care providers would allow such dialogue and trust to develop.

**STMM health care providers.**

The study indicated health care providers would like to have a better communication and understanding with local providers indicating it would be helpful to understand the local needs of health care facilities, current practices, and what supplies and equipment were available or not. The addition of a local health care provider to the STMM working within their community is an excellent example and an opportunity to develop future capacity.

This study did not include specialty or surgical mission services and was based only on primary care and follow up referral (as required). However, a deeper intention and need exists in the literature and that is the apparent need and training of surgeons and other providers in communities with limited access to specialty care such as cardiology or women’s health. Developing such partnerships with local health care providers should
not imply reciprocity only between the direct mission personnel from HICs and those from LMICs. The evidence on the evaluation of the outcomes of such specialty training is mixed and seems to require an extended period of time (greater than 15 years) or more, to ensure high levels of quality. This does suggest an alternative format from the more traditional STMM premise and would address a current need in Honduras. Some organizations send children from LMICs to North America for care and cites this is a very expensive model (Novik et al., 2005; International Patient Program: SickKids, 2014). Other partnerships include donations of material and medical equipment. Abenavoli (2009) noted the inclusion of biomedical engineers in their travelling teams as a way of managing donated or recycled surplus medical equipment from HICs that is often in need of repair or requires additional parts to function. An alternative in-country opportunity exists through a Honduran NGO called Central American Medical Organization (CAMO) located in Santa Rose de Copan whereby they procure, distribute, and provide medical equipment, supplies, and assistance to Honduran hospitals and clinics. The donated equipment from HICs is accepted, repaired locally by trained Honduran personnel and then redistributed and sold at a nominal fee to those in need. Anecdotally, it is my understanding that a training program at the Instituto Nacional de Formacion Profesional (National Institute of Vocational Training) in Tegucigalpa currently provides biomedical engineering training through affiliations with HICs and local academic institutions.
7.4.c. Health policy.

In Honduras, hundreds of Short-Term Medical and Surgical Missions operate competitively as separate vertical and distinct entities in delivering a variety of health care services throughout the 18 health departments. The services, for the most part, lack standardized treatment guidelines or any specific or mandated requirement for the sharing of client information back into the local health care system. A formal registry and the ability to identify linkages between short-term mission programs is required to better understand the nature of the missions and where they are currently providing services. I suggest an urgent need for coordination among STMMs and a central authority in Honduras to assist in this countrywide coordination of aid efforts. A small scale introduction or pilot phase of a coordinating mechanism could begin with the largest Honduran NGO in the country – Sociedad Amigos de los Ninos in Tegucigalpa whom many International STMM organizations affiliate themselves.

Globally, the wealth of the richest 85 people is greater than half of the world’s poor (3.5 billion people) (Oxfam, 2014). Widening economic inequality creates situations where wealth and power are increasingly concentrated in the hands of a few. In Honduras, 75% of the population lives in situations of extreme poverty (INE, 2003; PAHO, 2009). Worldwide, 1.3 billion people have no access to effective and affordable health care. In Honduras, 22% are not covered by health care services (mostly among the 53% of Hondurans who live in rural regions) whereas 10% have the financial means to access and pay for private health care (PAHO, 2012a). Low and middle-income countries experience 93% of the world’s disease burden, yet account for only 18% of world income and 11% of global health spending (WHO, 2010). Honduras has yet to prioritize
scientific research, despite the global movement for strengthening health research as an essential factor for human development (Global Forum for Health Research, 2002; Becerra & Cuervo, 2010). Further, it is considered among the least scientifically developed countries in Latin America (Sancho, Morillo, Filippo, Gómez & Fernández, 2006). Though I do not fully comprehend or entirely address in this thesis, the depth and complexity of inequalities in Honduras, it is evident that competing narratives of power, money, and politics are at the root of several issues and therefore must be part of the future solutions to both the implementation of a primary health care framework and addressing the core public health needs of those living in extreme poverty.

Health systems are complex and health policies are political (Martiniuk, Abimbola & Zwarenstien, 2015), especially in low and middle-income countries where the deficiencies are significant. In Honduras, policies and priorities have been determined to a great extent by international actors (USAID, The World Bank, IMF) and the global health agenda (WHO & PAHO). This is related to substantial financial investment and the political weakness or ongoing instability of the Honduran state (Johnson, 2010) as well as the dominance of Honduras’s political agenda by issues of gang violence, corruption, poverty, drug trafficking and unemployment. Setting a policy agenda around health inequalities can be challenging with difficult questions and decisions, such as deciding to prioritize the elimination of health disparities (access to clean water, adequate sanitation and basic food security) immediately versus a longer-term focus on raising the overall standard of health in a population (Arcaya, Arcaya, & Subramanian, 2015). This is not to suggest completely abandoning other health strategies, however, it is important to recognize that current health care models have had little impact on the overall health of
the population (PAHO, 2012). This study exposed significant unjust and preventable health issues illustrating within-country inequalities. The scale of the inequality that exists in rural Honduras is extreme and represents a serious global health issue that requires immediate attention.

A humanitarian response following Hurricane Mitch presented the original goal of many STMMs. Now, 17 years later, the health needs of those living in poverty remain largely unresolved and the missions are operating in a longer term, albeit unorganized fashion, however the commitment remains strong. Honduras has several national health plans focused on education, health and poverty reduction, yet the data from this study confirms few changes have occurred, in the villages of this STMM case study. I propose an alternative health care model where policymakers, researchers, public health practitioners and NGO-led STMMs adopt a collaborative approach to health inclusive of and supporting the practitioners utilizing a primary health care framework.

7.4.d. Directions for future research.

This study answered research questions through a detailed evaluation of the experiences of a STMM and was the first longitudinal assessment of community member perspectives and outcomes, along with other key stakeholder commentary at three time points. In the near future, I will engage in a secondary analysis of this dataset and propose additional research questions to consider aspects such as geographic location, health services, gender and age.

Even though aggregate municipal data from Puerto Lempira was presented here, there may be unique or varied findings from the individual 7 villages themselves (Rondin, Sirsirtara, Tapamlaya, Uji, Aurata, Cocota, and Cancu) to be examined. For
example, a village positioned along the lagoon might display different degrees of variation in access challenges than those in the rural inland villages. It may be of value to more closely examine the diagnosis and treatment codes for the villages with a Centro de Salud Rural (CESAR; a nurse led rural health clinic). The villages of Sirsirtara and Aurata had a health centre (CESAR). Cocota, Cancu and Uji only had access to a CESAR that was a one-hour walk away. If they did not have a health centre (CESAR) or nearby access such as the village of Tapamlaya, differences in demographic indicators, chief complaint, diagnosis and treatment may be evident. Field notes indicated that Tapamlaya was the poorest village as evidenced by the majority of the children presenting hungry and unclothed.

Though socio-demographic characteristics of education and income of the clients from all 7 villages who attended the STMM were similar, a secondary review may uncover specific differences of age and gender by village. Other secondary analyses could focus on a selected, dependent variable, e.g., one diagnostic classification, to identify if there were significant demographic or clinical predictors for the variable. Given many LMICs are not on track to meet their United Nation’s Millennium Development Goals (UN MDGs) by the end of 2015 (PAHO, 2012b; WHO, 2006b) and, as discussed in the recommendation section, despite improvements in child, infant and neonatal mortality in Honduras from 1991-2006, it will be impossible to reach the Millennium Development Goal 4 target, the reduction of child mortality by two-thirds. The additional analyses may uncover useful information for the Honduran government specifically related to the rural context, their regional settings for the poorest child health and mortality outcomes.
Lastly, of those presenting at the STMM, 385 (33%) were men and 722 (67%) were women (Table 10; Chapter 6). With a gender inequality lens it would be informative to further examine this data set and contribute to the literature regarding the lives of women in rural Honduras. Correlations in the literature have linked gender with health reform processes, gender relationships, and reproductive and poverty policies in Latin America (Batthyány & Corrêa, 2007). The gender-specific information might further assist STMMs in the prioritization, adaptation and restructuring of future mission work in Honduras from a PHC equity oriented focus.

To my knowledge, no research has been reported in the literature that addresses the moral distress of health care providers working in resource-limited regions, such as those of rural Honduras. Moral distress is defined “as the biopsychosocial, cognitive, and behavioral effects experienced by clinicians when their values are compromised by internal or external constraints” (Harrowing & Mill, 2010). Moral distress was first described among nurses in a variety of high-income countries and practice settings (Jameton, 1984). Therefore, an exploration of ethical consequences could include the use of the concept of moral distress, given the qualitative client and health provider data collected.

Next, to improve the strength of the revised Harvard evaluation tools, new testing of the instrument would require engagement with other NGO-led STMMs from other regions to enhance the evidence related to outcomes of those living in ‘rural’ poverty, in comparisons between rural and the more urban STMM outcomes, and/or comparing new findings from similar villages with the Gracias a Dios data.
Future studies will be required to test the psychometric properties of validity, reliability and factor analysis of the survey instruments.

Case studies can cover multiple cases and then draw a single set of ‘cross-case’ analyses (Yin, 2014), whereby the revised evaluation tool can be applied to other STMMs when possible and where safety permits, generating additional new knowledge reflecting the Primary Health Care (PHC) tenets of STMMs. This comparative element could shed the necessary light required of medical missions to begin to provide the necessary transition of their work to fit within the PHC direction thereby supporting the proposed new way forward for practice.

The primary research questions: **What are the processes and outcomes of health services delivered by a Short-Term Medical Mission (STMM)? How do different stakeholders assess health care services provided by STMMs?** were guided by the study propositions (Table 4; Chapter 5) that were developed both from the literature and through my personal experience with STMMs. In case study research, the use of rival explanations are a general analytic strategy and allows for the consideration of contrasting perspectives of participant stakeholders, in this case the end user perspective of clients and community members (Yin, 2014). Proposition 6, *clients receiving care have a low level of compliance to treatment, advice and referral from a STMM Health Care Provider* and Proposition 7, *clients receiving care are accepting of the services of the STMMs are rejected and contrasting perspectives of participant stakeholders need to be further explored using these new rival explanations. The rival propositions were: *clients receiving care are unable to complete recommended treatment, advice and follow up referral from a STMM’s health care provider because of social, economic and political*
barriers and though conditionally accepting of STMM, clients receiving care view the services of the STMM as insufficient to meet their current health care needs. In case study research, it is desirable to replicate the findings by conducting a second or third (or more) studies, each case being selected so that it either predicts similar results (a literal replication) or predicts anticipatable contrasting results (a theoretical replication). Therefore, there is a need for further testing of the additional elements, in this case, the rival propositions, which could produce new knowledge.

Conclusion

In conclusion, this study clearly illustrated a refined but descriptive understanding of both the needs of the client and the community members living in a rural and remote region of Honduras. Employing deeper, more interpretive methods in qualitative research could be considered, such as phenomenology for gleaning the lived experience of the rural village inhabitants, or a project based on ethnography where a researcher acts as a participant observer to uncover the cultural norms of the villages themselves. Furthermore, the utilization of different methods would contribute to the development of more studies showcasing the user (client) perspectives of rural community members regarding how the mission is interpreted within the villages themselves, contributing to an understanding of community, quality of life, and their health care issues, as these may relate to the PHC paradigm.
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http://www.who.int/whr/2006/whr06_en.pdf


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http://www.who.int/healthinfo/country_monitoring_evaluation/universal_health_coverage/uhc_report_2015_en.pdf?ua=1


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http://www.who.int/whr/2006/whr06_en.pdf


Appendix A Short-Term Missions List – Honduras

AHMEN (Alabama Honduran Medical/Educational Network)
http://www.honduranmissions.com/

Adventures In Missions
http://www.adventureinmissions.com/involvement.html#trip

Alabama Honduran Missions
http://honduranmissions.com/Projects/medicalmission.htm

AmeriCares
http://www.americares.org/

Amigos de Jesus & Villanova University
http://www.amigosdejesus.org/

Asbury United Methodist Church
http://www.asburyumc.ws/missions/eoe/honduras.htm

Baptist Medical & Dental Mission International
http://www.bmdmi.org/service/index.html

CAMO - Central American Medical Outreach
http://www.camo.org/

Cape CARES
http://www.capecares.org/indexa.html

Casa Corazon
http://www.cccorazon.org/teams.php

Catholic Medical Association
http://www.cathmed.org/medicalmissions/index.htm

Catholic Relief Services Honduras
http://www.crs.org/countries/Honduras

Christ the King Catholic Church Honduran Mission
http://www.ctkhondurasmission.com/news.cfm

Christian’s Medical and Dental Association Global Health Outreach
http://www.cmda.org/AM/Template.cfm?Section=Global_Health_Outreach&Template=/CM/HTMLDisplay.cfm&ContentID=19810
Christian Relief Fund
http://www.christianrelieffund.org/trips

CHIPA brigades
https://www.facebook.com/chipa.brigades

Church of the Epiphany
http://www.epiphanyrichardson.org/ministries/home.asp?id=521

Church of the Gesu

Church of the Nativity
http://www.nativityonline.org/outreach.htm

Edward Via College of Osteopathic Medicine
http://www.vcom.edu/outreach/honduras.html

Emory University
http://www.gaithersburgnazarene.org/GCNweb/Honduras.html

Episcopal Diocese of Mississippi
http://sunset.backbone.olemiss.edu/~sasisson/medical.html

Fairview Health Services
http://www.fairview.org/Foundation/What_we_do/c_098142.asp

First Baptist Church: Jasper, Texas
http://www.fbcjaspertx.com/index.pl?id=2469&isa=Category&op=shw

Friends of Barnabas Foundation
http://www.fobf.org/

Friends of Honduran Children
http://www.honduranchildren.com/differencebrigades.html

Friends of Honduran Children Indianapolis
http://www.fhcindiana.org/

GCN Mission to Honduras
http://www gaithersburgnazarene.org/GCNweb/Honduras.html

Gehlen Mission Honduras
http://www.gehlenmissionhonduras.org/
Global Medical Brigades
http://www.globalbrigades.org/project/medical/108

Global Medical Brigades Student Clubs
http://www.globalbrigades.org/project/medical/clubs/

Global Outreach International
http://www.globaloutreach.org/opportunities

Healing Hands International Ministries
http://hhim.us/

Heart for Honduras
http://heart4honduras.org/site/index.php?option=com_content&task=view&id=24&Itemid=38

Hearts2Honduras
http://hearts2honduras.org/

Heart for Honduras Missions of Mercy
http://www.heartforhonduras.org/hfh.nsf/content/missiontrips

Helping Hands for Honduras
http://www.handsforhonduras.org/projects.htm

Helping Honduras Kids
http://www.helpinghonduraskids.org/

Helping Others Prospers Everyone (HOPE)
http://hopecentralamerica.org/

Honduras Baptist Medical Dental Mission
http://medicaldental.org/index.php?option=com_content&task=view&d=12&Itemid=26
(every other wk)

Honduras Medical Relief
http://www.hondurasmedical.com/

Hope for Honduras
http://www.hopeforhonduras.org/home.html

Hope for Honduran Children
http://www.hopeforhonduranchildren.org/index.php

Honduran Children’s Rescue Fund
http://www.honduranchildrensrescuefund.org/
Immaculate Heart of Mary (IHM) and Bishop Chatard High School
http://www.bishopchatard.org/

International Health Service
http://www.ihsomn.org/

International Medical Corps
http://reliefweb.int/country/hnd

Irish Aid Trocaire
www.trocaire.org

John Carroll University
http://sites.jcu.edu/immersionprogram/pages/experience-locations/honduras-may-2015/

La Cima World Missions
http://www.lacimaworldmissions.org/

Medical Ministry International
http://www.medicalministrytrips.org/

M.E.D.I.C.O.
http://www.medico.org

Mercy Ships
http://www.mercyships.org/

Mission on the Move

Missoula Medical Aid
http://missoulamedicalaid.net/

Montaña de Luz
http://www.montanadeluzhonduras.org/

Operation New Life
http://www.operationnewlife.org/about.html

Paramedics for Children
http://www.paramedicsforchildren.org/

Peace Lutheran Church
http://www.plchurch.org/widerchurch.html
ProNiño USA  
http://www.pronino.org/

Propapa Missions America  
http://www.propapa.org/

Proyecto Aldea Global  
http://www.paghonduras.org/

Rice Foundation  
http://www.ricefoundation.us/Home_Page.html

Round Square – Honduras  
https://www.roundsquare.org/about-us/

St. Bernard Project Disaster Relief  
http://www.stbernardproject.org/

Send Hope  
http://www.sendhope.org/

S.M.A.R.T.  
http://www.smartteams.org/index.htm

Sociedad de Amigos de los Niños  
http://www.saninos.org.hn/

Southeastern Louisiana University  
http://www.selu.edu/acad_research/programs/ii/study_abroad/programs/nursing_in_honduras/index.html109

Southwood Lutheran Church  
http://www.southwoodlutheran.org/serve/global/honduras/honduras

St. John the Baptist Episcopal Church: Breckenridge, CO  
http://www.stjohnsbreck.org/summit_in_honduras

St. Stephens Episcopal Church  
http://www.ssecdurham.org/hondurashealthmission

Students Helping Honduras  
http://ceciskids.org/

Transcultural Brigades Honduras  
http://www.pauttabrigades.com/
The Micah Project  
https://www.micahprojecthonduras.org/  

Virginia Hospital Center Medical Brigade  
http://www.vhcmedicalbrigade.org/messages.html  

Virtù Inc.  
http://www.virtuinc.org/  

Volunteers in Medical Missions  
http://www.vimm.org/  

Un Mundo  
http://www.unmundo.org/  

Urban Promise Honduras  
http://urbanpromisehonduras.org/  

Water 1st  
http://water1st.org/our-work/honduras/  

Water Missions International  
http://www.watermissions.org/honduras  

Washington Overseas Mission  
http://www.overseasmission.org/medical_dental_brigade.html  

West Side Ministries  
http://www.gowestsideministries.org/  

World Baptist Missions  
http://www.wbmonline.org/trips_index.htm  

World Gospel Outreach  

Worldwide Heart to Heart Ministries  
http://wwh2h.org/missions/110  

Three additional missions without websites:  

Relief for Honduras; Amigos de San Carlos; Association Honduras Croissance
Appendix B Honduras Maps: 18 Departments (PAHO, 2009);

Sources: Second Administrative Level Boundaries Dataset (SALB), a dataset that forms part of the United Nations Geographic Database, available at: http://www.who.int/whosis/database/gis/salb/salb_home.htm, and the Digital Chart of the World (DCW) located at: http://www.maproom.psu.edu/dcw. The boundaries and names shown here are intended for illustration purposes only, and do not imply official endorsement or acceptance by the Pan American Health Organization.
Gracias a Dios, Honduras; and Study Villages
### Appendix C

**Key Literature Review Search terms and Subsequent Results from Multiple Databases**

<table>
<thead>
<tr>
<th>Search Terms</th>
<th>Results</th>
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<tbody>
<tr>
<td>1. “developing countries” &amp; “primary health care” &amp; NGOs</td>
<td>234</td>
</tr>
<tr>
<td>2. Central America &amp; primary health care &amp; NGO</td>
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<td>3. Central America &amp; primary health</td>
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<td>4. Honduras &amp; medical missions</td>
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<td>5. Honduras &amp; PHC</td>
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<tr>
<td>6. Honduras &amp; PHC &amp; NGO</td>
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<td>7. Micro Honduras</td>
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<tr>
<td>8. Micro (patients and provider perspectives) CA</td>
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</tr>
<tr>
<td>9. Micro (pt. &amp; provider perspectives) Honduras without rural</td>
<td>103</td>
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</table>
Appendix D

NGOs, Primary Health Care & Central America Search Strategies in OVID

Database: Ovid MEDLINE(R) and Ovid OLDMEDLINE(R) <1946 to May Week 5 2015>

Search Strategy:

1  ("nongovernment* organi?ation** or "non government* organi?ation** or "non government* agenc** or "nongovernment* agenc** or ngo* or cso* or "civil societ** or ingo or "non state provider** or "nonstate provider** or nsp* or "development organi?ation** or ngdo or ingdo or "contracted healthcare" or "contracted health care" or "public private partnership**" or "public private sector partnership**" or "public private cooperation**" or "public private sector cooperation**" or "task shifting").mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (13740)

2  ("primary health care" or "primary healthcare").mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (66109)

3  hondura*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1329)

4  1 and 2 and 3 (3)

5  2 and 3 (26)

6  5 not 4 (23)

7  (Central America* or Belize* or Costa Rica* or El Salvador* or Guatemala* or Nicaragua* or panama*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (16641)

8  7 not 3 (16105)

9  1 and 2 and 8 (7)

10  2 and 8 (251)

11  10 not 9 (244)
(developing or less* developed or third world or under developed or middle income or low income or underserved or under served or deprived or poor* or resource limited) adj (count* or nation? or state? or province* or region* or territor* or district* or population?).mp.[mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (106973)

(haiti* or bolivia* or guyan*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (7518)

12 or 13 (113624)
14 not (7 or 3) (111123)
15 1 and 2 and 15 (236)
16 1 and 3 (18)
17 17 not 5 (15)
18 1 and 7 (127)
19 19 not 10 (120)
20 1 and 14 (2253)
21 21 not 16 (2017)
22 (*nongovernment* organization* or "non government* organization* or "non government* agency* or "nongovernment* agency* or ngo* or cso* or "civil society" or ingo or "non state provider* or "nonstate provider* or nsp* or "development organization* or ngdo or ingdo or "contracted healthcare" or "contracted health care" or "public private partnership* or "public private sector partnership* or "public private cooperation* or "public private sector cooperation* or "task shifting").ti. (2184)
23 22 and 23 (204)
24 limit 4 to ed=20141122-20150604 (0)
25 limit 6 to ed=20141122-20150604 (0)
26 limit 9 to ed=20141122-20150604 (0)
27 limit 11 to ed=20141122-20150604 (1)
28 limit 16 to ed=20141122-20150604 (8)
29 limit 18 to ed=20141122-20150604 (0)
30 limit 20 to ed=20141122-20150604 (6)
Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <June 08, 2015>

Search Strategy:

1. (“nongovernment* organi?ation*” or “non government* organi?ation*” or “non government* agenc*” or “nongovernment* agenc*” or ngo* or cso* or “civil societ*” or ingo or “non state provider*” or “nonstate provider*” or nsp* or “development organi?ation*” or ngdo or ingdo or "contracted healthcare" or "contracted health care" or "public private partnership*" or "public private sector partnership*" or "public private cooperation*" or "public private sector cooperation*" or "task shifting”).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1781)

2. (“primary health care” or "primary healthcare").mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (2314)

3. hondura*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (120)

4. 1 and 2 and 3 (0)

5. 2 and 3 (5)

6. 5 not 4 (5)

7. (Central America* or Belize* or Costa Rica* or El Salvador* or Guatemala* or Nicaragua* or panama*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1409)

8. 7 not 3 (1352)

9. 1 and 2 and 8 (1)

10. 2 and 8 (6)

11. 10 not 9 (5)

12. ((developing or less* developed or third world or under developed or middle income or low income or underserved or under served or deprived or poor* or resource limited) adj (count* or nation? or state? or province* or region* or territor* or district* or population?)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (8052)

13. (haiti* or bolivia* or guyan*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (661)
260

14  12 or 13 (8671)
15  14 not (7 or 3) (8553)
16  1 and 2 and 15 (11)
17  1 and 3 (1)
18  17 not 5 (1)
19  1 and 7 (9)
20  19 not 10 (8)
21  1 and 14 (189)
22  21 not 16 (178)
23  ("nongovernment* organization" or "non government* organization" or "non government* agency" or "nongovernment* agency" or ngo* or cso* or "civil society" or ingo or "non state provider" or "nonstate provider" or nsp* or "development organization" or ngdo or ingdo or "contracted healthcare" or "contracted health care" or "public private partnership" or "public private sector partnership" or "public private cooperation" or "public private sector cooperation" or "task shifting").ti. (249)
24  22 and 23 (19)
25  limit 4 to ed=20141122-20150604 (0)
26  limit 6 to ed=20141122-20150604 (0)
27  limit 9 to ed=20141122-20150604 (0)
28  limit 11 to ed=20141122-20150604 (0)
29  limit 16 to ed=20141122-20150604 (4)
30  limit 18 to ed=20141122-20150604 (0)
31  limit 20 to ed=20141122-20150604 (0)

***************************
Database: EBM Reviews - Cochrane Database of Systematic Reviews <2005 to April 2015>

Search Strategy:

1 ("nongovernment* organisation*" or "non government* organisation*" or "non government* agency*" or "nongovernment* agency*" or ngo* or cso* or "civil society*" or ingo or "non state provider*" or "nonstate provider*" or nsp* or "development organisation*" or ngdo or ingdo or "contracted healthcare" or "contracted health care" or "public private partnership*" or "public private sector partnership*" or "public private cooperation*" or "public private sector cooperation*" or "task shifting").mp. [mp=title, abstract, full text, keywords, caption text] (192)
2 ("primary health care" or "primary healthcare").mp. [mp=title, abstract, full text, keywords, caption text] (247)
3 hondura*.mp. [mp=title, abstract, full text, keywords, caption text] (28)
4 1 and 2 and 3 (6)
5 2 and 3 (10)
6 5 not 4 (4)
7 (Central America* or Belize* or Costa Rica* or El Salvador* or Guatemala* or Nicaragua* or panama*).mp. [mp=title, abstract, full text, keywords, caption text] (149)
8 7 not 3 (124)
9 1 and 2 and 8 (5)
10 2 and 8 (11)
11 10 not 9 (6)
12 ((developing or less* developed or third world or under developed or middle income or low income or underserved or under served or deprived or poor* or resource limited) adj (count* or nation* or state* or province* or region* or territory* or district* or population?)).mp. [mp=title, abstract, full text, keywords, caption text] (1776)
13 (haiti* or bolivia* or guyan*).mp. [mp=title, abstract, full text, keywords, caption text] (65)
14 12 or 13 (1789)
15 14 not (7 or 3) (1683)
16 1 and 2 and 15 (15)
17 1 and 3 (13)
18 17 not 5 (7)
19 1 and 7 (30)
20 19 not 10 (25)
21 1 and 14 (125)
22 21 not 16 (110)
23 ("nongovernment* organisation*" or "non government* organisation*" or "non government* agency*" or "nongovernment* agency*" or ngo* or cso* or "civil society*" or ingo or "non state provider*" or "nonstate provider*" or nsp* or "development organisation*" or ngdo or ingdo or "contracted healthcare" or "contracted health care" or "public private partnership*" or "public private sector partnership*" or "public private cooperation*" or "public private sector cooperation*" or "task shifting").mp. [mp=title, abstract, full text, keywords, caption text] (192)
provider** or "nonstate provider** or nsp* or "development organisation** or ngdo or ingdo or "contracted healthcare" or "contracted health care" or "public private partnership** or "public private sector partnership** or "public private cooperation** or "public private sector cooperation** or "task shifting").ti. (1)

24  22 and 23 (0)
25  limit 4 to last year (0)
26  limit 6 to last year (0)
27  limit 9 to last year (0)
28  limit 11 to last year (1)
29  limit 16 to last year (4)
30  limit 18 to last year (2)
31  limit 20 to last year (5)

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CINAHL (in EBSCO) June 2015 Update Search Strategy

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<td>S5 NOT S4</td>
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<td>S1 AND S3</td>
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<td>S1 AND S2 AND S9</td>
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<td>S1 AND S9</td>
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<td>S12 NOT S2</td>
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<td>S1 AND S2 AND S14</td>
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<td>S17</td>
<td>S2 AND S14 (NOT SENT TO REFWORKS)</td>
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| #2  | 1,930   | **TOPIC:** "primary health care" or "primary healthcare")
| #3  | 232     | **TOPIC:** (hondura*)
| #4  | 0       | #3 AND #2 AND #1
| #5  | 3       | #3 AND #2
| #6  | 3       | #5 NOT #4
| #7  | 4       | #3 AND #1
| #8  | 4       | #7 NOT #4
| #9  | 3,425   | **TOPIC:** ("Central America*" or Belize* or "Costa Rica*" or "El Salvador*" or Guatemala* or Nicaragua* or panama*)
| #10 | 1       | #9 AND #2 AND #1
| #11 | 1       | #10 not #3
| #12 | 6       | #9 AND #2
| #13 | 4       | #12 NOT (##11 OR #3)
| #14 | 39      | #9 AND #1
| #15 | 36      | #14 NOT (##3 OR ##11 OR #13)
| #16 | 12,975  | **TS=** ("Developing count*" or "developing nation?" or "developing state?" or "developing province*" or "developing region*" or "developing territory*" or "developing district*" or "developing population?" OR "less developed count*" or "less developed nation?" or "less developed state?" or "less developed province*" or "less developed region*" or "less developed territory*" or "less developed district*" or "less developed population?" OR "third world count*" or "third world nation?" or "third world state?" or "third world province*" or "third world region*"")
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Indexes=SCIELO Timespan=2014-2015 |
| #2  | 466     | TOPIC: ("primary health care" or "primary healthcare" or "Atención Primaria de Salud" or "Atenção Primária à Saúde")

Indexes=SCIELO Timespan=2014-2015 |
| #3  | 19      | TOPIC: (honduras or honduran or hondureño or hondureños)

Indexes=SCIELO Timespan=2014-2015 |
| #4  | 0       | #3 AND #2 AND #1

Indexes=SCIELO Timespan=2014-2015 |
| #5  | 0       | #3 AND #2

Indexes=SCIELO Timespan=2014-2015 |
| #6  | 0       | #3 AND #1

Indexes=SCIELO Timespan=2014-2015 |
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Indexes=SCIELO Timespan=2014-2015 |
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ProQuest Dissertations & Theses Global, PsycINFO, Sociological Abstracts

Devloping Countries & Primary Health Care (Note: Not sent to RefWorks)

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Appendix E

Mission strategies in OVID Platform

Database: Ovid MEDLINE(R) and Ovid OLDMEDLINE(R) <1946 to May Week 5 2015>
Search Strategy:

1  Medical Missions, Official/ (2051)
2  limit 1 to ed=20141122-20150604 (76)
3  central america/ or belize/ or costa rica/ or el salvador/ or guatemala/ or nicaragua/ or exp panama/ (11522)
4  2 and 3 (2)
5  honduras/ (804)
6  2 and 5 (3)
7  (mission* or brigade*).mp. (17912)
8  (central america or central american or central americans or belize* or guatemala* or el salvador or salvadoran* or nicaragua* or costa rica or costa rican or costa ricans or panama*).mp. (16639)
9  7 and 8 (190)
10  (honduras or honduran or hondurans).mp. (1328)
11  7 and 10 (94)
12  limit 11 to ed=20141122-20150604 (4)
13  limit 9 to ed=20141122-20150604 (5)
14  4 or 13 (5)
15  6 or 12 (4)
Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <June 4, 2015>

Search Strategy:

1. Medical Missions, Official/ (0)
2. limit 1 to ed=20141122-20150604 (0)
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5. honduras/ (0)
6. 2 and 5 (0)
7. (mission* or brigade*).mp. (2046)
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9. 7 and 8 (10)
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13. limit 9 to ed=20141122-20150604 (0)
14. 4 or 13 (0)
15. 6 or 12 (0)
Database: EBM Reviews - Cochrane Database of Systematic Reviews <2005 to April 2015>
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4  (honduras or honduran or hondurans).mp. (28)
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## Appendix F: Summary of TMM Studies

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<td>Leon, M (2003) Perceptions of health care quality in Central America International Journal for Quality in Health Care 15(1), 67-71</td>
<td>Three focus groups (10-15 groups in different health regions) in 1997-98 in Honduras, Costa Rica and Panama. 351 residents from different urban and rural communities. Discussed health services available, access to and use of services, satisfaction with different aspects of care and suggested improvements</td>
<td>Private care considered the best. The main preoccupations focused on prompt access to trusted physicians, effective and inexpensive medications and quality attention in public hospitals. In Honduras, residents favoured the personal care offered in public clinics and rural</td>
<td>Access to any form of health care is a problem for distant and dispersed populations which are often your poorest.</td>
<td>Focus groups offered important, confidential and cost effective information on quality and breath of health care delivery.</td>
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Hondurans regard themselves as passive recipients of services – ownership expressions and active engagement in the system are not expressed. Those with low socioeconomic...
<p>| Maki, Qualls, White, Kleefield &amp; Crone (2008). | 3 Phased Study | An evaluation tool was created with 6 major and 30 minor factors. Of the 6 major measures of quality missions performed best in Cost and Impact. Scored poorest in Education, Efficiency, Sustainability, and Preparedness. | Tool and database is no longer in use or available. |
| Health Impact Assessment and STMMs: A methods study to evaluate quality of care. | Literature review – Medline from 1985-2009 about medical missions to LMICs | Majority of articles were descriptive and lacked contextual or theoretical analysis. Missions were short 1 day to 1 week. | Significant scope for improvement, monitoring and evaluation |
| BMC Health Services Research 8(121) | 1. base – need analysis to determine factors critical to STMMs | | |
| | 2. Design of 5 surveys for mission personal and patients to enable a 360 degree evaluation. | | |
| | 3. Field testing of the survey with 5 STMMs | | |
| Martiniuk et al. (2012) | Have longer term medical missions had an impact on the HC system or specific countries? |
| Brain Gains: a literature review of medical missions to low and middle – income countries | | | |
| | Do countries know who departs/arrives to provide STMMs? | | |</p>
<table>
<thead>
<tr>
<th>BMC Health Services Research 12 (134).</th>
<th>Month</th>
<th>national policies regarding foreign medical missions</th>
<th>Do STMMs refer pts back into the local system for FU care?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common sending countries USA &amp; Canada</td>
<td>Top destination country was Honduras, while regionally Africa received the highest number of missions.</td>
<td>Training of health professionals in cross cultural communication and contextual realities of mission sites</td>
<td>What impact have STMMs had on students?</td>
</tr>
<tr>
<td>Primary care and surgical relief. Cleft lip/palate surgeries most common type of care.</td>
<td></td>
<td>Efforts to ensure efficacy, harmonisation with existing government programming and transparency are needed.</td>
<td>What are the ethical obligations of medical missions to ensure FU care for their patients?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Baker &amp; Lin (2006). The determinants of primary health care utilization: a comparison of three rural clinics in</th>
<th>New method: Spatial Aggregation Approach</th>
<th>The findings are consistent with prior research. A home territory variable is used to examine spatial variations</th>
<th>Consider walking time and the availability of medications.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stepwise regression methodology</td>
<td></td>
<td>Model does not explain private clinics. Other factors to consider include:</td>
<td></td>
</tr>
<tr>
<td>Southern Honduras. GeoJournal 66, 295-310.</td>
<td>Study examines the factors that can be used to explain primary health care utilization and aims to improve the understanding of patient utilization health seeking behaviour.</td>
<td>Home territory variable, access variable (travel time – walking), and village characteristics (economic status, education, employment, health status (need)).</td>
<td>of utilization behaviour. It was found to be a very significant determinant of health facility utilization in the study area of Santa Lucia, Intibuca, Honduras.</td>
</tr>
<tr>
<td>Arps (2011). Socioeconomic status and body size among women in Honduran Miskito communities Annuls of Human Biology 1-12</td>
<td>The study investigates evidence of the nutrition transition among women in Miskito communities in Honduras</td>
<td>An anthropometric survey – 200 non pregnant women</td>
<td>More than 70% of the women in the sample were overweight or obese. This was significantly greater among SES women than low SES women. Women of high</td>
</tr>
</tbody>
</table>
following standard procedures (dietary intake & physical activity) data were collected using 24 hr recall methods. Women were categorised into 3 SES groups based on economic and social attributes.

SES had low rates of physical activity, higher rates of obesity, perceived food sufficiency, meat consumption and general dietary diversity.

important avenue for future research.


The article describes the risks that women in Honduran Miskito villages encounter during pregnancy and childbirth. Ethnographic data are examined to emic understanding of the underlying causes of maternal death.

Participant observations, 55 Death histories collected during the survey illustrate the factors that contribute to maternal mortality: lack of adequate resources, poverty, gender inequality, witch craft, & sorcery.

Focus on local patient perceptions can help identify context – specific issues. Improvements in the training for health center employees and midwives.
<table>
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<tbody>
<tr>
<td>2006 RAM Siguatepeque, Honduras (Comayagua health region)</td>
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<tr>
<td>11 clinics (2124 patients)</td>
</tr>
<tr>
<td>Basic demographic information, presenting complaints and treatments</td>
</tr>
<tr>
<td>1160 females</td>
</tr>
<tr>
<td>464 males</td>
</tr>
<tr>
<td>mean age 40 (no children?)</td>
</tr>
<tr>
<td>Common complaints: Pain, dermatologic complaints, GI complaints, and respiratory complaints.</td>
</tr>
<tr>
<td>Consider chronic disease</td>
</tr>
<tr>
<td>four community discussions, individual interviews with 218 women and 5 midwives and a maternal mortality survey. Nov 2004 to Nov 2005.</td>
</tr>
<tr>
<td>Further investigation and analysis of local experiences, knowledge and perceptions can used to identify specific factors that contribute to poor health outcomes in this region.</td>
</tr>
<tr>
<td>Reference</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Beatty et al. (2007). Savannah facility has a sister hospital partnership with a Guatemalan organization. Health Progress 88(6), 78-81</td>
</tr>
<tr>
<td>Marson et al. (2007). Rural Honduran Perceptions about health and healthcare practices. Journal of Nursing Education</td>
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<tr>
<td>From a STMM from the USA. 32 participants, 3 villages. Each participant completed structured, open-ended questionnaires</td>
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</tbody>
</table>
| **Suchdev et al. (2007).** | **STMMs rural El Salvador. Discusses ethical issues associated with participation in such trips – personal experiences with CHIMPS (Childrens Health International Medical Project of Seattle).** | **7 Guiding principles**
1. Mission
2. Collaboration
3. Education
4. Service
5. Teamwork** |
<p>| <strong>A model for sustainable Short–Term International Medical Trips</strong> | <strong>Educations Pediatrics 7(4), 317-320.</strong> | <strong>Need to evaluate interventions for unexpected effects!</strong> |
| Pearson et al. (2012). Access and barriers to healthcare vary among three neighboring communities in Northern Honduras. International Journal of Family Medicine. Descriptive and compare access and barriers to health services in three proximal yet topographically distinct communities in Northern Honduras by an NGO – HOMBRE. 25 item questionnaire in Spanish at the point of care during HOMBRE clinics in 3 villages (N=220). Descriptive and compare responses between sites using Chi – squared &amp; Fisher Exact Tests. | 6. Sustainability 7. Evaluation | One site demonstrated great access and barriers to getting blood tests, Xray or to see a specialist. Most barriers were cost, distance, overcrowding, transportation, too ill to go, inability to get time off work, or lack of alternative childcare. Convenience sampling and multiple interviewers, mostly women. The study further supports the concept that rural, isolated communities face the greatest challenges in accessing healthcare. More research is needed to evaluate novel mechanisms for increasing healthcare access to poor CA communities. * Nuanced barriers to care may differ significantly even between geographically proximal communities. |
| Green et al. (2009). Perceptions of short-term medical volunteer work: a qualitative study in Guatemala Globalization and Health 5(4). | Exploratory Study QL of perceptions of STMMs In-depth semi-structured interviews with 72 individuals (Guatemalan HC providers &amp; health authorities, Foreign providers, non-medical personnel and Parents of children treated at STMM | STMMs offered improved access to medical care in communities where they serve. Most important way to improve STMMs work was to coordinate and respect local healthcare providers and their communities | Future studies should seek to understand who pursues care from STMMs, why and under what circumstances. Are there perceived or actual differences in quality or type of care? Are patients and families satisfied with care? |</p>
<table>
<thead>
<tr>
<th>Pfeiffer et al. (2008). Strengthening Health systems in poor countries: A code of conduct for NGOs</th>
<th>Perceived impact is highly variable and dependent on the individual project.</th>
<th>Hope that the paper will stimulate studies into the economic, political and health outcomes of STMMs to assess their quality and effectiveness.</th>
<th>Are outcomes for procedures (cataract removal) or conditions (diabetes) different when care is provided by regular healthcare system vs. STMMs?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper argues for a return to a public focus on donor aid and for NGOs to adopt a code of ethics. The struggle continues to integrate NGOs into the health sector and is part of a broader trend – donor preferences</td>
<td>Fragmentation of the system, brain drain to NGOs and lack of sustainability</td>
<td>Presents 3 areas of negative and positive impact of NGOs on National Health Systems</td>
<td></td>
</tr>
</tbody>
</table>
| Health Policy & Ethics 98(12), 2134-2140 | Donor aid = money going to NGOs as opposed to natural health systems. | -Management  
-Operations  
-Human Resources  
Presents 6 elements for a Code of Conduct |
Average age 23.2 years (67% female).  
Most common presenting symptom: diarrhea  
Most common diagnosis: parasites  
Most common Medication prescription: vitamins and analgesics/Antipyretics, & parasite medication | Effectiveness and efficacy (cost) of the idea of doctors and nursing flying from Canada?  
Uneven distribution of health care workers in the rural regions of Honduras – further research is required on the human resources and referral of patients back into practices |
| Whitney, Stevens & Bearman (2011). Individual Physician versus Team-Based Medical Encounters: | Chi-square analysis was used to determine statistical significance between encounter methods over several variables used in the | 314 patients were interviewed using the team-based approach, and 153 patients were interviewed | Need for a more goal oriented approach to medical brigades and team based approaches. |
Maximizing the Efficiency of a Medical Relief Service in Rural Honduras

International Journal of Family Medicine

| standard interview form with the traditional model. Statistically significant increases in compliance using the team-based method were observed with diabetes screening and selecting candidacy for antihelminthic therapy. Other variables with significantly increased compliance using the team-based method were compliance with checking a blood glucose value, diagnosing GERD, and prescribing medication such as analgesics and multivitamins | Patients were not randomized

*It is possible that health differences in these populations may exist owing to different environments and to differing levels of healthcare access.*


Retrospective chart review

Catholic Mission Hospital in Guatemala

During 7 consecutive annual mission trips from 2004 to 2010, patients received tonsillectomy and adenotonsillectomy. Established safety protocol requires candidates for tonsillectomy to agree to stay within 1 hour of the hospital for 10 days following the operation. This study includes all tonsillectomy patients regardless of age or indication for tonsillectomy. The medical charts were available for 197 (96.6%) of the 204 patients receiving tonsillectomy in the 7-year period; this was the only inclusion criterion. Ninety-nine (50.3%) patients had tonsillectomy concomitantly with adenoidectomy. Patients ranged in age from 3 to 66 years. The mean (SD) age was 17.2 (14.0) years. The study team found documentation of postoperative prospective data collection needed.

Performing active follow-up with these patients would require time beyond the standard STMM or the participation of local study team members but could include clinical outcomes measurement following tonsillectomy.

Consider the often-unmeasured impact of STMMs. This
primary outcome measures include posttonsillectomy hemorrhage, nasopharyngeal reflux, readmission for dehydration, and mortality. This is a novel study as the work performed by most short-term medical missions is unregulated and unevaluated.

complications in 3 (1.5%) patients; 2 experienced postoperative hemorrhage, 1 within the first postoperative hour and 1 at 96 hours. The final patient returned to the hospital within 24 hours symptomatic for dehydration.

includes: negative economic impact on local physicians, positive impact on the overall health of the community, or even little impact on any aspect of the community served.

More research is necessary to understand the impact of STMMs and to understand the outcomes of the services they provide, particularly as they relate to cost-
<table>
<thead>
<tr>
<th>Wilson, Merry &amp; Franz (2012).</th>
<th>Rules of engagement: the principles of underserved global health volunteerism.</th>
<th>Benefits analysis and quality of care. The interaction between foreign physicians and the patients they serve in STMMs could provide interesting insight into the patient and family comprehension of risks and benefits of the treatment offered.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pfeiffer, J. (2004). Civil Society, NGOs, and the Holy Spirit in Mozambique. Human Organization 63(3), 359 – 372.</td>
<td>Case study – 3 studies, over 4 years. Pentecostal church movement in Mozambique Survey 616 respondents and 80 church members</td>
<td>The article argues that the NGO presence has intensified the already growing social inequality by channelling resources to the elites, while church movements thrive in poor communities without foreign aid. Noted difficulty in sustaining volunteer community participation with health councils over time. Calls for state – sponsored services over NGOs</td>
</tr>
<tr>
<td>Sykes, K. (2014) . Short-Term Medical Service Trips: A Systematic Review of the Evidence. American Journal of Public Health 104(7), e38-e47.</td>
<td>Systematic research review on medical service trips (MST). The review follows the PRISM (preferred reporting items for systematic reviews and meta-analyses). Searches identified 1164 unique publications. Abstract review to 112 for full review. 67 studies published since 1993, only 6% of the published articles on the topic in the past 20 years. 95% of all publications lack any significant data collection and /or the outcomes of the intervention</td>
<td>The assessment of process output data without assessing the short-term or long-term impacts of medical missions. Limited studies on the impact of mission trips on students and trainees as volunteers (for example: life trajectory, future missions). Only 13 studies reported late outcomes and all were surgical – no interventions performed by medical missions. Core data elements are required.</td>
</tr>
</tbody>
</table>
| Hershberger, Ann (2001). The delicate dance: A case study of relationships between Nicaraguan health nongovernment organizations, communities served, donor agencies, and the Ministry of Health | A multiple-case, embedded units design was used. The sample included two cases where each case was a focal NGO and the embedded units were the various relationships. Data sources included documents, participant observation, and semi-structured interviews from all embedded units collected over a 10-month period on site. Data analysis was done by case and across cases using naturalistic methods. | A typology of three dimensions of relationships developed from the data and includes affective, functional, and role correspondence dimensions. Propositions about relationships emerged from Case One and were supported and refined in the cross case analysis. They include:

1. Relationships between NGOs and other groups that are recognized mutually as complementary or have comparable goals are successful relationships. |
(2) The biggest challenge to a relationship between the NGO and a community may be a difference in the conceptualization of participation.
(3) Positive personal relationships between people within relating groups strengthen the relationship.
(4) The presence of challenges does not necessarily result in a weakening of the relationship.


| Qualitative approach, Exploratory study to define what role the teams are taking in health care provisions in Honduras and to explore the part that teams of HCP and community | Research did not address the impact of STMMs on the health status of Hondurans. The issue of dependency |
| Massey, University, New Zealand. | members feel that teams should or should not play in the health system. Goal was to identify the particular role of STMMs and to address some of the issues which surround them within the context of health care in Honduras. | identified. Dependency by the Secretaría de Salud for medication supplies to centros de saluds and an expectation from the Secretaria that STMMs are able to provide services to remote or isolated areas their services do not reach- in fact they are welcomed |
### Appendix G: Key Global Developments & Events in the Countries of the Americas

<table>
<thead>
<tr>
<th>Year</th>
<th>Global Events</th>
<th>Events in the Americas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900–1950s</td>
<td>The UN Conference held in San Francisco unanimously agreed to establish an autonomous new international health organization (1945)</td>
<td>International Sanitary Bureau established (1902)</td>
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<td></td>
<td>Development of the Community Oriented Primary Care approach in South Africa and in the United States</td>
<td>Life expectancy: 55.2 years (1950–1955)</td>
</tr>
<tr>
<td>1960s</td>
<td>The Christian Medical Commission was created by medical missionaries working in developing countries. They emphasized training of village health workers</td>
<td>Rapid increase in the training of health professionals and investment in health infrastructure throughout the Americas</td>
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<tr>
<td></td>
<td>First Population Conference (1974)</td>
<td>Life expectancy: 65.06 years (1968, estimated)</td>
</tr>
<tr>
<td></td>
<td>Basic needs are prioritized: food, housing, water, supplies, medical services, education and employment</td>
<td>Development of regional health goals</td>
</tr>
<tr>
<td></td>
<td>Halfdan Mahler is elected WHO’s Director General. He effectively supported community work (1973)</td>
<td>Small-scale community-oriented primary care projects in Venezuela, Central America, and elsewhere</td>
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<tr>
<td></td>
<td>28th World Health Assembly to prioritize the construction of National Programs in PHC (1975)</td>
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<td></td>
<td>International Conference of Alma Ata (1978)</td>
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<td></td>
<td>Eradication of smallpox (1979)</td>
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<td>Selective Primary Health Care (1979)</td>
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<tr>
<td>1980s</td>
<td>Health for All</td>
<td>Development of Regional Action Plan</td>
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<td></td>
<td>WHO begins program to combat HIV/AIDS</td>
<td>Economic depression</td>
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<td>Expansion of selective PHC and vertical programs</td>
<td>Public services deteriorate</td>
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<td></td>
<td>Population Conference (Mexico, 1983)</td>
<td>Democratic governments elected in some countries</td>
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<td></td>
<td>Ottawa Charter (1986)</td>
<td>Donor dependency</td>
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<td></td>
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<td>Local health systems approach (SILOS)</td>
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<td></td>
<td></td>
<td>Renewed community participation</td>
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<td></td>
<td></td>
<td>Vaccination coverage for measles: 48%</td>
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<td></td>
<td></td>
<td>Incidence of measles: 408/1,000,000</td>
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<tr>
<td></td>
<td></td>
<td>Life expectancy: 69.2 years (1980–85)</td>
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<tr>
<td>1990s</td>
<td>Sustainable development</td>
<td>cholera epidemic</td>
</tr>
<tr>
<td></td>
<td>Human development concept</td>
<td>Progressive deterioration of life conditions, social and physical environment</td>
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<td></td>
<td>World Bank points out need of fighting against poverty and investing in health</td>
<td>Some health reforms strengthen PHC (e.g., Cuba, Costa Rica)</td>
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<td></td>
<td>Health Sector Reform promotes a basic health services package</td>
<td>PIAS (Environment and Health Investment Plan)</td>
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<td>Changing role of the State</td>
<td>End to civil wars in Central America</td>
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<td></td>
<td>Conference on Population and Reproductive Health (Cairo, 1994)</td>
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<tr>
<td>2000s</td>
<td>Commission on Macroeconomics and Health</td>
<td>Vaccination coverage for measles: 93%</td>
</tr>
<tr>
<td></td>
<td>Expansion of HIV/AIDS pandemic</td>
<td>Incidence of measles: 2 per 1,000,000</td>
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<tr>
<td></td>
<td>Establishment of GAVI</td>
<td>Renewal of PHC in the Americas</td>
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<td></td>
<td>Focus on equity in health</td>
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<td>Health as a global public health good</td>
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<td>Millennium Development Goals (MDGs)</td>
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<td>Commission on the Social Determinants of Health</td>
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<td>Bangkok Charter (2005)</td>
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## Appendix H Summary of Primary Health Care Principles

<table>
<thead>
<tr>
<th>Source</th>
<th>Key Principles</th>
</tr>
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<tbody>
<tr>
<td>The World Health Report (2003). Shaping the future</td>
<td>Universal access to care and coverage on the basis of need</td>
</tr>
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<td></td>
<td>Commitment to health equity as part of development oriented to social justice;</td>
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<td></td>
<td>Community participation in defining and implementing health agendas;</td>
</tr>
<tr>
<td></td>
<td>Intersectoral approaches to health.</td>
</tr>
<tr>
<td>Canadian Nurses Association (2003). Primary Health Care</td>
<td>Accessibility: a continuing and organized supply of essential health services is available to all people with no unreasonable geographic or financial barriers.</td>
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<td></td>
<td>Community Participation: Individuals and communities have the right and responsibility to be active partners in making decisions about their health care and the health of their communities</td>
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<td>Health Promotion: The process of enabling people to increase control over and to improve their health</td>
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<td></td>
<td>Intersectoral coordination: Commitment from all sectors (government, community and health) is essential for meaningful action on health determinants</td>
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<td></td>
<td>Appropriate technology: This includes methods of care, service delivery, procedures and equipment that are socially acceptable and affordable.</td>
</tr>
<tr>
<td>Seear (2007).</td>
<td>Equity: equal access for all people regardless of income</td>
</tr>
</tbody>
</table>
| An Introduction to International Health | Community Participation: There must be meaningful involvement of the community in the planning, implementation, and maintenance of their own health  
Health promotion: This the concept of providing people with the information to control and improve their own health  
Intersectoral coordination: PHC extends beyond provision of health care and requires coordinated action by all sectors involved in that population’s health, including agriculture, education, housing and industry  
Appropriate technology: In keeping with the principle of self-reliance, the technology associated with health care should be scientifically sound, adapted to local needs, robust and easily maintained. |
| PAHO/WHO (2002). PHC in the Americas; Conceptual Framework, Experiences, Challenges and Perspectives | Provision of accessible and affordable essential health services for all segments of a community;  
Maximization of individual and community involvement in the planning and operation of health care services to ensure that services are appropriate and acceptable to participants;  
Emphasis on services that are preventive and promotive as well as curative;  
Use of appropriate technology funded by local resources and supported by government structures;  
Integration of health development within the overall social and economic development of the community;  
 Provision of culturally acceptable, applicable, and equitable health services and programs;  
Focus on health concerns that are identified and prioritized |
<table>
<thead>
<tr>
<th>Source</th>
<th>Key Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birn, Pillay &amp; Holtz (2009). Textbook of International Health: Global Health in a Dynamic World</td>
<td><em>Equity and the right to health</em>&lt;br&gt;Comprehensiveness, with an emphasis on prevention and protection of health through addressing the “underlying social, economic and environmental determinants of health” (Global Health Watch 2005, p. 209).&lt;br&gt;Integration of many levels of health care&lt;br&gt;The use of culturally and socially appropriate health technology and care&lt;br&gt;Community involvement in the health sector</td>
</tr>
<tr>
<td>PAHO/WHO (2007). Renewing Primary Health Care in the Americas</td>
<td>To build a primary health care-based health system:&lt;br&gt;<em>Values:</em> Right to the highest attainable level of health; Equity; and Solidarity&lt;br&gt;<em>Principles:</em> Responsiveness to people’s needs; Quality-oriented; Government accountability; Social justice; Sustainability; Participation and Intersectoriality.&lt;br&gt;<em>Elements:</em> (structural and functional): Universal coverage and access; First contact; Comprehensive, integrated and continuing; Family and community-based; Emphasis on promotion and prevention; Appropriate care; Active participation mechanisms; Sound policy, legal and institutional framework; Pro-equity policies and programs; Optimal organization and management; Appropriate Human Resources; Adequate and sustainable resources;</td>
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</table>
Intersectorial actions.

Summary of key terms:

Universal coverage and access to services that are acceptable to the population (responsiveness to people’s health needs) and that are equity-enhancing. It provides comprehensive, integrated and appropriate care over time (sustainability).

Health promotion and prevention: achieved by assigning appropriate functions at each level of government (government accountability), integrating public and personal health services, focusing on families and communities, using accurate data for planning and decision-making and creating an institutional framework with incentives to improve the quality of services (Quality orientation).

Community Participation: families and communities are its basis for planning and action.

Intersectoriality: the health system develops intersectoral actions to address other determinants of health and equity.

*Provides an additional focus on human resources, development strategies for managing ongoing change, and aligning with international stakeholders.

<p>| World Health Organization: Commission on Social | The health care system needs to be designed and financed to ensure equitable, universal coverage, with adequate |</p>
<table>
<thead>
<tr>
<th>Determinants of Health (2008).</th>
<th>human resources. Health care systems should be based on PHC model combining locally organized action on the social determinants of health as well as strengthened primary level of care, and focusing at least as much on prevention and promotion as on treatment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing the gap in a generation</td>
<td>Universal primary health care</td>
</tr>
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<td>Community engagement and social empowerment</td>
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<td></td>
<td>Equity in health</td>
</tr>
<tr>
<td></td>
<td>Disease prevention and health promotion</td>
</tr>
<tr>
<td></td>
<td>Intersectoral approaches to health</td>
</tr>
<tr>
<td>The World Health Report (2008).</td>
<td>This report structures the PHC reforms into four groups that reflects the convergences between the evidence on what is needed for an effective response to the health challenges of today’s world, the values of equity, solidarity and social justice that drive the PHC movement and the growing expectations of the population are modernizing societies.</td>
</tr>
<tr>
<td>Primary Health Care (Now More Than Ever)</td>
<td>Universal coverage reforms to improve health equity</td>
</tr>
<tr>
<td></td>
<td>Service delivery reforms to make health systems people-centred</td>
</tr>
<tr>
<td></td>
<td>Leadership reforms to make health authorities more reliable</td>
</tr>
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<td></td>
<td>Public policy reforms to promote and protect health of communities</td>
</tr>
</tbody>
</table>
Appendix I: Original Harvard Surveys

Original (1)

Additional file 6: Mission Administrator (General Information) Survey

1) What is the name of the mission?

2) What location did this mission serve?

3) What were the dates of the mission?

4) Please list the mission director’s contact information here:

5) What services are provided by your mission? (Please choose all that apply) Medical Surgical Dental Social

6) Do you have a mission statement? If so, please attach it to this document.
   YES   NO   (If yes, please attach)

7) Does the mission have any affiliations?
   Political Religious Other None

8) What is the setting of the mission? (Please check all that apply).
   Hospital Clinic Urban Rural

9) How many days did the mission provide health care?
   ____________________ Days

10) Has the mission visited this site previously? If yes, how many times?
    ____________________ Times
11) How many missions does the organization send to this site per year?

___________ Missions

12) How many missions does the organization send internationally per year?

___________ Missions

13) How long has the mission organization been in existence?

___________ Years

14) What percentage of mission activities are directed toward health care?

0-15% 15-25% 25-50% 50-75% 75-100%

15) Please classify the patient population that you serve? Do you target any specific health concerns?

Adults   Children   Both

Specific concerns: ________________________________

16) What is the native language of the population you serve?
Original (2)

Additional file 3: Mission Director Survey

1) How long have you been with this mission?

2) Besides director, what other roles do you play in the mission?

3) Please circle all applicable responsibilities in your role as director:
   1. financial information
   2. logistical organization on-site
   3. recruitment of participants
   4. assigning jobs to participants
   5. publicity/media
   6. fundraising
   7. communication with host country
   8. communication with mission team
   9. acquiring medical supplies
   10. medical care
   11. interacting with host country government
   12. other:

4) What are the primary methods of diagnosis used by your mission? Circle all that apply
   1. Chief Complaint
   2. History of Present Illness
   3. Past Medical History
   4. Family History
   5. Social History
   6. Physical Exam
   7. Laboratory Tests
   8. Radiology Tests (XR, CT, MR)
   9. Local Epidemiology
   10. Other

5) What is the average length of the diagnostic portion of the visit?
   <5min  5-10min  10-15min  >15min
6) What percentage of diagnoses were based solely on the clinical presentation of the patient?
   0-15%  15-25%  25-50%  50-75%  75-100%

7) The accuracy of your diagnoses would be improved with access to laboratory and other
diagnostic testing methods?

   Completely Disagree-----------------Completely Agree
   1     2     3     4     5

8) Have you achieved your expected standard of care?
   YES    NO

9) If not, please identify which of the following were limiting factors? Circle all that apply.
   1. Cost
   2. Efficiency
   3. Personnel
   4. Pre-mission Preparation
   5. Cultural Competence
   6. Infrastructure
   7. Supplies/Medical Equipment
   8. Access to appropriate facilities
   9. other:_________________________

10) Is there a system in place for measuring health outcomes in the patient population?
    YES    NO

11) The level of follow-up care is sufficient to accurately evaluate the impact of this mission on its patients.

    Completely Disagree-----------------Completely Agree
    1     2     3     4     5

12) Are outcomes measured in such a way that they can be compared to the US Standard of care?
    YES    NO

13) What percentage of outcomes are satisfactory or better?
    0-25%  25-50%  50-75%  75-90%  90-100%

14) On average, how many days of follow-up care are provided to each patient?.
    ________________________ days

15) Is the level of follow-up data sufficient to accurately evaluate the impact of the mission?
    YES    NO
16) Does the mission routinely review outcomes and use them to inform subsequent missions?  
YES  NO

17) What percentage of patients returned to clinic with a problem or complaint that was due to the actions of the mission (adverse drug reaction, surgical wound infection, etc.)  
__________________%  

18) Were there any fatal negative patient outcomes?  
YES  NO

19) Is there a system in place to collect morbidity and mortality data? Please describe briefly.  
YES  NO

20) Is there a system in place for review of morbidity and mortality data?  
YES  NO

21) Has the morbidity and the mortality data improved from year to year?  
YES  NO

22) How many patients were cared for over the course of the mission?  
__________________ patients

23) If this mission has been to this location before, has the number of patients cared for per mission increased or decreased from year to year?  
Increased  Stable  Decreased

24) Which of the following limited the total number of patients treated? Circle all that apply.  
   7. Supplies  8. other: __________

25) Is a formal staffing plan used to determine team membership?  
YES  NO

26) Did the mission have all the necessary personnel?  
YES  NO

27) What percentage of participants are essential personnel? Eg. Health care providers, translators, etc.  
0-25%  25-50%  50-75%  75-90%  90-100%

28) Does the mission have a process for credentialing the participants?  
YES  NO

29) How many separate services does your mission provide? (A service is defined as a branch of medical or dental specialty). Please list:
30) Is there a system in place to track medical supplies used?
   YES   NO

31) Are any specific resources chronically in short supply? Please list below.
   YES   NO

32) Care was negatively affected by resource limitation (eg. lack of medical supplies, clinical spaces, etc.).

   Completely Disagree-----------------Completely Agree

   1  2  3  4  5

33) Does an orientation session take place prior to each mission? Please provide a copy of your orientation agenda.
   YES   NO

34) Are issues of cultural awareness integrated into the orientation session?
   YES   NO

35) Did any adverse events such as accidents or injury to participants take place during the mission?
   YES   NO

36) Were you well prepared to handle those events? If no, why not?
   YES   NO

37) Does the mission have a safety strategy plan in place to act quickly and efficiently in case of emergency.
   YES   NO

38) Is there a system in place for measuring the language proficiency of the team in the native language of the recipient patients?
   YES   NO

39) What percentage of patient and local provider education is performed in the native language?
   0-15%  15-25%  25-50%  50-75%  75-100%

40) Is the host country’s ministry of health aware of your mission? If not, please explain.
   YES   NO

41) Did you receive approval from the country’s licensing board to bring these providers in country?
   YES   NO

42) How was the mission publicized?
   word of mouth  sign/flier  radio  health provider  other:____________

43) Do you triage patients?
   YES   NO

44) If not, how do you determine which patients receive care?
45) Is there a system in place for referring patients to a local specialist or other mission if need be?
YES  NO

46) If no, have any steps been taken to set up a referral network?
YES  NO

47) It is easy to refer a patient to a local specialist or other mission for treatment or follow-up.
Completely Disagree-------------------Completely Agree
1  2  3  4  5

48) Were any patients referred?
YES  NO

49) Please categorize how participants spend their time during the mission in terms of the following activities (should add up to 100%)
1. Patient Care %
2. Patient Health Education %
3. Education of Local Health Care Providers %
4. Administrative/Logistical Duties %
5. Team Building (social hours, discussions, etc.) %
6. Religious activities in the community %
7. “Down time” (rest, sleep, tourism, etc.) %

50) What is the average amount of time that patients wait for care?
_________________ Hours

51) There is an efficient communication system in place between team members.
Completely Disagree-------------------Completely Agree
1  2  3  4  5

52) There is an efficient communication system in place between mission participants and local host.
Completely Disagree-------------------Completely Agree
1  2  3  4  5

53) Is there a system in place for communicating with other missions in the same medical field or geographical area of practice?
YES  NO

54) Were there any complaints about the logistical organization of the mission from the participants or host?
YES  NO

55) Is there a system in place for providing patient health education while the patients are not receiving direct health care?
YES  NO
Does a curriculum exist?
YES  NO

Were the materials available for patient health education sufficient to achieve educational goals, if that is part of your mission statement?
YES  NO

Education provided by the mission impacted the health awareness of the patient population.
Completely Disagree------------------Completely Agree
1  2  3  4  5

Is there a system in place for training local health care providers?
YES  NO

Do opportunities exist for local providers to train mission providers?
YES  NO

Does a curriculum exist for either training opportunity?
YES  NO

Were the materials available for training local health care providers sufficient?
YES  NO

Education provided by the mission positively impacted the level of care delivered by local health care providers.
Completely Disagree------------------Completely Agree
1  2  3  4  5

Is sustainable improvement and eventual independence of the host a goal of the mission’s effort at training local health care providers?
YES  NO

Is it one of the goals of the mission to train residents and students?
YES  NO

Does a curriculum exist?
YES  NO

In terms of providing care to patients, are residents and students held to the same standards as in their country of origin?
YES  NO

What is the total cost faced by your organization for this mission?
____________________USD (specify if other currency)

Based solely on the current financial situation of your organization and the cost of this mission, approximately how many years will the mission be sustainable?
>1 year  >5 years  >10 years

What is your average cost per patient?
____________________USD (specify if other currency)
71) What measures were taken to reduce per patient cost? Please list

72) Does an expected budget exist for each mission?
   YES   NO

73) Was the actual cost for the mission less than or equal to the expected budget calculated prior to the mission?
   YES   NO

74) It was easy to accurately answer the previous six questions.
   Completely Disagree-------------------Completely Agree

75) How many questions on the Mission Finances Form were you unable to complete due to lack of records?
   1-2   3-5   6-8   9-10   >10

76) Does the mission keep records on every patient treated by the mission?
   YES   NO

77) Are they easily accessible?
   YES   NO

78) Can they be transferred to the patient’s home health care provider?
   YES   NO

79) Is the outcome of each treatment contained in his/her records?
   YES   NO

80) Are records from previous missions available to be used in preparation for future missions?
   YES   NO

81) Is there a system in place for keeping accurate records of the educational efforts of the mission?
   YES   NO

82) If building a sustainable healthcare system in country is a goal of this mission, does an exit strategy exist for the mission?
   YES   NO   NA

83) Have factors been identified to determine implementation of the exit strategy?
   YES   NO

84) Has a “mission statement”, or some other statement of purpose or goals, been composed for the mission?
   YES   NO

85) Have criteria been established for judging the success of the mission?
   YES   NO

86) Do you ask your patients and participants for suggestions for improvement?
   YES   NO

87) Do you have a method for evaluating and integrating these suggestions?
   YES   NO
Original (3) Additional file 2: Host/Local

Provider Survey

1) Please indicate the type(s) of care this mission provided.
   Surgical  Dental  Medical  Pediatric

2) Did local health care providers collaborate with the mission doctors?
   YES  NO

3) Was training provided?
   YES  NO

If training for local medical professionals was provided by the mission doctors, please describe your degree of satisfaction with it in questions 4 and 5:

4) The mission doctors taught local doctors useful new skills
   Completely Agree-----------------
   Completely Disagree

   1  2  3  4  5

5) The care local doctors provide as a result of this training is better than before
   Completely Agree------------------Completely Disagree

   1  2  3  4  5

6) There is good host-mission communication.
   Completely Agree------------------Completely Disagree

   1  2  3  4  5
7) The host and local health care providers were well integrated into the mission team
   Completely Agree--------------------Completely Disagree
   1  2  3  4  5

8) Did you have any complaints about the organization (communication, travel
   arrangements, etc) of the mission?
   YES  NO (if YES please explain)

9) On average, how many days of follow-up care are provided to each patient?
   ________________________days

10) Is data collected about the clinical outcomes of patients?
    YES  NO

11) Do you feel that the data collected is sufficient to evaluate the care provided by the
    mission?
    YES  NO

12) What percentage of patients returned to local health care facilities with a problem or
    complaint that was due to the actions of the mission (adverse drug reaction, surgical
    wound infection, etc.)?
    0-5%  5-15%  15-25%  25-50%  50-100%

13) Given the cost faced by the host for this mission, for how many years will the
    mission be sustainable at this site?
    >1 year  >5 years  >10 years

14) Would you like the mission to return for another visit?
    YES  NO

15) Your overall experience with this mission was positive.
    Completely Agree-------------------Completely Disagree
    1  2  3  4  5
Additional file 5: Personnel Survey

1) What is your affiliation with this mission? What type of service did you provide? (doctor, surgical nurse, public health educator, etc)

2) How many short-term medical missions have you participated in?
_________________________Missions

3) How many missions have you participated in with this organization?
_________________________Missions

4) The orientation meeting and orientation efforts of the mission were well organized and of high quality.
   Completely Disagree------------Completely Agree
   1     2     3     4     5

5) Were there any complaints about the logistical organization of the mission?
   YES   NO   (If yes, please list below)

6) Did the mission have all the necessary personnel?
   YES   NO   (If no, please explain below)

7) Care was negatively affected by resource limitation (eg. lack of medical supplies, clinical spaces, etc.).
   Completely Disagree------------Completely Agree
   1     2     3     4     5

8) The communications system in place for intra-team communication is efficient.
   Completely Disagree------------Completely Agree
   1     2     3     4     5

9) The communications system in place for intra-team communication is beneficial to the mission.
   Completely Disagree------------Completely Agree
   1     2     3     4     5

10) Participants’ time was spent efficiently during the mission?
    Completely Disagree------------Completely Agree
     1     2     3     4     5
11) Please indicate what percentage of your time was spent on the following activities during the mission. This should add up to 100%.
   a. Patient Care
   b. Patient Health Education
   c. Education of Local Health Care Providers
   d. Administrative/Logistical Duties
   e. Team Building (social hours, discussions, etc.)
   f. Religious activities in the community
   g. “Down time” (rest, sleep, tourism, etc.)

12) What percentage of diagnoses were based solely on the clinical presentation of the patient as opposed to lab data or medical records?
   0-15% 15-25% 25-50% 50-75% 75-100%

13) On average, how long was the diagnostic portion of the patient visit?
   <5min 5-10min 10-15min >15min

14) On average, how many days of follow-up care did you provide to each patient?
   ___________ Days

15) Is there a method to track the post-care health outcomes of your patient after s/he leaves the mission?
   YES  NO

16) Do you believe the level of follow-up care is sufficient to accurately evaluate the impact of this mission on its patients?
   YES  NO

17) What percentage of patients returned to clinic with a problem or complaint that was due to the actions of the mission? (adverse drug reaction, surgical wound infection, etc.)
   0-5% 5-15% 15-25% 25-50% 50-100%

18) It is easy to refer a patient to a local specialist or other mission for treatment or follow-up.
   Completely Disagree-------------Completely Agree
   1 2 3 4 5

19) The interpreter services available during the mission are adequate to maintain a high level of care.
   Completely Disagree-------------Completely Agree
   1 2 3 4 5

20) Please rate your ability to speak the native language of the patients. Please circle.
   a. Basic (greetings, salutations, moderate understanding)
   b. Conversational (basic phrases and tenses, good understanding)
   c. Proficient (expert, idiomatic phrases, excellent understanding)
   d. Fluent (effortless expression, complete understanding)

21) Greater language proficiency would have increased your personal productivity.
   Completely Disagree-------------Completely Agree
   1 2 3 4 5
22) Please rate your knowledge of local culture before this mission. Please circle.

   a. I knew nothing about the culture.
   b. I knew a little about the culture.
   c. I was average in my knowledge.
   d. I was very comfortable with my knowledge.
   e. I know the culture as well as if it were my own.

23) Greater cultural awareness would have improved the quality of care provided.
Completely Disagree----------------------Completely Agree

   1  2  3  4  5

24) If teaching is part of your mission's goals, the educational resources available
to you were satisfactory.
Completely Disagree----------------------Completely Agree

   1  2  3  4  5

25) If you are a resident or student, the educational experience provided by the mission
positively impacted the level of care you delivered or will deliver. Please comment if
it impacted how you think of your future career or patient-doctor relationship.
Completely Disagree----------------------Completely Agree

   1  2  3  4  5

26) Your overall experience with this mission was positive.
Completely Disagree----------------------Completely Agree

   1  2  3  4  5
1) What medical problem are you dealing with today?

2) Did you receive medical treatment for this problem?

3) How did you get here today?
   On foot      public transportation      personal vehicle      other: __________

4) How many times have you visited missions from this organization?

5) How often do you see a physician?
   less than 1/yr      1-2/yr      6/yr      monthly

6) Please rate your overall experience with this mission.
   Poor      Average      Excellent

7) Approximately how long did you wait for care?
   __________ hours

8) How well did you understand what the doctors/dentists/ translators told you?
   Poor      Average      Excellent

9) What did this mission teach you about your health?

10) Do you understand how to care for this problem in the future?

11) Will you be able to follow the advice of the doctors?
   YES      NO

12) Do you have access to another health care provider in case of a complication?

13) How did you hear about this mission?
   word of mouth      sign/flier      radio      health provider

14) Were you required to pay anything? If so, how much? Will this affect your living conditions in any way? Please explain.

15) Do you have any suggestions for improving this mission?
Appendix J: **Minor Changes: Health Impact Assessment and STMMs – Harvard Model (Original and Revised)**

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Original</th>
<th>Revised</th>
<th>Rationale for Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General Information</td>
<td>159 questions in total (16 general information questions, 15 host, 26</td>
<td>174 questions in total (17 general information questions, 17 host, 31</td>
<td>More details about the mission director or team leader.</td>
</tr>
<tr>
<td>Survey (Mission</td>
<td>personnel, 15 patient, and 87 mission director questions).</td>
<td>personnel, 20 patient &amp; asked during follow up, along with a detailed</td>
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<td>Administrator)</td>
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<td>patient information sheet for documentation of patient demographics</td>
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<td></td>
<td></td>
<td>and treatment, 89 mission director)</td>
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<td>4. Please list the</td>
<td>4. Same plus, request the name of the person completing the survey’s</td>
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<tr>
<td>mission directors</td>
<td>title/credentials</td>
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<td>contact information here.</td>
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<td>15. Please classify the</td>
<td>15. Please classify the patient population that you serve? Circle all</td>
<td>Provides more detail and specifics of the population served.</td>
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<td>patient population that</td>
<td>that apply.</td>
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<td>you serve. Circle all</td>
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<td>that apply. Adults;</td>
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<td>Children; Both</td>
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<td>Do you target any</td>
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<td>specific health</td>
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<td>16. Do you target any</td>
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<td>specific health</td>
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<td>concerns? Yes or No</td>
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<td>17. If Yes, what are the</td>
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<td>specific health concerns</td>
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<td>__________________________</td>
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<tr>
<td>2. Host/Local Provider</td>
<td>1. Please indicate the type(s) of care this mission provided. Dental</td>
<td>1. Please indicate the type(s) of care this mission provided. Dental;</td>
<td>More inclusive of other types of missions</td>
</tr>
<tr>
<td></td>
<td>Medical;</td>
<td>Medical; Pediatric; Surgical; Other___________________________________</td>
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<tr>
<td><strong>Scale</strong></td>
<td>Note on some of the surveys the scale was reversed.</td>
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<tr>
<td>Completely Disagree is 5 and Completely Agree is 1</td>
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<tr>
<td>9. On average, how many days of follow-up care are provided to each patient?</td>
<td>9. Was follow up care provided? Yes No or Do not know</td>
<td>For consistency with all revised surveys’ will first ask a yes or no question and then if yes, more details are requested.</td>
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<tr>
<td>10. If Yes, how many days of follow up care was provided?</td>
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<td>Also the option of Do Not Know is offered to reflect the fact that the participant might not know the answer.</td>
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<tr>
<td>12. What percentage of patients returned to local health care facilities with a problem or complaint that was due to the actions of the mission (adverse drug reaction, surgical wound infection etc.)</td>
<td>12. Same question however changed the scale choices: 0-5%; 5-15%; 15-25%; 25-50%; 50-100%</td>
<td>more incremental changes in variation</td>
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<tr>
<td>0-5%; 5-15%; 15-25%; 25-50%; 50-100%</td>
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<td>13. Given the cost faced by the host for this mission, for how many years will the mission be sustainable at this site?</td>
<td>13. As host for this mission, was there any associated costs provided by you or the community for this mission? Yes, No, Do not know</td>
<td>First find out if there is an associated cost for the mission to the host using a yes, no or do not know question</td>
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<tr>
<td>&gt;1year; &gt;5years; &gt;10 years</td>
<td>14. If Yes, given the cost faced by the host for this mission, for how many years will the mission be sustainable at this site?</td>
<td></td>
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<tr>
<td>3. Personnel</td>
<td>1. What is your affiliation with this mission? What type of service did you provide? (doctor, surgical nurse, public health educator, etc...)</td>
<td>1. What type of health care services are you providing? Circle all that apply. Medical/Surgical/Ophthalmological/Dental/Other</td>
<td>Two questions in one. Added other professional disciplines</td>
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<tr>
<td>Survey</td>
<td>2. What is your professional affiliation with this mission? Circle the response which best suits your role. Physician/Nurse/Dentist/Pharmacist/ Student (Specify type)/ Support Volunteer/Other</td>
<td>4. An orientation meeting and orientation efforts (hand outs, emails) were offered? Yes/No</td>
<td>Asked yes or not question first and then if yes, respond to the question and scale.</td>
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<tr>
<td></td>
<td>5. The orientation meeting and orientation efforts of the mission were well organized and of high quality Completely Disagree 1 .... Completely Agree 5</td>
<td>10. A. There was a communication system in place for intra-team communication? Yes/ No/Do Not Know</td>
<td>First ask the yes or no question and then move to a ranking scale</td>
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<td>8. The communication system in place for intra-team communication is efficient Completely Disagree 1 ... Completely Agree 5</td>
<td>8. The communication system in place for intra-team communication is efficient Completely Disagree 1 ... Completely Agree 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. The communication system in place for intra-team communication is beneficial to the mission Completely Disagree 1 ... Completely Agree 5</td>
<td>9. The communication system in place for intra-team communication is beneficial to the mission Completely Disagree 1 ... Completely Agree 5</td>
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<tr>
<td>Structural change with instructions</td>
<td>Mission Follow up</td>
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<tr>
<td>Does your mission participate in follow up care? Yes No If yes, complete questions 16-20 if No, go to question 21.</td>
<td>25. If you are a resident or student, the educational experience provided by the mission positively impacted the level of care you delivered or will deliver. Please comment if it impacted how you think of your future career or patient–doctor relationship. Completely Disagree 1 .... Completely Agree 5</td>
<td>Two questions in one Included Nurse</td>
<td></td>
</tr>
<tr>
<td>New questions</td>
<td>27. If you are a resident or student, do you feel the educational experience provided by the mission positively impacted the level of care you delivered or will deliver. Completely Disagree 1 .... Completely Agree 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. If you are a resident or student, do you feel the mission impacted how you think of your future career or patient–doctor or patient–nurse relationship. Completely Disagree 1 .... Completely Agree 5</td>
<td>30. How much did you pay to participate in this mission experience? ______ dollars</td>
<td>Article suggests costs of the mission was not recorded.</td>
<td></td>
</tr>
<tr>
<td>31. Did you collect donations to support your personal/individual expenses? Yes No</td>
<td>32. Do you have any suggestions for improving the mission? Your feedback is appreciated.</td>
<td>instructions to non health care volunteer</td>
<td></td>
</tr>
<tr>
<td>Patient Mission Day (see sheet attached along with referral sheet)</td>
<td>3. How did you get here today? 5. How often do you see a physician? When did you last visit a doctor/or nurse? Days/Weeks/Months/Years (note timeframe) and Where? How did you get her today? Choices include: Foot/Public transportation/Personal vehicle/ Education level: Primary/High School/University Monthly Income: More than 3500 Lps/More than 7000 Lps/More than 10000 Lps</td>
<td>Patient survey information will be collected on the day of the mission during the patient visit as well as in follow up on the patients who have a referral sheet completed.</td>
<td></td>
</tr>
<tr>
<td>Patient Follow up Visit</td>
<td>2. Did you receive medical treatment for this problem?</td>
<td>2. Did you receive medical treatment for this problem (For example drugs, procedure, test?)</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13. Do you have access to another health care provider in case of complication?</td>
<td>13. Did you have access to another health care provider in the case of a complication? Please explain.</td>
<td></td>
</tr>
<tr>
<td>New question</td>
<td>14. Did you have any follow up such as a test, procedure or consultation with a local health care provider or the public hospital? Please explain.</td>
<td>Added to ascertain more details about the ability for them to get follow up and if so for what.</td>
<td></td>
</tr>
<tr>
<td>Mission Director</td>
<td>2. Besides Director, what other roles do you plan with this mission?</td>
<td>2. Besides, Director (Team Leader) what other roles do you play in the mission? Directors are also commonly called Team Leader or Mission Team Leader</td>
<td></td>
</tr>
<tr>
<td>Or this can be completed by the Mission Team Leader</td>
<td>3. Please circle all applicable responsibilities in your role as director</td>
<td>Same question; changed choice of “medical care” to “health care”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12. Are outcomes measured in such a way that they can be compared to the US standard of Care? (Yes, No)</td>
<td>12. Are outcomes measured in such a way that they can be compared to your affiliated medical or nursing association/college of standards of care? Yes No In keeping with Canadian standards</td>
<td></td>
</tr>
<tr>
<td>Question 15 begins follow up questions</td>
<td>Developed a section “Mission Follow up”</td>
<td>This allows a separate and distinct follow up section of questions. If the mission does not do follow up</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
<td>Notes</td>
<td></td>
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<tr>
<td>-------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
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</tr>
<tr>
<td>24. Which of the following limited the total number of patients treated?</td>
<td>25. Same question. Added choice options of Space; Environment and Self Imposed (Individual).</td>
<td>care they can respond “no” and move on to the next section (question 23). Improves survey taking.</td>
<td></td>
</tr>
<tr>
<td>27. What percentage of participants are essential personnel?</td>
<td>28. Same question. Asked them to list the team participants by role.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. Is there a system in place to track medical supplies used?</td>
<td>31. Is there a system in place to track medical supplies and medications used?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33. Does an orientation session take place prior to each mission? Please provide a copy of your orientation agenda.</td>
<td>34. Same question. Ask for a copy of the orientation materials provided.</td>
<td>More detail of documents</td>
<td></td>
</tr>
<tr>
<td>36. Were you well prepared to handle those events? If no, why not?</td>
<td>37. Were you well prepared to handle those events? If no, please explain why not?</td>
<td>Soft and allows for explanation</td>
<td></td>
</tr>
<tr>
<td>37. Does the mission have a safety strategy plan in place to act quickly and efficiently in case of an emergency? Yes No</td>
<td>38. Same question added evacuation plan</td>
<td>In keeping with emergency preparedness and disaster planning</td>
<td></td>
</tr>
<tr>
<td>47. It is easy to refer a patient to a local specialist or other mission for treatment or follow up. Completely Disagree 1 . Completely Agree 5</td>
<td>48. Same question added health facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48. Were any patients referred? Yes No</td>
<td>49. Same question. If yes-----how many?</td>
<td>More detailed information</td>
<td></td>
</tr>
<tr>
<td>50. Please categorize how participants spend their time during the mission in terms of the following activities (should add up to 100%)</td>
<td>51. Same question added “social” to religious activities in the community as an activity</td>
<td>Not all missions are religious</td>
<td></td>
</tr>
<tr>
<td>53. Is there a system in place for communicating with other missions</td>
<td>New Question 52. A. There is a communication system in place for intra-team communication? Yes No Do not Know</td>
<td>Ask yes no do not know question first and then if yes ask them to rank it.</td>
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<tr>
<td>61. Does a curriculum exist for either training opportunity?</td>
<td>62. Does a curriculum exist for either of the above training opportunities?</td>
<td>More specific and relates directly back to the preceding two questions.</td>
<td></td>
</tr>
<tr>
<td>75. How many questions on the mission finances form were you unable to complete due to lack of records?</td>
<td>Omit (will ask for mission budget)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New question(s)</td>
<td>77. Are they paper based? Yes No</td>
<td>More detail</td>
<td></td>
</tr>
<tr>
<td>78. Are they electronic? Yes No</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| New question(s) | 86. Do you ask your patients for suggestions for improvement? Yes No | Asking of each specific individual involved for suggestions for improvement.
Supports community participation (PHC) |
| 87. Do you ask your participants for suggestions for improvement? Yes No | 88. Do you ask in country host for suggestions for improvement? Yes No | |
| 89. Do you have a method for evaluating and integrating these suggestions into practice? Yes No | Specifically asking if evidence is integrated into the practice setting. |
| New question(s) | Do you have any suggestions for improving this mission? Do you have any additional comments about the mission or this survey? | Open ended questions added to all surveys to allow for any additional general comments or to prompt further discussion. |
Appendix K Revised Harvard Survey Questionnaires

General Information Survey (1)

1) What is the name of the mission?

2) What location did the mission serve?

3) What were the dates of the mission?

4) Please list the Mission Director or Team Leaders contact information here.

5) What services are provided by your mission? Please circle all that apply.
   Medical    Surgical    Dental    Ophthalmology    Social

6) Do you have a mission statement? If so please attach it to this document.
   YES       NO

7) Does the mission have any affiliations?
   Political    Religious    Other    None

8) What is the setting of the mission? Please circle all that apply.
   Hospital    Clinic    School    Church    Urban    Rural

9) How many days did the mission provide health care?
   ________Days

10) Has the mission visited this site previously? If yes, how many times?
    YES       NO       ________Times

11) How many missions does the organization send to this site per year?
    ________Missions

12) How many missions does the organization send internationally per year?
    ________Missions

13) How long has the mission organization been in existence?
    ________Years

14) What percentage of mission activities are directed toward health care?
    0-15%   15-25%   25-50%   50-75%   75-100%

15) Please classify the patient population that you serve? Please circle all that apply.
    Adults    Women    Men    Children    Elderly

16) Do you target any specific health concerns?

17) What is the native language of the population you serve?

Thank you,
Mission Director/Team Leader Survey (2)

1) How long have you been with this mission?

2) Besides director/team leader, what other roles do you play in the mission?

3) Please circle all applicable responsibilities in your role as director/team leader:
   o Financial information
   o Logistical organization on site
   o Recruitment of participants
   o Assigning jobs to participants
   o Publicity/media
   o Fundraising
   o Communication with host country
   o Acquiring medical supplies
   o Health care
   o Education
   o Interacting with host country government officials
   o Other

4) What are the primary methods of diagnosis used by your mission?
   Please circle all that apply
   o Chief complaint
   o History of present illness
   o Past Medical history
   o Chronic illness
   o Family history
   o Social history
   o Physical exam
   o Laboratory tests
   o Radiology tests (Xray, CT, MRI, Ultrasound)
   o Local Epidemiology
   o Other

5) What is the average length of the diagnostic portion of the visit?
   <5min  5-10min  10-15min  >15min

6) What percentage of diagnoses would be improved with access to laboratory and other diagnostic testing methods?
   0-15%  15-25%  25-50%  50-75%  75-100%

7) The accuracy of your diagnosis would be improved with access to laboratory and other diagnostic testing methods?
   Completely Disagree-------------------Completely Agree
   1  2  3  4  5

8) Have you achieved your expected standard of care?
   YES  NO
9) If no, please identify which of the following were limiting factors? Please circle all that apply.
   - Cost
   - Efficiency
   - Personnel
   - Pre–mission preparation
   - Cultural competence
   - Infrastructure
   - Supplies/Medical Equipment
   - Other

10) Is there a system in place for measuring health outcomes in the patient population?
    YES  NO

11) The level of follow up care is sufficient to accurately evaluate the impact of this mission on its patients?
    Completely Disagree------------------Completely Agree
    1  2  3  4  5

12) Are outcomes measured in such a way that they can be compared to your affiliated medical or nursing association/college of standards of care?
    YES  NO

13) What percentage of outcomes are satisfactory or better?
    0-25%  25-50%  50-75%  75-90%  90-100%

Mission Follow up:

14) Does your mission participate in follow up care?
    YES  NO

   If yes, please complete questions 15- 22. If no, please go to question 23.

15) On average, how many days of follow up care did you provide to each patient?
    ______days.

16) Is the level of follow-up data sufficient to accurately evaluate the impact of the mission?
    YES  NO

17) Does the mission routinely review outcomes and use them to inform subsequent mission?
    YES  NO

18) What percentage of patients returned to clinic with a problem or complaint that was due to the actions of the mission (adverse drug reaction, surgical wound infection)
    0-5%  5-15%  15-25%  25-50%  50-100%  DO NOT KNOW
19) Were there any fatal negative patient outcomes?
   YES    NO    DO NOT KNOW

20) Is there a system in place to collect morbidity and mortality data? If yes, please describe briefly.
   YES    NO    DO NOT KNOW

21) Is there a system in place for review of morbidity and mortality data?
   YES    NO    DO NOT KNOW

22) Has the morbidity and the mortality data improved from year to year?
   YES    NO    N/A

23) How many patients were cared for over the course of the mission?
   __________ patients

24) If this mission has been to this location before, has the number of patients cared for per mission increased or decreased from year to year?
   INCREASED    STABLE    DECREASED

25) Which of the following limited the total number of patients treated? Please circle all that apply.
   o Cost
   o Personnel
   o Time
   o Efficiency
   o Preparedness
   o Individual or Self Imposed
   o Supplies
   o Space
   o Environmental (rain, flooding)
   o Other ______________

26) Is a formal staffing plan used to determine team membership?
   YES    NO

27) Did the mission have all the necessary personnel?
   YES    NO

28) What percentage of participants are essential personnel? For example: health care providers, interpreters. Please list (on the back of this page) the team participants and their role.
   0-25%    25-50%    50-75%    75-90    90-100%

29) Does the mission have a process for credentialing the participants?
   YES    NO

30) How many separate services does your mission provide? (A service is defined as a branch of medical or dental specialty). Please list:

31) Is there a system in place to track medical supplies and medications used?  
   YES   NO

32) Are any specific resources chronically in short supply?  
   YES   NO  
   If yes, please list____________________

33) Care was negatively affected by resource limitations (for example: lack of medical supplies, medications, or examination space).  
   Completely Disagree---------------------Completely Agree
   1   2   3   4   5

34) Does an orientation session take place prior to each mission? Please provide a copy of any orientation materials provided.  
   YES   NO

35) Are issues of cultural awareness integrated into the orientation session?  
   YES   NO

36) Did any adverse events such as accidents or injury to participants take place during the mission?  
   YES   NO

37) Were you well prepared to handle those events? If no, please explain why not?  
   YES   NO

38) Does the mission have a safety strategy/evacuation plan in place to act quickly and efficiently in case of an emergency?  
   YES   NO

39) Is there a system in place for measuring the language proficiency of the team in the native language of the recipient patients?  
   YES   NO

40) What percentage of patient and local provider education is performed in the native language?  
   0-15%  15-25%  25-50%  50-75%  75-100%

41) Is the host country ministry of health aware of your mission? If not, please explain.  
   YES   NO

42) Did you receive approval from the countries licensing board to bring these health care providers in country?  
   YES   NO
43) How was the mission publicized? Please circle all that apply.
  - Word of mouth
  - Signage/flyers
  - Radio
  - Health Care Providers
  - Other _______________________

44) Do you triage patients?
    YES  NO

45) If not, how do you determine which patients receive care?

46) Is there a system in place for referring patients to a local specialist, health facility, or other mission if required?
    YES  NO

47) If no, have any steps been taken to set up a referral network?
    YES  NO

48) It is easy to refer a patient to a local specialist, health facility, or other mission for treatment and follow up.
    Completely Disagree-----------------Completely Agree
    1  2  3  4  5

49) Were any patients referred?
    YES  NO

    If yes, how many?_______________

50) Please categorize how participants spend their time during the mission in terms of the following activities (should add up to 100%).
  - Patient Care
  - Patient Health Education
  - Education of Local Health Care Providers
  - Administrative/Logistical Duties
  - Team Building (social hours, discussions, etc.)
  - Religious or social activities in the community
  - “Down time” (rest, sleep, tourism, etc.)

  %  %  %  %  %  %

51) What is the average amount of time that patients wait for care?
    _______________ hours
52) A. There is a communication system in place for intra-team communication?
   YES  NO  DO NOT KNOW

   B. If yes, the communications system in place for intra-team communication is efficient.
      Completely Disagree-------------------Completely Agree
                     1      2      3      4      5

53) A. There is a communication system in place for communication between mission participants and local host?
   YES  NO  DO NOT KNOW

   B. If yes, the communications system in place for mission/host communication is efficient.
      Completely Disagree-------------------Completely Agree
                     1      2      3      4      5

54) Is there a system in place for communication with other missions in the same geographical area of practice?
   YES  NO

55) Were there any complaints about the logistical organization of the mission from the participants or host?
   YES  NO  DO NOT KNOW

56) Is there a system in place for providing patient health education while the patients are not receiving direct health care services?
   YES  NO

57) Does an educational curriculum exist?
   YES  NO

58) Were the materials available for patient health education sufficient to achieve educational goals, if that is part of your mission statement?
   YES  NO

59) Education provided by the mission impacted the health awareness of the patient population.
   Completely Disagree-------------------Completely Agree
                     1      2      3      4      5

60) Is there a system in place for training local health care providers?
   YES  NO

61) Do opportunities exist for local providers to train mission providers?
   YES  NO
62) Does a curriculum exist for either of the above training opportunities?
    YES  NO

63) Were the materials available for training local health care providers sufficient?
    YES  NO

64) Education provided by the mission positively impacted the level of care delivered by local health care providers.
    Completely Disagree ------------------- Completely Agree

65) Is sustainable improvement and eventual independence of the host a goal of the mission's effort at training local health care providers?
    YES  NO

66) Is it one of the goals of the mission to train residents and students?
    YES  NO

67) Does a curriculum exist?
    YES  NO

68) In terms of providing care to patients, are residents and students held to the same standards as in their country of origin?
    YES  NO

69) What is the total cost or budget for your organization for this mission?
    ___________ USD (specify if other currency)

70) Based solely on the current financial situation of your organization and the cost of this mission, approximately how many years will the mission be sustainable?
    >1year  >5years  >10years

71) What is the average cost per patient?
    ___________ USD (specify if other currency)

72) What measures were taken to reduce per patient costs? Please list.

73) Does an expected budget exist for each mission?
    YES  NO

74) Was the actual cost for the mission less than or equal to the expected budget calculated prior to the mission?
    YES  NO

75) It was easy to accurately answer the previous six questions?
    Completely Disagree ------------------- Completely Agree

    1  2  3  4  5
76) Does the mission keep records on every patient treated by the mission?
   YES  NO

77) Are they paper based?
   YES  NO

78) Are they electronic?
   YES  NO

79) Are they easily accessible?
   YES  NO

80) Can they be transferred to the patient’s home health care provider?
   YES  NO

81) Is the outcome of each treatment contained in his/her records?
   YES  NO

82) Are records from previous missions available to be used in preparation for future missions?
   YES  NO

83) Is there a system in place for keeping accurate records of the educational efforts of the mission?
   YES  NO

84) If building a sustainable healthcare system in country is a goal of this mission, does an exist strategy exist for the mission?
   YES  NO  NOT A GOAL OF THE MISSION (N/A)

85) Have factors been identified to determine implementation of the exit strategy?
   YES  NO

86) Has a “mission statement” or some other statement of purpose or goals been composed for the mission?
   YES  NO

87) Have criteria been established for judging the success of the mission?
   YES  NO

88) Do you ask in country host for suggestions for improvement?
   YES  NO
89) Do you have a method of evaluating and integrating these suggestions into practice?
   YES   NO

90) Do you have any suggestions for improving this mission?

91) Do you have any additional comments about the mission or this survey?

Thank you,
Host/Local Provider/ Regional Health Official Survey (3)

1) Please indicate the type(s) of care this mission provided.
   Surgical   Dental   Medical   Pediatric   Other _____________

2) Did local health care providers collaborate with the mission doctors/nurses?
   YES   NO

3) Was training provided?
   YES   NO

If training for local health care professionals was provided by the mission doctors/nurses, please describe your degree of satisfaction with it in questions 4 and 5:

4) The mission doctors/nurses taught local doctors/nurses useful new skills.
   Completely Disagree----------------Complete Agree
   1 2 3 4 5

5) The care local doctors/nurses provide as a result of this training is better than before.
   Completely Disagree----------------Complete Agree
   1 2 3 4 5

6) There is good host-mission communication.
   Completely Disagree----------------Complete Agree
   1 2 3 4 5

7) The host and local health care providers were well integrated into the mission team.
   Completely Disagree----------------Complete Agree
   1 2 3 4 5

8) Did you have any complaints about the organization (communication, travel arrangements, etc.) of the mission?
   YES   NO (if YES please explain)

9) Did the mission provide follow up care?
   YES   NO   DO NOT KNOW

10) If you responded yes (Question 9), on average, how many days of follow-up care are provided to each patient?
    _______ days

11) Is data collected about the clinical outcomes of patients?
    YES   NO
12) Do you feel that the data collected is sufficient to evaluate the care provided by the mission?

YES  NO

13) What percentage of patients returned to local health care facilities with a problem or complaint that was due to the actions of the mission (adverse drug reaction, surgical wound infection, etc.)?

0-5%  5-15%  15-25%  25-50%  50-75%  75-100%

14) As host for this mission, was there any associated costs provided by you or the community for this mission?

YES  NO  DO NOT KNOW

15) If you responded YES (Question 14) consider the following: Given the cost faced by the host for this mission, for how many years will the mission be sustainable at this site?

>1 year  >5 years  >10 years

16) Would you like the mission to return for another visit?

YES  NO

17) Your overall experience with this mission was positive.

Completely Disagree-------------------Completely Agree

1  2  3  4  5

18) Do you have any suggestions for improving this mission?

19) Do you have any additional comments about the mission or this survey?
Anfitrion/proveedor local (3)

Encuesta de anfitrion/proveedor local

1) Favor indicar el tipo de cuidados que brindo esta mision:
   quirurgico    dental    medico    pediatrico    otros

2) Estuvieron presentes y en colaboracion proveedores de salud locales con la mision de doctores/enfermeras?
   si    no

3) Fue otorgado entrenamiento?
   si    no

Si la mision de doctores/enfermeras colaboro con entrenamiento para los profesionales de salud locales, favor describa su grado de satisfaccion con dicho entrenamiento en las preguntas 4 y 5:

4) La mision de doctores/enfermeras enseñaron a los medicos locales habilidades nuevas y utiles.
   Completamente en desacuerdo----------------completamente de acuerdo
   1    2    3    4    5

5) El servicio de salud proporcionado por medicos/enfermeras locales es mejor debido a este entrenamiento.
   Completamente en desacuerdo----------------completamente de acuerdo
   1    2    3    4    5

6) Existe buena comunicacion entre anfitrion y la mision.
   Completamente en desacuerdo----------------completamente de acuerdo
   1    2    3    4    5
7) El anfitrion y los proveedores de salud local estaban bien integrados con el equipo de la mision.

*Completamente en desacuerdo*-----------------*completamente de acuerdo*

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<th>4</th>
<th>5</th>
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</thead>
</table>

8) Tuvo alguna queja sobre la organización (comunicacion, arreglos de viaje etc.) De la mision?
   si   no (si su respuesta fue si por favor explique)

9) Se encargo la misión de dar seguimiento a los pacientes?
   Si   no   no lo se

10) Si su respuesta es si, en promedio, cuantos dias de seguimiento se les da a cada paciente?
     ______ dias

11) Se recolecta y archiva informacion sobre los resultados de cada paciente?
    si   no

12) Siente usted que la informacion recolectada y archivada es suficiente para evaluar el servicio proporcionado por la mision?
    si   no

13) Que porcentaje de pacientes regresaron a una clinica de servicios de salud debido a un problema o queja cuyas consecuencias se debieran a las acciones de la mision (reacciones contrarias a los medicamentos, infeccion en heridas quirurjicas etc.)?
    0-5%  5-15%  15-25%  25-50%  50-100%

14) como anfitrión de esta misión, hubo algún costo enfrentado por usted o por la comunidad para efectuar la misión?
   si   no   no lo se

15) Si respondió si a la pregunta 14, analice lo siguiente; dado el costo enfrentado por el anfitrion de esta mision, por cuantos años sera sostenible esta mision en esta area?
   >1 años   >5 años   >10 años
16) Le gustaría que la misión regresase para otra visita?
si no

17) Su experiencia en general con esta misión fue positiva.

*Completamente en desacuerdo*-----------------*completamente de acuerdo*

1 2 3 4 5

18) Tiene alguna sugerencia para poder mejorar esta misión?

19) Tiene algún comentario adicional sobre la misión o la encuesta? Su información es muy agradecida por nosotros.
Mission Personnel Survey (4)

1. What type of health care services are you providing? Circle all that apply.
   - Medical
   - Surgical
   - Ophthalmology
   - Dental
   - Other __________________________

2. What is your professional affiliation with this mission? Circle the response which best suits your role.
   - Physician
   - Nurse
   - Dentist
   - Pharmacist
   - Support volunteer
   - Other __________________________

3. How many missions have you participated in?
   ________________ mission(s).

4. How many missions have you participated in with this organization?
   ________________ mission(s).

5. An orientation meeting and orientation efforts (handouts, emails) were offered?
   YES  NO

6. This orientation meeting and orientation efforts of the mission were well organized and of high quality.
   Completely Disagree-----------------Completely Agree
   1  2  3  4  5

7. Were there any complaints about the logistical organization of the mission? If Yes, please provide comments on question 32.
   YES  NO

8. Did the mission have all the necessary personnel? If No, please provide comments on question 32.
   YES  NO
9. Care was negatively affected by resource limitations (For example: lack of medical supplies, clinical space for examination, lighting).

   Completely Disagree-------------------Completely Agree
   1     2     3     4     5

10. A. There was a communication system in place for intra-team communication?
    YES    NO    DO NOT KNOW

    B. If yes, the communications system in place for intra-team communication is efficient.

   Completely Disagree-------------------Completely Agree
   1     2     3     4     5

    C. If yes, the communications system in place for intra-team communication is beneficial to the mission.

   Completely Disagree-------------------Completely Agree
   1     2     3     4     5

11. Mission participants time was spent efficiently during the mission?

    Completely Disagree-------------------Completely Agree
    1     2     3     4     5

12. Please indicate what percentage of your time was spent on the following activities during the mission. This should add up to 100%.

   - Patient Care
   - Patient Health Education
   - Education of Local Health Care Providers
   - Administrative/Logistical Duties
   - Team Building (social hours, discussions, etc.)
   - Religious activities in the community
   - “Down time” (rest, sleep, tourism, etc.)

   o                  %
   o                  %
   o                  %
   o                  %
   o                  %
   o                  %
   o                  %

13. What percentage of diagnoses were based solely on the clinical presentation of the patient as opposed to lab data or medical records? Circle the best response.

   0-15%  15-25%  25-50%  50-75%  75-100%

14. On average, how long was the diagnostic portion of the average patient visit?

   <5 min  5-10 min  10-15 min  >15 min
Mission Follow up:

15. Does your mission participate in follow up care?
   YES  NO

If yes, please complete questions 16-20. If no, please go to question 21.

16. On average, how many days of follow up care did you provide to each patient?
   _______ days.

17. Is there a method to track the post care health outcomes of your patients after he or she leaves the mission?
   YES  NO  DO NOT KNOW

18. Do you believe the level of follow up care is sufficient to accurately evaluate the impact of this mission on its patients?
   YES  NO

19. What percentage of patients returned to the clinic with a problem or complain that was likely due to the actions of the mission? (adverse drug reaction, surgical wound infection)
   0-5%  5-15%  15-25%  25-50%  50-100%  DO NOT KNOW

20. Is it easy to refer a patient to a local specialist, health care provider, regional hospital or other mission for treatment or follow up?
   Completely Disagree-----------------Completely Agree
   1  2  3  4  5

21. The interpreter services available during the mission are adequate to maintain a high level of care.
   Completely Disagree-----------------Completely Agree
   1  2  3  4  5
   o  No interpreter services were required

22. Please rank your ability to speak the native language of the patients. Circle the best response:
   o  Basic (greetings, salutations, moderate understanding)
   o  Conversational (basic phrases and tenses, good understanding)
   o  Proficient (expert, idiomatic phrases, excellent understanding)
   o  Fluent (effortless expression, complete understanding)

23. Greater language proficiency would have increased your personal productivity.
   Completely Disagree-----------------Completely Agree
   1  2  3  4  5
24. Please rate your knowledge of local culture before this mission. Please circle.
   o I knew nothing about the culture.
   o I knew a little about the culture.
   o I was average in my knowledge.
   o I was very comfortable with my knowledge.
   o I know the culture as well as if it were my own.

25. Greater cultural awareness would have improved the quality of care provided.
    Completely Disagree-------------------Completely Agree
    1  2  3  4  5

26. If teaching is part of your mission’s goals, the educational resources available to you were satisfactory.
    Completely Disagree-------------------Completely Agree
    1  2  3  4  5

27. If you are a resident or student, do you feel the educational experience provided by the mission positively impacted the level of care you delivered or will deliver.
    Completely Disagree-------------------Completely Agree
    1  2  3  4  5

28. If you are a resident or student, do you feel the mission impacted how you think of your future career or patient-doctor or patient-nurse relationship.
    Completely Disagree-------------------Completely Agree
    1  2  3  4  5

29. Your overall experience with the mission was positive.
    Completely Disagree-------------------Completely Agree
    1  2  3  4  5

30. How much money did you pay to participate in this mission experience?
    _________________________dollars

31. Did you collect donations to support your personal/individual expenses?
    YES  NO

32. Do you have any additional comments about the mission or this survey? Your feedback is appreciated

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Thank you
Mission Personnel – Spanish

Proveedor de servicios de salud (4)

Encuesta del personal de la misión

1. Que tipo de servicios de salud están proveendo? Circule las que aplican.
   - Servicios médicos
   - Quirúrgico
   - Oftalmológico
   - Dental
   - Otros ______________________

2. Cual es su afiliación profesional con la misión? Circule la respuesta que mejor le identifique.
   - médico
   - enfermera
   - dentista
   - farmacéutico
   - voluntario
   - otros ______________________

3. En cuantas misiones ha participado?
   ______________________misión(es).

4. En cuantas misiones ha participado con esta organización?
   ______________________misión (es).

5. Se ofreció algún tipo de orientación y esfuerzo de orientación? (correos, panfletos etc.)
   - si
   - no

6. La orientación y esfuerzos de orientación estuvieron bien organizados y de alta calidad.

Completamente en desacuerdo-----------------completamente de acuerdo

1  2  3  4  5

7. Hubieron quejas sobre la organización logística de esta misión? Si su respuesta es si favor escriba sus comentarios en la pregunta #32.
   - si
   - no
8. La mision tuvo todo el personal necesario? Si no es asi favor escriba sus comentarios en la pregunta 32.
   si   no

9. Los servicios de salud fueron afectados negativamente por limitaciones de recursos (por ejemplo: falta de material medico, falta de espacio para examinacion, alumbrado etc.)

Completemente en desacuerdo-----------------completamente de acuerdo

1  2  3  4  5

10. a. Hubo algun sistema de comunicacion interno entre el equipo de la mision?
    si   no   desconozco esto

b. Si existe, el sistema interno del equipo de la mision era eficiente.

Completemente en desacuerdo-----------------completamente de acuerdo

1  2  3  4  5

c. Si existe, el sistema interino del equipo de la mision es beneficioso para la mision?

Completemente en desacuerdo-----------------completamente de acuerdo

1  2  3  4  5

11. El tiempo de los participantes de la mision fue consumido eficientemente durante la mision?

Completemente en desacuerdo-----------------completamente de acuerdo

1  2  3  4  5
12. Favor indique que porcentaje de su tiempo fue consumido en las siguientes actividades durante la mision. Este debe de sumar a 100%.
   o Cuidado de paciente
     __________%
   o Salud educacional de paciente
     __________%
   o Educacion de proveedores de salud locales
     __________%
   o Deberes administrativos/logisticos
     __________%
   o Fortalecimiento de equipo (horas sociales, discusiones etc.)
     __________%
   o Actividades religiosas en la comunidad
     __________%
   o “tiempo de descanso” (dormer, turismo etc.)
     __________%

13. Qué porcentaje de diagnosticos fueron hechos basados en la presentacion clinica del paciente opuesto a resultados de laboratorio e historial médico? Circule la mejor respuesta.
   0-15%  15-25%  25-50%  50-75%  75-100%

14. En promedio, cuanto tiempo tomo hacer un diagnóstico de cada visita de paciente?
   <5 min  5-10 min  10-15 min  >15 min

Seguimiento de la mision:

15. Participo su mision en algun tipo de cuidado de seguimiento?
   si  no

Si es asi, favor completar preguntas 16-20. De lo contrario favor seguir a la pregunta 21.

16. En promedio, cuantos dias de seguimiento se le dio a cada paciente?
   ________días.

17. Existe algun metodo para localizar los resultados post-cuidado de los pacientes despues de que hayan abandonado la mision?
   si  no  no lo se

18. Usted cree que el nivel de seguimiento sea suficiente para evaluar adecuadamente el impacto de esta mision en sus pacientes?
   si  no
19. Que porcentaje de pacientes regresan a la clinica con un problema o queja que haya sido provocado debido a las acciones de la mision? (reacciones adversas a las medicinas, infecciones en heridad quirurgicas etc.)

0-5% 5-15% 15-25% 25-50% 50-100% no lo se

20. Es facil referir a un paciente a un especialista local, proveedor de salud, hospital regional o alguna otra mision para tratamiento o seguimiento?

completamente en desacuerdo-----------------completamente de acuerdo

1 2 3 4 5

21. Los servicios de intérprete disponibles durante la mision son adecuados para mantener un nivel alto de cuidados.

Completamente en desacuerdo----------------completamente de acuerdo

1 2 3 4 5

o Servicios de interpretas no fueron necesarios

22. Favor auto evaluate su habilidad para hablar la lengua natal de los pacientes. Circule la mejor respuesta:

o Basico (saludos, entendimiento moderado)
o Conversacional (frases basicas y tiempos, buen entendimiento)
o Pro eficiente (experto, frases idiomaticas, entendimiento excelente)
o Fluido (expresion sin problema ni esfuerzo, entendimiento completo)

23. Una pro eficiencia del lenguaje hubiera incrementado su productividad personal.

Completamente en desacuerdo----------------completamente de acuerdo

1 2 3 4 5
24. Por favor califique su conocimiento de cultura local antes de esta misión. Favor circular.

- No conocía nada sobre la cultura.
- Conocía un poco sobre la cultura.
- Tenía un conocimiento promedio.
- Estaba muy cómodo con mi conocimiento.
- Conozco la cultura como si fuera la mía.

25. Un mejor conocimiento cultural hubiera mejorado la calidad de los cuidados.

*Completamente en desacuerdo*---------------*completamente de acuerdo*

1 2 3 4 5

26. Si la enseñanza es parte de la meta de la misión, fueron satisfactorios los recursos educacionales de la misión.

*Completamente en desacuerdo*---------------*completamente de acuerdo*

1 2 3 4 5

27. Si usted es un residente o estudiante, usted siente que la experiencia educacional de la misión impactó positivamente el nivel del cuidado impartido o por impartir.

*Completamente en desacuerdo*---------------*completamente de acuerdo*

1 2 3 4 5

28. Si usted es un residente o estudiante, usted siente que la misión impactó su manera de pensar sobre su futura carrera o la relación paciente-doctor-paciente-enfermera.

*Completamente en desacuerdo*---------------*completamente de acuerdo*

1 2 3 4 5

29. En general su experiencia con la misión fue positiva.

*Completamente en desacuerdo*---------------*completamente de acuerdo*

1 2 3 4 5

30. Cuánto dinero pagó usted por ser parte y participar en esta experiencia de misión.

_________________________ dolares

31. Recaudo donaciones para poder financiar sus gastos personales/individuales?

- sí  
- no

32. Tiene alguna sugerencia para poder mejorar esta misión? Su información es muy agradecida por nosotros.

Muchas gracias,
Client Survey Follow up visit (5)

1) What medical or health problem were you dealing with at the mission?

2) Did you receive medical treatment for this problem (For example drugs, procedure, test?)

3) Did you receive education for this problem?

4) How many times have you visited missions from this organization?

5) How many times have you visited missions from another organization?

6) How often do you see a doctor or nurse (Circle who they see).
   - Less than 1/year
   - 1-2 times/year
   - 6 times/year
   - monthly

7) Approximately how long did you wait for care on the day of the mission? ________ hours.

8) Did the doctors/nurses use an interpreter to communicate with you?
   - YES
   - NO

9) How well did you understand what the doctors/nurses/interpreters told you?
   - Poor
   - Average
   - Excellent

10) What did the mission teach you about your health?

11) Do you understand how to care for this problem in the future?

12) Will you be able to follow the advice of the doctors/nurses?
   - YES
   - NO
   - DID NOT UNDERSTAND

13) Did you have access to another health care provider in case of a complication? Please explain.

14) Did you have any follow up such as a test, procedure or consultation with a local health care provider or the public hospital? Please explain.
15) How did you hear about the mission?
   Word of mouth
   Sign/flyer
   Radio
   Health care provider
   Community health care worker

16) Were you required to pay anything for mission services?
   YES   NO

17) If yes, how much?____________________

18) If yes, will this affect your living conditions in any way? (Explain)

19) Please rate the overall experience with the mission?
   Poor     Average     Excellent

20) Do you have any suggestions for improving the mission?

21) Do you have any additional comments about the mission or this survey? Your feedback is appreciated.
Client Survey – (Spanish)

Seguimiento de paciente (5)
Encuesta del paciente – visita de seguimiento

1) Que problema medico o de salud presentaba usted en la mision?

2) Recibio usted tratamiento medico (medicinas, tratamientos, procedimientos, examenes) para este problema?

3) Recibio usted salud educacional para este problema?

4) Cuantas veces ha visitado misiones para esta mision?

5) Cuantas veces ha visitado misiones para otras organizaciones?

6) Cada cuanto visita a un medico o enfermera (circule a quien visitan).
   Menos de un año 1-2 veces/año 6 veces/año mensual

7) Aproximadamente cuanto espero para ser atendido el dia de la mision?
   ______________ horas.

8) Usaron los medicos/enfermeras un interprete para comunicarse con usted?
   si     no

9) Que tan bien entendio lo que los medicos/enfermeras/interpretes le dijeron?
   mal     promedio    excelente

10) Que le enseño la mision sobre su salud?

11) Entiende como cuidarse ante ese problema en el futuro?

12) Podra usted seguir el consejo de los (as) doctores/enfermeras?
    si     no     no entendí

13) Tuvo usted acceso a otro proveedor de salud en caso de complicacion?

   Favor explique.

14) Tuvo algun tipo de seguimiento como ser un examen, procedimiento o consulta con un proveedor de salud local o hospital publico?

   Favor explique.
15) Como escucho sobre la mision? how did you hear about the mission?
   - boca de otro
   - rotulos
   - radio
   - proveedor de salud
   - tabajador comunitario de salud

16) Se le pidio que pagara para obtener los servicios de la mision?
   - si
   - no

17) Si es asi, cuanto?

18) Si es asi, afecta esto sus condiciones de vida de alguna manera (explique)

19) Por favor califique en general la experiencia con esta mision?
   - mala
   - promedio
   - excelente

20) Tiene alguna sugerencia para mejorar la mision?

21) Tiene algún comentario adicional sobre la misión o la encuesta? Su informacion es muy agradecida por nosotros.
Appendix L: (New) Client Referral Sheet (Hoja de Referencia) and Client Information Form

NAME/NOMBRE:

________________________________________________________

COMMUNITY/COMUNIDAD:

________________________________________________________

________________________________________________________

CONTACT INFO/TELEFONO:

________________________________________________________

________________________________________________________

HOSPITAL REFERRED TO/REMITIDO A HOSPITAL:

________________________________________________________

________________________________________________________

PRIMARY HEALTH CLINIC REFERRED TO/REMITIDO A CESAR O CESAMO:

________________________________________________________

________________________________________________________

REFERRED FOR/REMISION POR:

________________________________________________________

________________________________________________________

________________________________________________________

ATTENDED BY/ATENDIDO POR:
Familia / Family

PATIENT INFORMATION SHEET

Name/Nombre: ____________________________
Date/Fecha: __________ Age/Edad ______ Sex/Sexo ______
Community/Comunidad: ____________________________

When did you last visit a doctor?/ Cuando fue la última vez que visitó un médico/enfermera? ________________________________
Days/Días ______ Weeks/Semanas ______ Months/Meses ______ Years/Años ______
Where/Adonde? ______________________________________

How did you get here today? ¿Cómo llegó aquí el día de hoy? by foot / a pie ________________________________
Public transportation / transporte público ______ Personal Vehicle / Carro particular __________________
Education Level? / Nivel Educativo: ☐ Primary/Primaria ☐ High School/Bachiller ☐ University/Universidad
Ingreso Mensual / Monthly Income? ☐ más de $5,000.00 ☐ más de $7,000.00 ☐ más de $10,000.00
Allergic to medicines / Alérgico(a) a alguna medicina: Yes/sí ☐ No ☐
Current medication / Medicinas que está tomando:______________________________________________

Breastfeeding/Dando pecho: Yes/sí ☐ No ☐
Pregnant/Embarazada: Yes/sí ☐ No ☐

Height/Estatura: __________ Weight/Peso: __________ Temperature/Temperatura: __________
Blood Pressure/Presión Arterial: __________ Pulse/Pulso: __________ Respirationes: __________

Chief Complaint/Queja Principal: ____________________________________________________________

Cronic Problem?/Problema crónico ____________________________________________________________

Diagnostico: ____________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________
Treatment/Tratamiento:

☐ Vitamins / Vitaminas
☐ Acetaminophen/Acetaminofen
☐ Antacid/Antiácido
☐ Topical/Topico
☐ Ibuprofen
☐ Albendazole
☐ Antibiotic / Antibioticos
    Other/Otros: ___________________________
    ___________________________
    ___________________________
    ___________________________
    ___________________________
    ___________________________

Health Education: ___________________________
    ___________________________
    ___________________________
    ___________________________
    ___________________________
    ___________________________
    ___________________________

Referral/Remisión:

Group: ___________________________
    Signature / Firma
Appendix M Community Member Interview Guide

Introduction:

Hi my name is Patti and I’m a doctoral nursing student from Canada who is interested in knowing more about what you think about short-term medical missions that arrive in your village. Would you be interested in having a short conversation with me about the mission coming to your village in February? You do not have to agree to participate, but if you do, I would like to have your verbal permission.

Before the Interview:

Thank you for agreeing to participate in this short conversation. I want to remind you that this is voluntary and you can refuse to answer or elaborate on any of the questions. To help protect who you are, I will not ask you to reveal your full name.

Questions:

The following questions are semi-structured, but may deviate to more of a conversational interview, which is spontaneous, depending on the conversation:

1. Did you know about the medical mission coming to your village in February?
2. If yes,
   a. How did you hear about the medical mission?
   b. What did you hear about it?
   c. What types of services do you expect that mission will provide? (Use health care services as a secondary prompt)
   d. In your opinion, what are the current, health care needs for your village?
   e. Have you had other experiences with other missions coming to your village?
3. If no,
   a. In your opinion, what are the current health care needs for your village?
Appendix N  Study Information Sheet/Consent(s)

Date:

Study Information Sheet/ Consent

(Mission Director/ Team Leader/Mission Personnel/Host/Regional Health Officials)

Title of the Research Study: Non-Governmental Organizations (NGOs) Impact on Health Care Services in Rural Honduras: Evaluating a Short–Term Medical Mission Utilizing a Case Study Approach

Principle Investigator:

Patti Tracey, RN, BScN, MHS, PhD candidate, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto, Honduras (504)97701434; Canada (705) 750-5782

You are being invited to take part in a research study. Before agreeing to participate in this study, it is important that you read and understand the following explanation of the proposed study. The following information describes the purpose of the study, procedures, benefits and risks of the study. It also describes your right to refuse to participate or withdraw from the study at any time. In order to decide whether you wish to participate in this research study, you should understand enough to be able to make an informed decision. This is called informed consent. Please ask the investigator to explain any words you don’t understand before signing this informed consent. Make sure all of your questions have been answered to your satisfaction before signing the document.

My supervisor is Professor Carles Muntaner of the Faculty of Nursing at the University of Toronto.

Purpose of the research:

The purpose of this study is to evaluate the impact of a 12-day Short-Term Medical Mission (STMM) on health care services in 8 villages in the rural region of Gracias a Dios, Honduras. Information will be gathered from 5 groups of stakeholders. Community members, Clients receiving services, Honduran Health Care Providers, Regional Health Officials and Canadian Health Care Providers.

The main objective of this study is to contribute to a broader understanding of the processes and impact of STMMs. The outcomes and subsequent discussion will service as a guide for STMMs by disclosing the perspectives and expectations of what the mission stakeholders themselves, along with the clients perceptions to be the benefits, challenges and risks inherent in service provision. Findings from this study may offer baseline data and evaluation methods for future studies.

When and where will the study take place:
The study will take place pre, during and in follow up (post) the February 13, 2014 Short-Term Medical Mission at a scheduled time that is convenient for the participants during the day or evening on any day of the week.

**Participation:**

Your participation in this study is voluntary. It is important you understand that if you change your mind and withdraw from the study at any time, you may simply inform the investigator. There will be no negative consequences whatsoever. Your work with the mission will not be affected in any way by participating in this study, and if you decide not to participate, **it will not affect your work now or in the future. You** will be given a survey questionnaire to complete in writing. You may decline to answer any question or participate in any part of the survey. The questionnaire will take you approximately 15 minutes to complete. The Team Leader questionnaire will take approximately 45 minutes to complete.

**Potential Risks, Benefits and Inconveniences:**

You will not benefit personally from participating in this study. You may find it enjoyable and helpful to share your experiences and may develop a better understanding of how a short term medical mission (STMMs) is implemented. Your contribution may increase awareness of how you might better support the work of STMMs. Although there are no obvious harms associated with taking part in this study, participating will involve some of your time, and may inconvenience you. The level of risk related to your participation is minimal. The benefits are that your participation provides feedback and is valued by the mission and Friends of Honduran Children. It will contribute to the development of knowledge and evaluation of future STMMs.

**Confidentiality:**

Every effort will be made to safeguard your privacy. Your name will never be used and in order to preserve complete anonymity, a random number will be assigned to you for identification purposes. This number will be on the questionnaire. All questionnaires and related field notes will be kept on a secure computer and access to the computer will be secured by use of specific passwords known only to the researcher. The data collected will be kept in a locked briefcase while in Honduras and subsequently in a locked filing cabinet at the researcher’s office at the Faculty of Nursing at the University of Toronto. Following transcription the questionnaires will be destroyed.

A summary of the research results will be made available to all participants. Any information that you personally shared that you wish to have taken out, will be removed from the analyses.
What will this information be used for:

The results will be written up in professional journals and presentation at professional meetings or conferences. This will take place at the end of the study. Your participation is important in furthering our understanding about the processes and impact of STMMs.

Questions:

If you have any general questions about the study, please contact the principal investigator, Patti Tracey, Honduras (504)97701434; Canada (705) 750-5782. If you have any questions about your rights as a research participant in my research study, you can contact the Office of Research Ethics at ethics.review@utoronto.ca or call 416-946-3273.

Thank you for your interest in this study. Please keep this information letter for your records.

Consent:

I acknowledge that the research procedures described above have been explained to me and that any questions that I have asked have been answered to my satisfaction. I have been informed of the alternatives to participation in this study, including the right not to participate and the right to withdraw without compromising my role on the STMMs, or at any time in the future. I have been informed that I reserve the right to refuse to answer questions posed in the survey questionnaire. In addition, the potential harms and discomforts have been explained to me and I also understand the benefits of participating in the research study. I know that I may ask now, or in the future, any questions I have about the study or research procedures. I have been assured that all information pertaining to me will be kept strictly confidential and no information will be released or published that would disclose my personal identity.

Signature:

I acknowledge that I have been provided with a copy of this consent form and description of the study. Having thoroughly read, understood and have full explanation of this consent form, I voluntarily consent to participate in this research study.

Name of Participant   Signature of Participant   Date

I confirm I have explained the nature and purpose of the study to the subject named above. I have answered all questions.

Name of Investigator   Signature   Date
Date: Study Information Sheet/ Consent

Community Members and Clients

Title of the Research Study: Non-Governmental Organizations (NGOs) Impact on Health Care Services in Rural Honduras: Evaluating a Short–Term Medical Mission Utilizing a Case Study Approach

Principle Investigator:

Patti Tracey, RN, BScN, MHS, PhD candidate, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto, Honduras (504)97701434; Canada (705) 750-5782

You are being invited to take part in a research study. Before agreeing to participate in this study, it is important that you understand the following explanation of this study. The following information describes the purpose of the study, procedures, benefits and risks of the study. It also describes your right to refuse to participate or withdraw from the study at any time. In order to decide whether you wish to participate in this research study, you should understand enough to be able to make an informed decision. This is called informed consent. Please ask the investigator to explain any words you don’t understand before signing this informed consent. Make sure all of your questions have been answered to your satisfaction before signing the document.

My supervisor is Professor Carles Muntaner of the Faculty of Nursing at the University of Toronto.

Purpose of the research:

The purpose of this study is to evaluate the impact of a 12-day Short-Term Medical Mission (STMM) on health care services in 8 villages in the rural region of Gracias a Dios, Honduras. Information will be gathered from 5 different groups of people. Community members, Clients receiving services, Honduran Health Care Providers, Regional Health Officials and Canadian Health Care Providers.

The main objective of this study is to contribute to a broader understanding of the processes and impact of STMMs. The results and discussion will service as a guide for STMMs by disclosing the perspectives and expectations of what the mission workers themselves, along with the clients perceptions to be the benefits, challenges and risks inherent in health services. Findings from this study may offer information and evaluation tools for future studies.
When and where will the study take place:

The study will take place pre, during and in follow up (post) the February 13, 2014 Short-Term Medical Mission at a scheduled time that is convenient for the participants during the day or evening on any day of the week.

Participation:

Your participation is this study is voluntary. It is important you understand that if you change your mind and withdraw from the study at any time, you may simply inform the investigator. There will be no negative consequences whatsoever. Your services with the mission will not be affected in any way by participating in this study, and if you decide not to participate, it will not affect your care or services. You will be given asked several questions, similar to an interview. The principle investigator will ask the questions with the help of an interpreter. These interviews will be audio-recorded so we will not miss any of the information that was discussed. You may decline to answer any question or participate in any part of the study. The interview will take you approximately 15-20 minutes to complete.

Potential Risks, Benefits and Inconveniences:

You will not benefit personally from participating in this study. You may find it enjoyable and helpful to share your experiences and may develop a better understanding of how a short term medical mission (STMMs) works. Your contribution may increase awareness of how STMMs can better support the needs of your village. Although there are no obvious harms associated with taking part in this study, participating will involve some of your time, and may inconvenience you. The level of risk related to your participation is minimal. The benefits are that your participation provides feedback and is valued by the mission and Friends of Honduran Children, Canada. It will contribute to the development of knowledge and evaluation of similar mission work.

Confidentiality:

Every effort will be made to safeguard your privacy. Your name will never be used and in order to preserve complete anonymity, a random number will be assigned to you for identification purposes. This number will be on the questionnaire. All questionnaires and related field notes will be kept on a secure computer and access to the computer will be secured by use of specific passwords known only to the researcher. The data collected will be kept in a locked briefcase while in Honduras and subsequently in a locked filing cabinet at the researcher’s office at the Faculty of Nursing at the University of Toronto. Following transcription the questionnaires will be destroyed.

A summary of the study results will be made available through a poster display at the health center in Puerto Lempira.
Audio-recording:

As mentioned above, individual interviews will be audio-recorded. The audio-recordings will be transcribed by the investigator and the interpreter. The audio-recordings will only be heard by the investigator and the interpreter. The digital audiofiles will be kept on a secure server that can only be accessed by the investigator. Audio – recordings will be erased at the completion of the data analysis.

What will this information be used for:

The results will be written up in professional journals and presentation at professional meetings or conferences. This will take place at the end of the study. Your participation is important in furthering our understanding about the impact of STMMs.

Questions:

If you have any general questions about the study, please contact the principal investigator, Patti Tracey, Honduras (504)97701434; Canada (705) 750-5782. If you have any questions about your rights as a research participant in my research study, you can contact the Office of Research Ethics at ethics.review@utoronto.ca or call 416-946-3273. Thank you for your interest in this study. Please keep this information letter for your records.
Consent:

I acknowledge that the research procedures described above have been explained to me and that any questions that I have asked have been answered to my satisfaction. I have been informed of the alternatives to participation in this study, including the right not to participate and the right to withdraw without compromising my services at the STMMs, or at any time in the future. I have been informed that I reserve the right to refuse to answer questions posed in the interview. In addition, the potential harms and discomforts have been explained to me and I also understand the benefits of participating in the research study. I know that I may ask now, or in the future, any questions I have about the study or research procedures. I have been assured that all information pertaining to me will be kept strictly confidential and no information will be released or published that would disclose my personal identity.

Verbal Consent:

I acknowledge that I have been provided with a copy of this consent form and description of the study. I have understood and have had a full explanation of this consent. I voluntarily consent to participate in this research study.

________________________________________________________________________

Name of Participant    Date

I confirm I have explained the nature and purpose of the study to the subject named above. I have answered all questions.

________________________________________________________________________

Name of Investigator    Signature    Date
Date:

Study Information Sheet/ Consent
Participant Information
(Children under 18 Years)

Title of the Research Study: Non-Governmental Organizations (NGOs) Impact on Health Care Services in Rural Honduras: Evaluating a Short–Term Medical Mission Utilizing a Case Study Approach

Principle Investigator:
Patti Tracey, RN, BScN, MHS, PhD candidate, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto, Honduras (504)97701434; Canada (705) 750-5782

You are being invited to take part in a research study. Before agreeing to participate in this study, it is important that you understand the following explanation of this study. The following information describes the purpose of the study, procedures, benefits and risks of the study. It also describes your right to refuse to participate or withdraw from the study at any time. In order to decide whether you wish to participate in this research study, you should understand enough to be able to make an informed decision. This is called informed consent. Please ask the investigator to explain any words you don’t understand before signing this informed consent. Make sure all of your questions have been answered to your satisfaction before signing the document.

My supervisor is Professor Carles Muntaner of the Faculty of Nursing at the University of Toronto.

Purpose of the research:
The purpose of this study is to evaluate the impact of a 12-day Short-Term Medical Mission (STMM) on health care services in 8 villages in the rural region of Gracias a Dios, Honduras. Information will be gathered from 5 different groups of people. Community members, Clients receiving services, Honduran Health Care Providers, Regional Health Officials and Canadian Health Care Providers.

The main objective of this study is to contribute to a broader understanding of the processes and impact of STMMs. The results and discussion will service as a guide for STMMs by disclosing the perspectives and expectations of what the mission workers themselves, along with the clients perceptions to be the benefits, challenges and risks inherent in health services. Findings from this study may offer information and evaluation tools for future studies.

When and where will the study take place:
The study will take place pre, during and in follow up (post) the February 13, 2014 Short-Term Medical Mission at a scheduled time that is convenient for the participants during the day or evening on any day of the week.

**Participation:**

Your participation is this study is voluntary. It is important you understand that if you change your mind and withdraw from the study at any time, you may simply inform the investigator. It is your choice to take part or not take part in the study. There will be no negative consequences whatsoever. Your services with the mission will not be affected in any way by participating in this study, and if you decide not to participate, it will not affect your care or services. You will be asked several questions, similar to an interview in follow up to your care at the mission. The principle investigator will ask the questions with the help of an interpreter. These interviews will be audio-recorded so we will not miss any of the information that was discussed. You may decline to answer any question or participate in any part of the study. You can stop the interview at any time and any information you have given the researcher will not be used in the study. The interview will take you approximately 15-20 minutes to complete.

**Potential Risks, Benefits and Inconveniences:**

You will not benefit personally from participating in this study. You will not get anything for being part of the study. You may find it enjoyable and helpful to share your experiences with the medical mission and may develop a better understanding of how a short-term medical mission (STMMs) works. Your contribution may increase awareness of how STMMs can better support the needs of your village. Although there are no obvious harms associated with taking part in this study, participating will involve some of your time, and may inconvenience you. The level of risk related to your participation is minimal. The benefits are that your participation provides feedback and is valued by the mission and Friends of Honduran Children, Canada. It will contribute to the development of knowledge and evaluation of similar mission work in Puerto Lempira and Honduras.

**Confidentiality:**

Every effort will be made to safeguard your privacy. Your name will never be used and in order to preserve complete anonymity, a random number will be assigned to you for identification purposes. This number will be on the questionnaire. All questionnaires and related field notes will be kept on a secure computer and access to the computer will be secured by use of specific passwords known only to the researcher. The data collected will be kept in a locked briefcase while in Honduras and subsequently in a locked filing cabinet at the researcher’s office at the Faculty of Nursing at the University of Toronto. Following transcription the questionnaires and audio recording will be destroyed. A summary of the study results will be made available through a poster display at the
health center in Puerto Lempira.

**Audio-recording:**

As mentioned above, individual interviews will be audio-recorded. The audio-recordings will be transcribed by the investigator and the interpreter. The audio-recordings will only be heard by the investigator and the interpreter. The digital audiofiles will be kept on a secure device that can only be accessed by the investigator and the interpreter. Audio recordings will be erased at the completion of the data analysis.

**What will this information be used for:**

The results will be written up in professional journals and presentation at professional meetings or conferences. This will take place at the end of the study. Your participation is important in furthering our understanding about the impact of STMMs.

**Questions:**

If you have any general questions about the study, please contact the principal investigator, Patti Tracey, Honduras (504)97701434; Canada (705) 750-5782.
If you have any questions about your rights as a research participant in my research study, you can contact the Office of Research Ethics at ethics.review@utoronto.ca or call 416-946-3273.
Thank you for your interest in this study. Please keep this information letter for your records.
Parental (or Caregiver) Consent Form

Consent:

I ______________________ (Print Name), agree to permit ______________________ (Print Child’s Name) ______________________ Who is aged ______________________ years, to participate in the research project.

In giving consent I acknowledge that:

1. The research procedures described above have been explained to me and that any questions that I have asked have been answered to my satisfaction. I understand the project and the time involved for my child’s participation.

2. I have been informed of the alternatives to participation in this study, including my child’s right not to participate in the follow up interview and the right to withdraw without compromising my families services at the STMMs, or at any time in the future. I understand I am not under any obligation to consent to my child’s participation.

3. I understand that my child’s involvement is strictly confidential. I understand that research data gathered from the results of the study may be published however no information about my child nor I will be used in any way that is identifiable.

4. I understand I can withdraw my child from the study at any time without prejudice to my, my families or my child’s relationship with the researcher or the University of Toronto now or in the future.

5. I understand the interview can be stopped at any time if my child or I do not wish the interview to continue. The audio recording will be erased and the information provided will not be included in the study.

________________________________________
Signature of Parent/Caregiver

________________________________________
Print Name

____________________________
Date

________________________________________
Signature of Child

________________________________________
Print Name

____________________________
Date

I confirm I have explained the nature and purpose of the study to the subject named above. I have answered all questions.

____________________________  ______________________  _______________
Name of Investigator  Signature  Date
## Appendix O: Symptoms: 7 Villages Combined

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>1st symptom n=1120</th>
<th>2nd symptom n=968</th>
<th>3rd Symptom n=575</th>
<th>Total 2663</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stomach pain/bloating/heartburn/wors/no appetite</td>
<td>190</td>
<td>194</td>
<td>120</td>
<td>504 (19%)</td>
</tr>
<tr>
<td>Body/joint pain</td>
<td>163</td>
<td>96</td>
<td>59</td>
<td>318 (12%)</td>
</tr>
<tr>
<td>Fever</td>
<td>140</td>
<td>115</td>
<td>50</td>
<td>305 (11%)</td>
</tr>
<tr>
<td>Headache</td>
<td>142</td>
<td>92</td>
<td>33</td>
<td>(267) 10%</td>
</tr>
<tr>
<td>Rash/itchy skin</td>
<td>106</td>
<td>46</td>
<td>41</td>
<td>(193) 7%</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>70</td>
<td>66</td>
<td>48</td>
<td>(184) 7%</td>
</tr>
<tr>
<td>Sore ears/throat or water eyes</td>
<td>57</td>
<td>46</td>
<td>35</td>
<td>(138) 5%</td>
</tr>
<tr>
<td>Dizzy</td>
<td>35</td>
<td>48</td>
<td>23</td>
<td>(106) 4%</td>
</tr>
<tr>
<td>Gynecological complaint</td>
<td>40</td>
<td>31</td>
<td>21</td>
<td>(92) 3%</td>
</tr>
<tr>
<td>Urinary frequency/urgency/burning</td>
<td>20</td>
<td>34</td>
<td>27</td>
<td>(81) 3%</td>
</tr>
<tr>
<td>Other (check Blood Pressure/ Blood sugar anemia/seizure/Stroke/heart palpitations, diabetic, asthma)</td>
<td>22</td>
<td>16</td>
<td>28</td>
<td>(51) 2.4%</td>
</tr>
<tr>
<td>Burn</td>
<td>11</td>
<td>10</td>
<td>7</td>
<td>(28) 1%</td>
</tr>
<tr>
<td>Chest pain</td>
<td></td>
<td></td>
<td></td>
<td>(16) 0.6%</td>
</tr>
<tr>
<td>Pregnant/check up</td>
<td>9</td>
<td>3</td>
<td>2</td>
<td>(14) 0.6%</td>
</tr>
<tr>
<td>Short of breath</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>(13) 0.5%</td>
</tr>
<tr>
<td>Genital complaint</td>
<td>1</td>
<td></td>
<td>1</td>
<td>(2) 0.08%</td>
</tr>
<tr>
<td>Total (2663)</td>
<td>1120</td>
<td>968</td>
<td>575</td>
<td></td>
</tr>
</tbody>
</table>
## Appendix P Diagnosis 7 Villages Combined

<table>
<thead>
<tr>
<th>ICD 10 - Diagnostic Category</th>
<th>Recorded Diagnosis</th>
<th>1st diagnosis n=1120</th>
<th>2nd diagnosis n=738</th>
<th>3rd diagnosis n=333</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z00-Z99 Factors influencing health status and contact with health services</td>
<td>Normal exam/no diagnosis or healthy</td>
<td>168</td>
<td>173</td>
<td>155</td>
</tr>
<tr>
<td>A00-B99 Certain infectious and parasitic diseases</td>
<td>Parasites, giadaria</td>
<td>176</td>
<td>77</td>
<td>10</td>
</tr>
<tr>
<td>M00-M99 Diseases of the MSK system</td>
<td>Back pain, arthritis, musculoskeletal, chest pain and sciatica</td>
<td>140</td>
<td>67</td>
<td>22</td>
</tr>
<tr>
<td>J00-J99 Diseases of the respiratory system</td>
<td>Asthma, Cold, upper respiratory tract infection, fever, viral cold, sinusitis, allergies</td>
<td>163</td>
<td>57</td>
<td>8</td>
</tr>
<tr>
<td>E00-E89 Endocrine, nutritional and metabolic diseases</td>
<td>Anemia, weakness, dehydration, malnutrition, vitamin deficiency</td>
<td>51</td>
<td>48</td>
<td>9</td>
</tr>
<tr>
<td>L00-L99 Diseases of the skin</td>
<td>Fungal skin and skin infections</td>
<td>81</td>
<td>44</td>
<td>45</td>
</tr>
<tr>
<td>K00-N99 Disease of the digestive system</td>
<td>viral diarrhea, viral gastroenteritis, &amp; gastroenteritis, GERD, constipation, gastritis, nausea and stomach pain</td>
<td>111</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>N00-N99 Diseases of the genitourinary system</td>
<td>Cystitis, urinary tract infection, dysmenorrhea, pelvic inflammatory disease, catheter, sexually transmitted disease &amp; vaginal cyst</td>
<td>66</td>
<td>25</td>
<td>13</td>
</tr>
<tr>
<td>G00-G99 Diseases of the nervous system</td>
<td>Headache Migraine</td>
<td>50</td>
<td>41</td>
<td>7</td>
</tr>
<tr>
<td>100-199 Diseases of the circulatory system</td>
<td>Cardiovascular disease</td>
<td>20</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
<td>H60-H95</td>
<td>H00-H99</td>
<td>F01-F99</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Hypertension, chest pain, palpitations, post stroke</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disease of the ear and mastoid processes</td>
<td>Otitis media, ear infection, tympanic membrane perforation</td>
<td>15</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Diseases of the eye</td>
<td>Infection, eye problem, corneal ulcer, cataracts, dry, watery eyes, pterygium, born blind, ear wax</td>
<td>21</td>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td>Mental, Behavioural and Neurodevelopmental disorders</td>
<td>Anxiety, psychotic, schizophrenia</td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Hernia, tonsillitis, genu varum [bow legged], jaundice, hair loss, tropical illness, benign tremor, birth defect, high BMI, drooling, and dental caries</td>
<td>58</td>
<td>83</td>
<td>35</td>
</tr>
</tbody>
</table>
## Appendix Q: Medication Summary - 7 Villages Combined

<table>
<thead>
<tr>
<th>Medication</th>
<th>1st Treatment</th>
<th>2nd Treatment</th>
<th>3rd Treatment</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paraoxite &amp; Vitamin supplements</td>
<td>232</td>
<td>401</td>
<td>361</td>
<td>994 (89%)</td>
</tr>
<tr>
<td>Analgesics/Anti inflammatory &amp; Antipyretics</td>
<td>545</td>
<td>111</td>
<td>56</td>
<td>712 (64%)</td>
</tr>
<tr>
<td>Topical (creams, lotions &amp; drops) (antifungal, steroids, antibiotics, moisturizing)</td>
<td>107</td>
<td>116</td>
<td>52</td>
<td>275 (25%)</td>
</tr>
<tr>
<td>Antibiotics/Antifungal &amp; Antiviral</td>
<td>72</td>
<td>94</td>
<td>33</td>
<td>199 (18%)</td>
</tr>
<tr>
<td>Prenatal vitamins (iron supplements)</td>
<td>79</td>
<td>71</td>
<td>36</td>
<td>186 (17%)</td>
</tr>
<tr>
<td>Antacids</td>
<td>21</td>
<td>56</td>
<td>24</td>
<td>101 (9%)</td>
</tr>
<tr>
<td>Bronchodilator (Ventolin) &amp; Other Ashma Inhalers (Atrovent &amp; Advair)</td>
<td>13</td>
<td>18</td>
<td>14</td>
<td>45 (4%)</td>
</tr>
<tr>
<td>Angiotension-converting enzyme (ACE) inhibitors (enalapril) or thiazide diuretics (hydrochlorothiazide) &amp; Acetylsalicylic acid</td>
<td>17</td>
<td>15</td>
<td>7</td>
<td>39 (3%)</td>
</tr>
<tr>
<td>Hypoglyecmic</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>5 (1%)</td>
</tr>
<tr>
<td>Malarone</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>8 (1%)</td>
</tr>
</tbody>
</table>
## Appendix R

Table 13: Time 3 Follow up: Comparison of recalled health problem from the STMM with the actual medical diagnosis and reason for follow up

<table>
<thead>
<tr>
<th>What health problem were you dealing with at the Mission?</th>
<th>Actual Diagnosis</th>
<th>Referral place and reason for follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>#S1 High Blood pressure</td>
<td>Hypertension, Urinary tract infection</td>
<td>Health Centre - Hypertension, started on Perindopril 4 mg once per day</td>
</tr>
<tr>
<td>#S2 Pain and High blood pressure</td>
<td>Hypertension Rule out cardiac chest pain</td>
<td>Hospital in Puerto Lempira for Electrocardiogram</td>
</tr>
<tr>
<td>#S3 Ongoing dizziness and seizures from automobile accident</td>
<td>Seizure Disorder secondary to Head trauma Ataxia</td>
<td>Health Centre - reassessment of seizures Given Valproic acid 250mg three times per day for 2 weeks, then 500mg three times a day.</td>
</tr>
<tr>
<td>#S4 Body pain and dizziness</td>
<td>Hypertension Migraine Bilateral cataracts Constipation</td>
<td>Health Centre-Hypertension, started on Perindopril 4 mg once per day</td>
</tr>
<tr>
<td>#S5 Ear problem</td>
<td>Diabetes *Hard of hearing</td>
<td>Health Centre -Diabetes, recheck blood glucose, given Metformin 500mg twice each day</td>
</tr>
<tr>
<td>#S6 Eye problem</td>
<td>Cataracts Normal exam otherwise</td>
<td>Hospital Puerto Lempira - right Cataract</td>
</tr>
<tr>
<td>#S7 Had an operation on my sight – had cataract surgery (presented to STMM complaining of difficulty seeing, sore throat, high BP and knee pain)</td>
<td>Atrial Fibrillation Hypertension Previous CVA</td>
<td>Hospital Puerto Lempira - irregular heartbeat, and needs an electrocardiogram</td>
</tr>
<tr>
<td>#S8 Accident with chainsaw</td>
<td>Forearm &amp; Hand Tendon Injury (Complex)</td>
<td>Hospital La Ceiba -Physiotherapy</td>
</tr>
<tr>
<td>#S9 Problems with urination</td>
<td>Benign prostatic hyperplasia</td>
<td>Hospital Puerto Lempira-Benign Prostate Hypertrophy Needs treatment with Tamsulosin 0.4 mg once per day</td>
</tr>
<tr>
<td>#S10 Eye problem</td>
<td>Bilateral Cataracts Clinically right sided stroke, otherwise normal exam</td>
<td>Hospital Puerto Lempira- Bilateral severe cataracts</td>
</tr>
<tr>
<td>#T1 Headaches and vision problems – told I had high blood pressure</td>
<td>Parasite infection Hypertension</td>
<td>Hospital Puerto Lempira (no health centre nearby) -monitoring of hypertension. Started on Perinopril 4 mg once per day x 3 months</td>
</tr>
<tr>
<td>#U1 Right breast lump</td>
<td>Left breast mass – likely cyst Headache related to heat</td>
<td>Hospital Puerto Lempira -ultrasound right breast</td>
</tr>
<tr>
<td>#U2 Mother for child (Age 5 years) “because he does not talk or hear”</td>
<td>Mutism No other developmental delay noted Parasites</td>
<td>Hospital Puerto Lempira - reassessment of Mutism</td>
</tr>
<tr>
<td>#A1 Chest Pain</td>
<td>Chest pain not yet diagnosed? cardiac versus Musculoskeletal Upper respiratory tract infection</td>
<td>Hospital Puerto Lempira - Assessment of heart- electrocardiogram, blood work</td>
</tr>
<tr>
<td>#A2 Fever and Pneumonia</td>
<td>Hypertension</td>
<td>Upper respiratory infection rule out pneumonia Down’s Syndrome factors</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------</td>
<td>-----------------------------------------------------------------------</td>
</tr>
<tr>
<td>#A3 Problems with her (babies) tongue</td>
<td>Hospital Escuela, Tegucigalpa - Cleveland Clinic Surgical team Needs heart surgery</td>
<td></td>
</tr>
<tr>
<td>#A4 Eye problem – vision problems, cannot see</td>
<td>Hypertension Developmental Delay – hypotonic</td>
<td></td>
</tr>
<tr>
<td>#A5 Back pain and eye problem</td>
<td>Hospital La Ceiba – ophthalmology consultation</td>
<td></td>
</tr>
<tr>
<td>#A6 Pregnant – check up</td>
<td>Hypertension Left eye corneal opacification</td>
<td></td>
</tr>
<tr>
<td>#A7 I have many diseases, body aches and problems with urination</td>
<td>Hospital La Ceiba - needs left ptterygium removed</td>
<td></td>
</tr>
<tr>
<td>#A8 Eye problem – dizziness</td>
<td>Hospital Puerto Lempira – ultrasound to exam the fetus and the liver</td>
<td></td>
</tr>
<tr>
<td>#A9 Umbilical hernia</td>
<td>Hospital Puerto Lempira – umbilical hernia</td>
<td></td>
</tr>
<tr>
<td>#A10 Dizziness in my head</td>
<td>Hypertension, Musculoskeletal back pain Benign prostatic hyperplasia</td>
<td></td>
</tr>
<tr>
<td>#K1 Gallbladder stones</td>
<td>Hospital Puerto Lempira – Gallbladder stones</td>
<td></td>
</tr>
<tr>
<td>#K2 High blood pressure and total body pain</td>
<td>Gastritis Hypertension</td>
<td></td>
</tr>
<tr>
<td>#K3 Fever for months and tongue swelling</td>
<td>Hospital Puerto Lempira – examination of prostate, needs Tamsulosin 0.4 mg once per day</td>
<td></td>
</tr>
<tr>
<td>#K4 Coughing up blood</td>
<td>Hospital in Puerto Lempira for hemoptysis if not better? Treated with Azithromycin 500 mg once a day x 1, then 250 mg once a day x 4 days</td>
<td></td>
</tr>
<tr>
<td>#C1 Stomach pain</td>
<td>Hospital Puerto Lempira – liver function tests (liver function tests, aminotransferases levels of AST, ALT, and bilirubin) and Ultrasound Liver</td>
<td></td>
</tr>
<tr>
<td>#C2 Dizziness in my head</td>
<td>Hospital Puerto Lempira – liver function tests (aminotransferases levels of AST, ALT, and bilirubin) and examine liver</td>
<td></td>
</tr>
<tr>
<td>#C3 Pain in left breast and High BP</td>
<td>Hospital Puerto Lempira – Left breast Ultrasound</td>
<td></td>
</tr>
</tbody>
</table>
| #C4 Stroke last year and I wanted to be checked | Hypertension  
Acute gastrointestinal infection  
Hypertension  
Post Stroke | Health Centre- reassessment of BP, treated with Perindopril 4 mg once per day x3 months and ASA 81 mg once per day |
| #C5 Heart was beating fast and I would faint | Menorrhagia ?fibroids | Hospital Puerto Lempira-Gynecology consult menorrhagia, ?fibroids |
| #C6 Chest and joint pain and problems with my prostate | Gastritis  
Osteoarthritis  
Benign prostatic hyperplasia | Hospital Puerto Lempira – Prostate examination, and needs treatment Tamsulosin 0.4mg once per day |
| #C7 Problems with urination, shoulder and joint pain and Dizziness | Benign prostatic hyperplasia  
Osteoarthritis of the knees  
Musculoskeletal back pain | Hospital Puerto Lempira, Prostate examination, and needs treatment Tamsulosin 0.4mg once per day |
| #C8 Hernia – I need an operation | Renal Colic versus nephritic syndrome  
Hypertension  
Parasites | Health Centre – BP check and follow up Given Ramipril 2.5 mg once per day x 60 days, then 1 mg once per day |
Table 14: Time 3 Follow up – Interview Question: Did you receive education for this problem?

<table>
<thead>
<tr>
<th>Did you receive education for this problem?</th>
<th>Patient Information sheet – Actual details re Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>#S1 No, only the medications and how to take them</td>
<td>Yes</td>
</tr>
<tr>
<td>#S2 They explained how to take the medicine – nothing more</td>
<td>Yes</td>
</tr>
<tr>
<td>#S3 I am aware and conscious (or understand) of my problem and I know I need to get more pills</td>
<td>Yes, told to take valproic acid for seizures</td>
</tr>
</tbody>
</table>
| #S4 No, no education | Take more water  
FU re hypertension  
Plus how to take meds |
| #S5 No education only pills | How to take meds (metformin) and FU with diabetes |
| #S6 They explained I need to take my pills and why. I am to go to PL for more treatment. I do not really understand what my problem is or why it is happening. I was not given any education. But I went to Puerto Lempira and “they were on strike – the doctors” and the “equipment was broken” but, I did go to the health centre and see the nurse. | Cataracts …given vitamins, acetaminophen and sunglasses  
(note: we explained what a cataract was and why need to go to PL) (he did not understand what his current health problem)  
No education was noted on documents |
| #S7 I am aware and understand my health problems and why I need to take pills | Atenolol, ASA and eyeglasses  
Needed an EKG in PL |
| #S8 I was shown exercises to do to improve the movement. It is better when I do that but, I am out of pills now and I cannot go to La Ceiba for Physiotherapy. I have no money | Yes |
| #S9 explained the problems with my urine | Yes |
| #S10 Given my medicine and nothing more. I need to go to PL for more treatment for my eyes. (for cataracts) I have an appointment but I haven’t been able to go because I have to work in the rice fields. | Meds for his atherosclerosis – statins and ASA, he is an old stroke. Also given food, sunglasses and vitamins |
| #T1 No, told I have high BP | Given perindopril, clothes, and shoes |
| #U1 Told to go to have an ultrasound test in PL | Nothing further was documented |
| #U2 No nothing more | Nothing was documented other than mutism and reassessment? |
| #A1 No, no education only the referral to go to the | Documented about Chest Pain being MSK versus |
| #A2 | Yes, I was told to “take care and not to put myself into any unsettling situations” |
| #A3 | No | Follow up with nurse in the community – concern about child being small for age and hypotonic. However, no notes are documented. |
| #A4 | No | Well Baby on FU |
| #A5 | They explained I have cataracts and what I need to do now |
| #A6 | No, only to go to PL for another check up | Pregnant requires Ultrasound |
| #A7 | No, not a lot, I was given the referral to go to PL but, I wasn't able to go | Treated for high BP and referral was for BPH and treatment of Tamsulosin |
| #A8 | No told I should go to PL but, I don’t know why | Education noted person was to increase fluids and Puerto Lempira for right eye blindness and cataracts |
| #A9 | They explained why I needed to go to PL and how to take my pills | yes |
| #A10 | We talked about my anemia and if I could go to La Ceiba, nothing else | yes |
| #K1 | No | Nothing was documented. The follow up sheet indicates more information and that they think it is bilary colic. A carbon copy of this sheet was given to the person |
| #K2 | Only about my BP and why I needed to go to PL for more tests. | yes |
| #K3 | They explained how and why I need to take my pills | yes |
| #K4 | No | Lots of notes, around the hemoptysis (presenting complaint)? pneumonia vs TB and need for FU if blood continues |
| #C1 | No | Notes explaining that if the Zantac is not working, he should have LFTs done |
| #C2 | I was told about my health problem (low hemoglobin) and why I needed to go for follow up. I went to the health center and they told me I would need a blood transfusion. I have no money to buy blood. | yes |
| #C3 | They explained to me that because I have this lump, I need X-rays and more follow up. But, I have | yes |
not gone because I am taking care of my sick mother

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>#C4 I remember they explained how to take the pills and why I needed to be treated and I was given a piece of paper. I am forgetful and don’t remember exact things</td>
<td>yes</td>
</tr>
<tr>
<td>#C5 Yes, they explained why I have problems with menstruation and why I need to go to the hospital for more tests</td>
<td>yes</td>
</tr>
<tr>
<td>#C6 Yes, my pills were explained and why I needed to go to PL for more treatment. I lost my paper (referral sheet) and I have not been able to go</td>
<td>Yes (I gave him the copy of the referral sheet)</td>
</tr>
<tr>
<td>#C7 Yes, they explained my problem, what it was and why I needed to go to PL</td>
<td>yes</td>
</tr>
<tr>
<td>#C8 No</td>
<td>Lots of educational notes – 1. Keep well hydrated 2. May pass stone 3. Watch out for the development of infection such as fever, unwell etc. 4. May happen again if it is a stone 5. FU in 1 month for BP check</td>
</tr>
</tbody>
</table>

* 9 clients replied that they did not receive any education.
## Appendix T STMM Cost Model

### Brigade Costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit Cost $US</th>
<th>Unit Cost $Cdn</th>
<th>Days #</th>
<th>Total Cost $Cdn</th>
<th>Per Person $Cdn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flights</td>
<td>750</td>
<td>NA</td>
<td>15,000</td>
<td>750</td>
<td></td>
</tr>
<tr>
<td>Travel Insurance</td>
<td>100</td>
<td>NA</td>
<td>2,000</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Second Bag</td>
<td>40</td>
<td>na</td>
<td>800</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Interpreters</td>
<td>475</td>
<td>511</td>
<td>5,110</td>
<td>256</td>
<td></td>
</tr>
<tr>
<td>In Country Flight</td>
<td>406</td>
<td>437</td>
<td>8,740</td>
<td>437</td>
<td></td>
</tr>
<tr>
<td>Staff in country flights</td>
<td>2,842</td>
<td>3,056</td>
<td>3,056</td>
<td>153</td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td>2,000</td>
<td>2,151</td>
<td>2,151</td>
<td>108</td>
<td></td>
</tr>
<tr>
<td>Room &amp; Board</td>
<td>68</td>
<td>73</td>
<td>13,140</td>
<td>657</td>
<td></td>
</tr>
<tr>
<td>Tips at airport in Honduras</td>
<td>40</td>
<td>43</td>
<td>86</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>40</td>
<td>43</td>
<td>860</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>T-shirts</td>
<td>20</td>
<td>NA</td>
<td>360</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>51,303</strong></td>
<td><strong>2,565</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FoHC Contribution (Note 1)</td>
<td></td>
<td></td>
<td>2,660</td>
<td>133</td>
<td></td>
</tr>
<tr>
<td><strong>Total Cost</strong> (Note 2)</td>
<td><strong>53,963</strong></td>
<td><strong>2,698</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note 1:** FoHC Contribution covers administrative costs related to tax receipts, banking and office expenses provides funding for SAN overhead expenses related to planning and hosting brigades

**Note 2:** Does not include $US38 per person exit fee at the airport in HND that must be paid by each participant
Appendix U: Medications Purchased in Honduras

### COTIZACION DE MEDICAMENTOS

<table>
<thead>
<tr>
<th>No.</th>
<th>Descrizion/Producto</th>
<th>Present.</th>
<th>Cantidad</th>
<th>Precio Unit.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Loratidine 10mg tab</td>
<td>Tab 400</td>
<td>L. 1.30</td>
<td>L. 520.00</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Cephalaxin 500mg tabs</td>
<td>Tab 2000</td>
<td>L. 3.25</td>
<td>L. 6500.00</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Levofloxico 400mg</td>
<td>Tab 100</td>
<td>L. 2.40</td>
<td>L. 280.00</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Amoxicillin suso 250mg/5ml</td>
<td>Fco 25</td>
<td>L. 19.00</td>
<td>L. 475.00</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Arithromicina 100mg/5ml</td>
<td>Fco 50</td>
<td>L. 220.00</td>
<td>L. 11400.00</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Metformin 850mg tabs</td>
<td>Tab 8000</td>
<td>L. 1.60</td>
<td>L. 12800.00</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Ranitidine 150mg tabs</td>
<td>Tab 6000</td>
<td>L. 0.60</td>
<td>L. 3600.00</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Albendazole susp 10ml</td>
<td>Fco 100</td>
<td>L. 11.00</td>
<td>L. 1100.00</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Scabicide/sanasar locion escabida</td>
<td>Fco 75</td>
<td>L. 15.00</td>
<td>L. 1200.00</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Nystalin oral solution</td>
<td>Fco 15</td>
<td>L. 15.00</td>
<td>L. 225.00</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Moisturizing eye drops / Getas artificiales</td>
<td>Fco 50</td>
<td>L. 8.00</td>
<td>L. 400.00</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Triple cream / triple antibio</td>
<td>Tabo 200</td>
<td>L. 8.20</td>
<td>L. 1640.00</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Salbutamol inhalers/spray</td>
<td>Fco 250</td>
<td>L. 60.00</td>
<td>L. 15000.00</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Tylenol susp / frascos 120ml/Acetaminofen</td>
<td>Fco 150</td>
<td>L. 17.00</td>
<td>L. 2550.00</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Ibuprofen susp.</td>
<td>Tab 50</td>
<td>L. 17.74</td>
<td>L. 887.00</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Infant liquid multivitamins / Fortiplexin</td>
<td>Fco 500</td>
<td>L. 18.00</td>
<td>L. 5400.00</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Adult multivitamins tabs/tarro x 400 caps,</td>
<td>Caps 45</td>
<td>L. 340.00</td>
<td>L. 15300.00</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Children multivitamin tabs masticables/tarro x 1000 tab</td>
<td>Tarre 21</td>
<td>L. 790.00</td>
<td>L. 17900.00</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Prenatal vitamins tabs</td>
<td>tab 4000</td>
<td>L. 0.85</td>
<td>L. 3400.00</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Antibiotic eye/loramencol colirio</td>
<td>Fco 100</td>
<td>L. 22.50</td>
<td>L. 225.00</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Antibiotic ear/otico</td>
<td>Fco 50</td>
<td>L. 49.00</td>
<td>L. 2450.00</td>
<td></td>
</tr>
</tbody>
</table>

**Total** | **L. 120,947.00**

**Legend:** Cotizacion de medicamentos = Quote for Medications
## Appendix V STMM Medication Inventory

<table>
<thead>
<tr>
<th>GI DRUGS</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>lansoprazole</td>
<td>15mg</td>
<td>45</td>
</tr>
<tr>
<td>lansoprazole</td>
<td>30mg</td>
<td>60</td>
</tr>
<tr>
<td>dextansoprazole</td>
<td>60mg</td>
<td>28</td>
</tr>
<tr>
<td>ranitidine</td>
<td>150mg</td>
<td>7250</td>
</tr>
<tr>
<td>famotidine</td>
<td>40mg</td>
<td>200</td>
</tr>
<tr>
<td>famotidine</td>
<td>20mg</td>
<td>150</td>
</tr>
<tr>
<td>omeprazole</td>
<td>20mg</td>
<td>300</td>
</tr>
<tr>
<td>pantoprazole</td>
<td>40mg</td>
<td>500</td>
</tr>
<tr>
<td>tums</td>
<td>500mg</td>
<td>200</td>
</tr>
<tr>
<td>antacid</td>
<td>750mg</td>
<td>450</td>
</tr>
<tr>
<td>gaviscon</td>
<td>5mg</td>
<td>150</td>
</tr>
<tr>
<td>docusate</td>
<td>100mg</td>
<td>1000</td>
</tr>
<tr>
<td>dimenhydrinate</td>
<td>50mg</td>
<td>900</td>
</tr>
<tr>
<td>Laxoday</td>
<td></td>
<td>1 lg bottle</td>
</tr>
<tr>
<td>Senna</td>
<td></td>
<td>200</td>
</tr>
</tbody>
</table>

### BIRTH CONTROL

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yaz</td>
<td></td>
<td>560 tabs</td>
</tr>
<tr>
<td>Alesse</td>
<td></td>
<td>28 25 months</td>
</tr>
</tbody>
</table>

### MIGRAINE

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>eletriptan (Relpax)</td>
<td>40mg</td>
<td>10</td>
</tr>
<tr>
<td>rizatriptan wafers (Maxsalt Rapid)</td>
<td>10mg</td>
<td>4</td>
</tr>
<tr>
<td>Almotriptan (Axert)</td>
<td>12.5mg</td>
<td>50</td>
</tr>
</tbody>
</table>

### ANTIDEPRESSANTS

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>duloxetine (Cymbalta)</td>
<td>30mg</td>
<td>28</td>
</tr>
<tr>
<td>duloxetine (Cymbalta)</td>
<td>60mg</td>
<td>21</td>
</tr>
<tr>
<td>venlafaxine (Effexor)</td>
<td>75mg</td>
<td>28</td>
</tr>
<tr>
<td>nortriptyline tabs</td>
<td>25mg</td>
<td>600</td>
</tr>
<tr>
<td>paroxetine</td>
<td>20mg</td>
<td>100</td>
</tr>
<tr>
<td>citalopram</td>
<td>40mg</td>
<td>47</td>
</tr>
<tr>
<td>escitalopram (Cipralex)</td>
<td>10mg</td>
<td>287</td>
</tr>
</tbody>
</table>

### SLEEP AIDS

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>zopiclone (Imovane)</td>
<td>7.5mg</td>
<td>500</td>
</tr>
</tbody>
</table>

### ANTIPSYCHOTICS

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>olanzapine</td>
<td>10mg</td>
<td>30</td>
</tr>
<tr>
<td>risperidone</td>
<td>0.5mg</td>
<td>200</td>
</tr>
<tr>
<td><strong>ANALGESIC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>ibuprofen (Advil)</td>
<td>200mg</td>
<td>1000</td>
</tr>
<tr>
<td>celecoxib</td>
<td>200mg</td>
<td>300</td>
</tr>
<tr>
<td>Ibuprofen (Nov-profen) tabs</td>
<td>400mg</td>
<td>2000</td>
</tr>
<tr>
<td>Ibuprofen (Nov-profen) tabs</td>
<td>600mg</td>
<td>2000</td>
</tr>
<tr>
<td>acetaminophen (2400 Teva/400 Honduras)</td>
<td>325mg</td>
<td>2800</td>
</tr>
<tr>
<td>acetaminophen (Tyleol arthritis)</td>
<td>650mg</td>
<td>500</td>
</tr>
<tr>
<td>acetaminophen (Nexo-Gesic caps)</td>
<td>500mg</td>
<td>15 200</td>
</tr>
<tr>
<td>naproxen tabs (6000 Teva/1500 Honduras)</td>
<td>250mg</td>
<td>7500</td>
</tr>
<tr>
<td>naproxen tabs</td>
<td>375mg</td>
<td>6000</td>
</tr>
<tr>
<td>naproxen /esomeprazole</td>
<td>500/20</td>
<td>120</td>
</tr>
<tr>
<td>Robaxacet</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>Tylenol Back Pain</td>
<td></td>
<td>225</td>
</tr>
<tr>
<td>Arthrotec</td>
<td>50mg</td>
<td>200</td>
</tr>
<tr>
<td>Arthrotec</td>
<td>75mg</td>
<td>100</td>
</tr>
<tr>
<td>Arthrotec 50/200</td>
<td>50/200</td>
<td>30</td>
</tr>
<tr>
<td>Voltaren Emuel</td>
<td></td>
<td>50 bottles</td>
</tr>
<tr>
<td><strong>NARCOTIC ANALGESICS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tramadol 37.5mg/acetaminophen 325mg</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>morphine inj</td>
<td>5mg/ml</td>
<td>10 amp</td>
</tr>
<tr>
<td>hydromorphone inj</td>
<td>2mg/ml</td>
<td>10 amp</td>
</tr>
<tr>
<td><strong>CHILDREN ANALGESIC LIQUIDS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>acetaminophen (120ml)</td>
<td>24mg/ml</td>
<td>200</td>
</tr>
<tr>
<td>ibuprofen (100ml)</td>
<td>20mg/ml</td>
<td>220</td>
</tr>
<tr>
<td>ibuprofen (25ml)</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>tylenol fast melt</td>
<td>160mg</td>
<td>350</td>
</tr>
<tr>
<td>Ibuprofen (advil chew)</td>
<td>100mg</td>
<td>230</td>
</tr>
<tr>
<td>Tylenol (15ml)</td>
<td>80mg/ml</td>
<td>150</td>
</tr>
<tr>
<td><strong>NASAL STEROIDS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mometasone</td>
<td>250mcg</td>
<td>30</td>
</tr>
<tr>
<td>ciclosporine (Omnaris)</td>
<td>50mcg</td>
<td>25</td>
</tr>
<tr>
<td>fluticasone nasal spray (Avamys)</td>
<td>27.5mcg</td>
<td>46</td>
</tr>
<tr>
<td>Nasal lubricant</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td><strong>INHALED STEROIDS/LABA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Budesonide/formoterol (Symbicort)</td>
<td>200/6</td>
<td>70</td>
</tr>
<tr>
<td>fluticasone/salmeterol (Advair)</td>
<td>125</td>
<td>12</td>
</tr>
<tr>
<td>Advair</td>
<td>250</td>
<td>33</td>
</tr>
<tr>
<td>Advair</td>
<td>500</td>
<td>5</td>
</tr>
<tr>
<td>Alvesco</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>Asmanex</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Aerochamber adult</td>
<td></td>
<td>9</td>
</tr>
<tr>
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<tr>
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<td>azithromycin</td>
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<td>nystatin oral susp</td>
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<td>tacrolimus (protopic) 2g</td>
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<td>flurinonide (Lyderm) 5g ultra potent</td>
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<tr>
<td>barrier cream</td>
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<td>brimonodine eye drops 5ml</td>
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<td>gliclazide (Diamicron mr)</td>
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<tr>
<td>sitagliptan/metformin (Janumet)</td>
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Appendix W Treatment Protocols

GASTROINTESTINAL INFECTIONS

A) Acute Diarrhea (bacterial) – sudden onset, cramping, fever, may have BRBPR, most commonly salmonella, shigella, campylobacter, E.coli, etc… In infants & young children most often due to rotavirus. In older children most often due to E.coli (ETEC). Shigellosis is the most common etiology of bloody diarrhea among children in developing countries.

- ADULT: Cipro 500mg BID x 3 days, or Azithromycin 1g x 1
- CHILDREN: Azithromycin 12 mg/kg for the first day (maximum 500 mg) and then 6 mg/kg/dose (maximum 250 mg) for an additional four days, or Cefixime (8 mg/kg/day in a single dose, maximum 400 mg/day) for five days
- PREGNANCY: Azithromycin 1g x 1

B) Chronic Diarrhea (non-amebiasis) – can be post-infectious malabsorption, or Giardia (abdo pain, malaise, foul-smelling fatty stools, bloating, gas, wt loss). In endemic areas, children <10yo have higher rates of giardiasis than older individuals.

- ADULT/PREGNANCY: Metronidazole 500mg BID x 5-7 days
- CHILDREN: Metronidazole 15-30 mg/kg/day divided TID x 7 days

C) Chronic Diarrhea (Amebiasis) – blood & mucus, abdo pain, malnutrition. Most infections are asymptomatic. Risk factors for severe disease include young age, pregnancy, corticosteroid treatment, malignancy, malnutrition, and alcoholism.

- ADULT/PREGNANCY: Metronidazole 750mg TID x 5-7 days
- CHILDREN: Metronidazole 25-35mg/kg/day divided BID x 5-7 days

RESPIRATORY TRACT INFECTIONS

A) Otitis Media (acute & chronic)

- ADULT/PREGNANCY: Amoxicillin 500mg TID x 7 days, or Azithromycin 500mg x 1 day then 250mg/day x 4 days
- CHILDREN: Amoxicillin 60-80mg/kg/day divided TID x 7-10 days or Cefixime 8mg/kg/day OD x 7-10 days

B) Bronchitis – almost always viral except in context of AECOPD.

- ADULTS: Amoxicillin 1g TID x 5 days, or Doxycycline 100mg BID x first day then 100mg OD for 7-10 days, or TMP/SMX 1DS tab BID x 5 days
- ADD bronchodilator & prednisone

C) Pneumonia

- ADULTS: Erythromycin 500mg QID x 5-7 days, or Azithromycin 500mg OD x 3 days, or Amoxicillin 1g TID x 5-7 days, or Doxycycline 100mg BID on first day then 100mg/day x 5-7 days
- CHILDREN: Amoxicillin 80mg/kg/day divided TID for 7-10 days (for kids < 5yo only), or Azithromycin 10mg/kg/day on first day then 5mg/kg/day x 4 days
- PREGNANCY: Erythromycin 500mg QID x5-7 days, or Azithromycin 500mg OD x 3 days

D) Tuberculosis – chronic hemoptysis, wt loss, night sweats, not acutely ill

Rx – Identify & Refer
GENITOURINARY TRACT INFECTIONS

A) Cystitis
- ADULTS: TMP/SMX DS 1 tab BID x 3d, Cipro 500mg po BID x 3d
- CHILDREN: Amoxicillin 40mg/kg divided TID x 7d, Keflex 25-50mg/kg divided QID x 7d
- PREGNANCY: Amoxicillin 500mg TID x 7d, Keflex 500mg QID x 7d, TMP/SMX DS 1 tab BID x 3d (avoid in 1st trimester)

B) Gonorrhea/Chlamydia - dysuria, thick discharge, pelvic discomfort
- ADULT: Cefixime 400mg x 1 OR Cipro 500mg x 1 + Azithromycin 1g x 1 OR Doxycycline 100mg BID x 7d OR Erythromycin 500mg QID x 7d
- PREGNANCY: Cefixime 400mg x 1 + Azithromycin 1g x 1 OR Amoxicillin 500mg TID x 7d

C) Pelvic Inflammatory Disease - lower abdo pain, intermenstrual or post-coital bleeding, dyspareunia, vag discharge
- ADULT: Cefixime 800mg x 1 + Doxycycline 100mg BID x 14d OR Levofloxacin 500mg OD x 14d +/- Flagyl 500mg BID x 14d

SKIN INFECTIONS

A) Impetigo - Topical Neosporin (polysporin) or fusidic acid (fucidin)
If widespread or Cellulitis:
- ADULT/PREGNANCY: Keflex 500mg QID x 7d, Cloxacillin 500mg QID x 10d, Erythromycin 250-500mg QID x 7d
- CHILDREN: Keflex 25-50mg/kg divided QID x 7d, Erythromycin 30-40mg/kg divided QID x 10d

B) Scabies/Lice - Topical permethrin cream/shampoo, cover from head to toe and wash off after 8-12hrs (treat whole family)

PARASITES

Ascaris - abdominal pain, bloating, anorexia, night time cough, worms in stool
Enterobius - pin worm, usually not seen, itching - worse at night
Mixed Infection - suspicion of multiple intestinal worms (hookworm, strongyloides)
- ADULT: Albendazole 2 x 200mg tabs
- CHILDREN: Albendazole 2 x 200mg tabs >2yo, 1 x 200mg tab 1-2yo
- PREGNANCY: Contraindicated