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## **Transcultural nursing and malaria: Identifying global health strategies through the lived experiences of nurses from the villages surrounding Bamenda, Cameroon**

Noella Sob Tataw

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TRANSCULTURAL NURSING AND MALARIA: IDENTIFYING GLOBAL  
HEALTH STRATEGIES THROUGH THE LIVED EXPERIENCES  
OF NURSES FROM THE VILLAGES SURROUNDING  
BAMENDA, CAMEROON

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A Project  
Presented to the  
Faculty of  
California State University,  
San Bernardino

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Science  
in  
Nursing

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by  
Noella Sob Tataw  
June 2013

TRANSCULTURAL NURSING AND MALARIA: IDENTIFYING GLOBAL  
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June 2013

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6/5/13  
Date

## ABSTRACT

This study highlights the challenges faced by nurses working in the villages surrounding Bamenda, Cameroon. This is done as a necessary first step towards developing a culturally compelling intervention strategy for Malaria prevention/treatment, through direct interaction of nurses in villages surrounding Bamenda in Cameroon and their counterparts in the United States. Specifically, this study utilizes emerging web and communication technologies to allow these nurses to look at challenges in Malaria/disease prevention, through the lived experiences of nurses currently practicing in the villages surrounding Bamenda in Cameroon.

Malaria and other diseases pose significant healthcare problems in remote regions of Cameroon. Poor infrastructure, limited human resources, poor resource distribution and cultural barriers have been shown to have a direct effect on health care intervention efforts. Current intervention efforts have not been as effective as desired. Some attribute this to the lack of culturally compelling intervention strategies and lack of micro approach to interventions. It is also the case that

healthcare professionals in remote regions like the villages surrounding Bamenda (Cameroon), particularly nurses, have limited skills to deal with the problems they face. Existing literature attributes this to a lack of state of the art training resources and therefore inadequate training. This points to the need to have intervention strategies that address both the human resource and cultural challenges affecting current interventions.

A hermeneutic phenomenological approach was used in this study. Participants were at least 21 years of age. Findings from this qualitative study revealed several themes from the lived experiences of Cameroonian nurses. These included: thirst for more knowledge, frustration with the state of things, and the use of alternative prevention methods for Malaria prevention and treatment.

This study revealed some of the challenges faced by nurses currently working on the ground in the villages surrounding Bamenda in Cameroon. It sets the foundation to begin to move towards development of effective intervention strategies. This study also demonstrates a cost effective way of implementing trans-cultural nursing collaboration.

## ACKNOWLEDGEMENTS

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Finally, I would like to thank my husband Oben Tataw and my daughter Orli Tataw. They have been my rock all along this journey. There have been those times when my spirit was so down and I thought there was no way I will be able to pull through it all. But my husband never failed to encourage me to hold on and think about the price at the end. The price of receiving a higher education is something that will give my daughter another reason to be proud of me in the future. Needless to say those encouraging words and the smiles on my daughter's face always lifted me up and gave me the hope I needed to keep pushing on, regardless of how tired I get.

THANKS TO THE ALMIGHTY GOD

IN JESUS' NAME,

AMEN.

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## CHAPTER ONE

### BACKGROUND AND SIGNIFICANCE

#### Introduction

Nursing care is needed in all parts of the world (World Health Organization, 2006). However, nurses in different parts of the world have different experiences and face different challenges (Awasum, 1992; Messias, 2001; Fongwa, 2002; and World Bank, 2008). Many developing countries in Africa like Cameroon are faced with poor infrastructure, limited human resources, poor resource distribution and cultural barriers (World Bank, 2008). These challenges have been shown to have a direct effect on health care intervention efforts, leading to a generally deplorable public health situation (Awasum, 1992; Messias, 2001; and World Bank, 2008). The eventual dilemma faced is that of deplorable public health in an area where lack of resources and adequate training has led to limited availability of skilled nurses. This study presents the lived experiences of nurses in Cameroon, through collaboration between nurses in Cameroon and their counterparts in the United States of America (USA). The long-term goal of this study is to develop culturally

compelling strategies for effective health care intervention in Cameroon, through direct collaboration between nurses in Cameroon and their counterparts in the USA. A required first step is to understand the challenges faced by these nurses practicing in Cameroon. This paper reports on a collaborative study between nurses in Cameroon and their counterparts in the United States. The goal was to understand some of the healthcare challenges in remote villages surrounding Bamenda, in Cameroon, through the lived experiences of nurses who currently practice there. This is done through a combination of an online Malaria course and a live international seminar. After participating in a reputable Malaria 101 course online from the centers for disease control and prevention (CDC) website, the nurses took part in a live moderated seminar, where the lived experiences of Cameroonian nurses were discussed. The basic motivational premise driving this project is the realization that a true culturally effective intervention can only be done by the nurses on the ground. Therefore knowledge learned through direct collaboration will go a long way towards improving the quality of life for people in remote Cameroon. Although there are many diseases worthy of attention in remote areas of Cameroon,

this study focused on Malaria as a case study for this particular discussion. It is worth noting that the researcher in this study is originally from Cameroon. Engaging in this study allows her to give voice to this very important issue.

### Background and Significance

According to the Centers for Disease Control and prevention (CDC), 91% of worldwide Malaria deaths are in Africa (CDC, 2010). Among these, 86% are children. An incidence map developed by World Health Ranking illustrates pictorially, the regions in the world with the most Malaria deaths per 100,000 persons (World Health Ranking). A snapshot of the map is shown in Figure 1, where Cameroon indicated by an arrow, is part of the countries with the most deaths from Malaria.

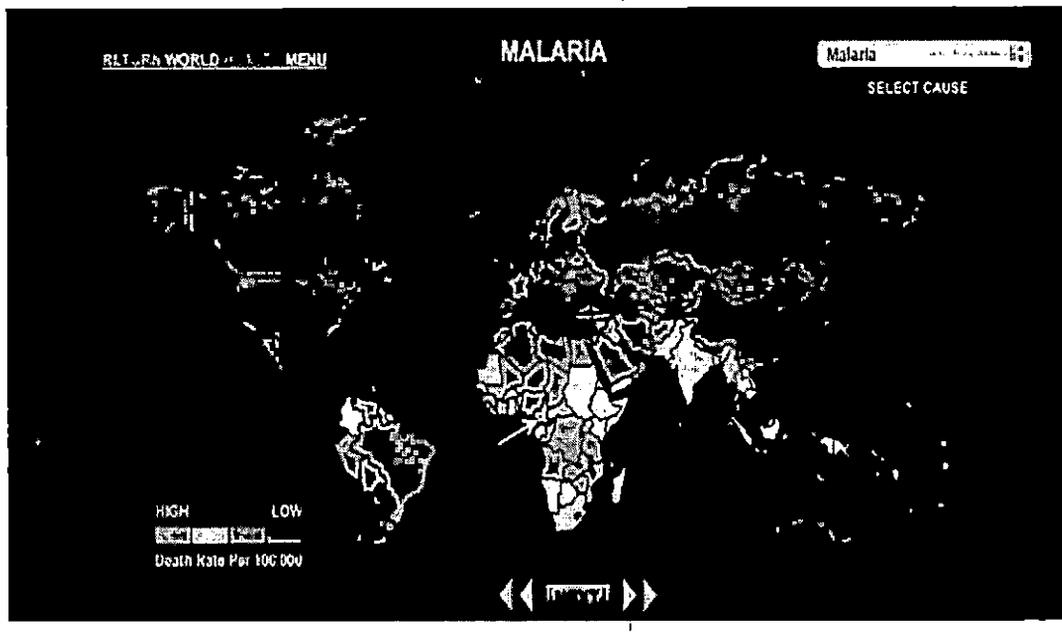


Figure 1. Map Showing Malaria Endemic Regions.

The CDC also has a map of Malaria hot spots, with Cameroon also shown as a Malaria endemic region (CDC, 2010).

The following statistics on Malaria illustrates the extent of Malaria as a major healthcare problem. According to the CDC, 3.3 Billion people live in areas with high risk of Malaria infection. That is half of the total population of the world, although all of these people are concentrated in just 106 countries. The CDC estimated the direct economic cost of Malaria worldwide at twelve billion dollars per year. As shown in Figure 1, Cameroon is a

Malaria endemic area (World Health Ranking; and Henry J. Kaiser Family Foundation, 2012).

Many studies have presented evidence demonstrating the state of healthcare or public health in Cameroon and similar nations (Ako & Takem, 2009; Akum, Kuoh, Minang, Achimbom, Ahmadou, & Troye-Blomberg, 2005; Awasum, 1992; Fongwa, 2002; and Messias, 2001). The reality is orders of magnitude worse in remote regions of Cameroon (World Bank, 2008). Although there are trained nurses in Cameroon, these nurses do not have enough practical skills or training to deal with problems they face due to lack of access to state of the art infrastructure or teaching material (Awasum, 1992; Fongwa, 2002; Messias, 2001; and USAID, 2003). This study took a culturally sensitive approach towards understanding the state of healthcare in remote regions surrounding Bamenda, in Cameroon. It brought together a culturally diverse group of nurses in an attempt to break barriers and begin to move towards deducing strategies for more effective Malaria interventions. The nurses from Cameroon were able to discuss their experiences/challenges and also possibly learned directly from their U.S. counterparts, while the U.S. nurses expanded their horizons thru improving their

abilities to make culturally sensitive suggestions to their Cameroonian counterparts. Cameroonian nurses faced unique challenges that U.S.A trained nurses hardly have to deal with. For example, the low literacy levels in the communities they serve make it harder for them to affect change due to communication challenges with their target communities. As a result, reception of health education or strategies suggested by nurses in Cameroon does not always get a positive reception, given the low literacy level of the target population. The significance of population literacy levels has been captured in literature where it was found that improving overall literacy level in the community has a direct effect on improving the people's ability to embrace or make healthy decision (Nutbeam, 2000). Differences in population literacy levels and many other cultural challenges made these two groups of nurses the ideal groups to test the concept of deducing global health strategies through collaboration using emerging technologies like phone seminars, webinars, and the world wide web.

## Statement of the Problem

Nurses in Cameroon lack the resources, training or practical skills to deal with the severe healthcare problems they face (Awasum, 1992; and Messias, 2001). On the other hand, their U.S. counterparts have top-level training, practical skills and resources to deal with the healthcare problems they face (World Health Organization, 2006). For example the World Health reported a shortage of 4.3 million health professionals worldwide, a situation that is most severe in sub-Saharan Africa, where Cameroon is located (World Health Organization, 2006). Malaria and other diseases pose a major healthcare problem in Cameroon and other developing countries, yet there are inadequate human resources to deal with the problem (Awasum, 1992; Fongwa, 2002; and World Bank, 2008). It has been shown that in developing countries, culturally compelling interventions had a far higher chance of success than traditionally top down and culturally insensitive approaches (Panter-Brick, Clarke, Lomas, Pinder, & Lindsay, 2006). This study presented a first step towards the goal of developing culturally compelling intervention strategies through the exchange of knowledge directly between nurses

in the United States and their counterparts in Cameroon. In this first step, the study looked at the challenges of providing care through the lived experiences of nurses in Cameroon. Greater insight into the challenges of health providers will set a good foundation upon which participating nurses can begin to find ways to deduce culturally compelling strategies for combating public health crisis in remote areas of Cameroon.

#### Purpose of the Study

This study is designed to explore the lived experiences of nurses in Cameroon, through the use of emerging technologies in the form of web, phone seminars and webinars. The goal of this collaboration was to help the nurses in the developed country (USA) get better insight into the experiences of their counterparts in the under-developed country (Cameroon). This will also help the nurses in the developed country appreciate the cultural challenges their counterparts face, thus helping to develop more culturally sensitive suggestions, while also improving their global cultural competencies.

## Research Question

This paper seeks to answer the following question, what are the challenges faced by nurses practicing in villages surrounding Bamenda, Cameroon?

## CHAPTER TWO

### RELATION TO EXISTING LITERATURE

#### Operational Definitions

##### Collaboration

According to information on an article on Medscape Nurses website "Ten Lessons in Collaboration" by Gardner, (2005), the term collaboration is defined as an activity that has many identifiable attributes. Some of these attributes include: sharing of planning, solving problems, setting goals, making decisions, working together cooperatively, assuming responsibility, communicating, and last but not least, coordinating openly (Gardner, 2005). Collaboration in this article is described as both a process and an outcome, where key stakeholders share interest or conflict that cannot be addressed by a single individual. The process involves bringing together different ideas in order to better understand complex problems. The outcome is when integrative solutions are developed, usually solutions that surpasses a single individual or organization's vision. (Gardner, 2005). The United States Department of Health and Human Services defined collaboration in the context of a relationship

between two groups that is mutually beneficial to both groups/organizations (U.S. Department of HHS).

In this study, collaboration is the communication by phone seminar between the USA nurses and the Cameroon nurses.

### Malaria

The Center for Disease Control and Prevention (CDC) described Malaria in the context of its fatal nature and the nature of the parasite. The common nature of the parasite is the fact that it infects mosquitoes that feed on human blood (CDC). This disease presents a major public health crisis in developing nations and Cameroon is a Malaria endemic nation (CDC).

### Trans-cultural Nursing

Madeleine Leininger is well known as the founder of Trans-cultural nursing, in nursing research and practice. Leininger defined Trans-cultural nursing as a humanistic and scientific area of nursing that focused on the differences and similarities among cultures with respect to human care, health, and illness that is based on cultural beliefs, values, and practices. The nurse is to use this knowledge gained through this study to provide care that is culturally specific. (Culture Diversity, 2012).

## Global Health Issues in Africa and Cameroon

### State of Healthcare in Africa/Cameroon

Many studies from academia and reputable organizations have reported on the state of health care in Africa, including specific cases about Cameroon (Awasum, 1992; Dussault & Dubois, 2003; Fongwa, 2002 ; Gwarkin, 2003; Messias, 2001; and World Bank, 2008). The lack of health workers has been identified as a major barrier to health coverage for persons in rural regions of Africa (World Bank, 2008). In the case of Cameroon, others have been able to link this lack of health workers and lack of well trained providers in general, to the issue of resource distribution, which contributes negatively towards the provision of health services (Messias, 2001). Studies have also revealed the presence of very few services like physician specialties or health centers (Awasum, 1992; Messias, 2001; USAID, 2003; and World Health Organization, 2006). The need for investment in human resources is not limited to the studies mentioned above. A comprehensive review will warrant its own paper specifically focusing on this issue. However, it is worth noting that this topic has received significant attention from the community, with

some focusing on human resources as a critical component of health policy (Dussault & Dubois, 2003; Van Lerberghe, Adams, & Ferrinho, 2002); and USAID, 2003).

#### Effects of Socio-Economic Status on Healthcare

The effect of socioeconomics on health seeking behaviors has been documented (Schellenberg, Victoria, Mushi, Don, Schellenberg, Mshinda, et al., 2003). In the specific case of Cameroon, studies have examined the factors that affect the operation of the health care system (Awasum, 1992; Fongwa, 2002; and Messias, 2001). Fongwa, (2002) examined the demographic indicators that impact the inadequacies of current approaches. This study also identified the effects of limited access to care and the effects of socioeconomic status of people in Cameroon (Fongwa, 2002). As a result of low socio-economic status of people in remote areas of Cameroon and even most people in the cities for that matter, the literacy level is very low (Fongwa, 2002). This presents a unique challenge to healthcare providers like the Cameroonian nurses participating in this study. It has been found that improved overall literacy level of a community can have a huge impact in intervention efforts (Nutbeam, 2000).

### Insufficient Healthcare training

The use of old-fashioned techniques and teaching facilities have been identified to be among the leading causes of unskilled healthcare workers (Fongwa, 2002; and Shey, 1986). One aspect of the studies mentioned above that needs our attention is the identification of the problem involving lack of up to date education materials for nurses or medical students, which in turn affects the overall quality of care. One can argue that this calls for programs like the one tested in the study presented here, which leverages the advancement of modern technology to allow for direct communication of these nurses in Cameroon with their counterparts in the United States.

Although this study focused on Malaria as a case study, that does not mean there are not other cases or diseases to look at. This approach can easily be used with any other disease. In fact, the World Health Organization and many others have numerous publications on various healthcare crisis in Africa, including Cameroon. In relation to Malaria, the Centers for Disease Control and Prevention (CDC) have reported that 91% of worldwide Malaria deaths in 2010 were in Africa. Water borne diseases (Ako & Takem, 2009; and World Health

Organization), HIV/AIDS and tuberculosis are other health crisis that deserve immediate intervention (World Health Organization, 1996). Since Malaria is the case study for this nursing collaboration effort, it is fitting to now look at some of the current and past work that focused on Malaria. This paper does not attempt to make a comprehensive review of Malaria related research. It only touched those publications that affected the choices made during the current project implementation.

#### Challenges of Malaria in Africa/Cameroon

Selected studies that examine Malaria intervention efforts will now be reviewed, including existing challenges. There are many fundamental biological reasons why there are persistent challenges in Malaria prevention efforts. In the context of Malaria prevention and elimination, Bousema and Drakeley (2011), presented a comprehensive review of the epidemiology and infectivity of two malaria gametocytes: *Plasmodium falciparum* and *Plasmodium vivax* (Bousema & Drakeley, 2011). This comprehensive review gives an assessment on current knowledge about Malaria gametocytes, focusing on epidemiology and distribution in endemic populations. They argued in concluding that improving on current

understanding of gametocytes will make a significant contribution towards Malaria control and elimination.

Besides epidemiology, there are many other studies that specifically address the current prevention/control efforts, including treatment strategies in the United States (Griffith, Lewis, Mali, & Parise, 2007; and Newman, Parise, & Barber, 2004), and an analysis of Malaria related deaths among U.S. travelers (Newman et al., 2004). Olliaro and his colleagues (2001), addressed the challenges of Malaria control from a drug therapy perspective (Olliaro, Taylor, & Rigal, 2001). In looking at the challenges and solutions, they described artemisinin-based therapy geared towards constraining the development of drug resistant Malaria. In the same context of prevention, Panter-Brick and others presented a social ecology model for Malaria prevention (Panter-Brick et al., 2006). In that study, they looked at the relationship between intent, actual change and eventual health impact, with a case study in Gambia.

One of the commonly used prevention methods is distribution of mosquito nets (Nevill G, 1996). In relation to this specific technique, Korenromp and colleagues reported on a study of indicators used in

Malaria control studies. Here they looked at the variation between possession and use by children under 5 years of age, which is the most vulnerable age group (Korenromp, Miller, Cibulskis, Cham, Alnwick, & Dye, 2003).

Another interesting dimension in Malaria prevention is prevention among pregnant women. In relation to this, a study performed by Akum and colleagues (2005), in Mutengene, Cameroon, looked at the impact of maternal, umbilical cord, and placental Malaria parasitaemia on the incidence of low birth weight (Akum, Kuoh, Minang, Achimbom, Ahmadou, & Troye-Blomberg, 2005). Their target population were women reporting for delivery in Mutengene, in the South West province of Cameroon.

Finally, it is important to remember that there is cost associated with Malaria prevention and there is a real economic and social burden as a result of Malaria. As such some studies have looked at the cost effectiveness of Malaria prevention efforts in Africa. For example, Goodman and colleagues looked at the cost-effectiveness of two drugs used in antimalaria chemoprophylaxis, in addition to other antenatal care services during pregnancy (Goodman, Coleman, & Mills, 2001). On the negative economic effects of Malaria in Malaria-endemic countries like Cameroon,

Sachs and Malaney (2002) reported on the economic and social burden of Malaria

After looking at the various studies mentioned above, it is clear that there is a real public health crisis in Cameroon, where there is limited training resources for healthcare providers, and there is a need for culturally compelling strategies. These observations validated the need for a collaboration effort like the one presented in this study. This study leveraged modern technology to provide a means for healthcare professionals to come together and explore different healthcare preventive strategies, starting with a look at the lived experiences of nurses in the villages surrounding Bamenda in Cameroon.

#### Communication Technologies and Online Educational Use of Information and Communication Technology

This study utilizes current web and communication technologies to facilitate participation and direct communication between nurses in the USA and those in Cameroon. This section looked at many studies that explored the use of information and communication technology (ICT) for health promotion and utilization. For example Chandrasekhar and Ghosh, (2001) examined some of

the benefits of ICTs in health care, even when the final beneficiaries are not directly reached. Other studies have ranged from remote training using mobile technology (Vyas, Albright, Walker, Zachariah, & Lee, 2010), to availability and access to electronic health information (Gathoni, 2012), in relation to internet patterns in some African countries including Cameroon (Smith, Bukirwa, Mukasa, Adeh-Nsoh, Mbuyita, Orji & Garner, 2007). Other research in ICTs and health promotion included evaluation of the relationship between internet use and health knowledge and the need to improve access to health information in Africa (Ybarra, Kiwan, Emenyonu, & Bagsberg, 2006). Williams and colleagues (2010) conducted a study on the use of computers and internet in medical education in Africa. Data for their study was collected by means of surveys of deans and heads of medical education in English speaking African countries. The work by Williams and colleagues (2010) differs from that presented in this paper. It differs in the sense that instead of dealing with heads of departments or education deans, this study focuses on understanding the lived experiences of nurses at the front line, with the long term goal of developing better strategies for health promotion.

Other studies have shown how telemedicine can be applied by nurses in their advanced public nurse (APN) roles. For example, studies have shown how the use of telemedicine have contributed to increase access to quality care, with a specific case study focusing on the use of this technology by APNs in rural Missouri, United States (Armer, 2003). The benefits of the APN's use of telemedicine was later documented in another study (Panter-Brick et al., 2006). Telemedicine has also been directly employed as a low cost option to bring medical care to Africa (Costlow, 2010), and there are many pilot telemedicine projects for Africa (Science Daily, 2007). These uses of technology are different from the approach we are proposing, which is extremely cost effective and does not require the installation of large infrastructure. Instead this project relies on a simple, yet powerful direct collaboration between healthcare professionals, as a means towards improved global strategies.

#### Online Education

Organizations like the Centers for Disease Control and prevention (CDC) have gone to great lengths to provide freely available online educational opportunities (CDC). Their online training and continuing education is a great

resource for healthcare professionals, and something that was leveraged in this study. In order to establish a baseline on Malaria knowledge between the two groups of nurses, they were all asked to participate in a CDC offered Malaria 101 continuing education course, which includes a pre and post tests (CDC Online). One good thing about this course is the fact that in addition to taking it as an exercise for this study, participants who completed the exercise had an added benefit of receiving continuing education credits. Such an arrangement can serve as a motivation for researchers who want to include online exercises like these in their project implementation. The CDC learning connection program is indeed an ideal source for all sort of health care self study. The CDC learning connection has helped healthcare professionals locate CDC learning resources, including those offered by CDC partners (CDC, 2012).

## Theoretical Foundation

### Transcultural Nursing

The big picture goal of this study is to understand the challenges faced by nurses in remote areas of Bamenda, Cameroon, thru the collaborative discussion between nurses in USA and nurses in Cameroon. The most culturally compelling way to go from strategy to effective implementation is to properly engage stakeholders in the design and implementation of any intervention (Panter-Brick et al., 2006). In designing this study, the goal was to make sure any future intervention strategies that come out of these efforts are sustainable, culturally acceptable, and gets to the core of the issue, from a nurse provider's perspective. It is for this reason that this study focused on the lived experiences of nurses in Cameroon as a first step towards this effort, by using low cost ICTs as a means of initiating transcultural collaboration.

This study design was motivated by Leininger's cultural care diversity and universality theory (CCDU). The CCDU theory stresses the impact of culture on health and healing and has been widely used among researchers (Evanson & Zust, 2006; Plowden, John, Vasquez, & Kimani,

2006; and Torsvik & Hedlund, 2008). This theory is based on understanding the fact that nursing care of individuals demands the need to look at their cultural heritage and lifestyles (Melanie & Evelyn, 2011). The major concepts covered in this theory are culture, cultural care, including cultural care differences and similarities pertaining to trans-cultural nursing care (Melanie & Evelyn, 2011). How then, does this study fit into this model? The answer is simple. Leininger's CCDU theory stresses the need for a clear and deep understanding of cultural complexities and appreciation of the limitations that it brings. By bringing together a group of culturally diverse nurses to understand the healthcare challenges through the lived experiences of Cameroonian nurses from the villages surrounding Bamenda, this study revealed the cultural complexities involved in Cameroonian nursing. We also gained awareness thru literature review that the Cameroonian nurses are probably limited in their knowledge or skills, given the limited training resources in the country (Fongwa, 2002; Shey, 1986; and World Bank, 2008). There is therefore a benefit that will emerge from engaging in direct communication and knowledge sharing with their counterparts in the United States. A question that can be

asked by others is, why can these nurses not just look up general guidelines of Malaria care online or order Malaria care books from the United States or international organizations? Well, doing that will violate Leininger's CCDU theory, since such an approach does not include the cultural component of care. Writing up guidelines was probably done with the American or European patients or nurses in mind. By engaging in direct talks through a phone seminar or webinar, we achieve two things:

1. The nurses from the United States get an appreciation of some of the challenges faced by their counterparts in Cameroon, and thus increased their ability to give more culturally sensitive suggestions.
2. The nurses from Cameroon get the extra knowledge they need, and have a chance to share knowledge and experiences in ways that are not possible from an international guideline or book they do not have access to.

Besides these two immediate benefits of communication through phone seminars or webinars, there is also the added benefit that the American nurse will become a more culturally competent nurse and their thoughts might become

a little more universal, fitting right within the constraints of the CCDU model.

### Health Promotion

A plethora of researchers have reported on health promotion strategies and challenges. Some have taken a global approach, where the focus is on global infrastructure to strengthen governance (Lee, 2007). Although there is immense benefits to looking at health promotion in a global context, most of these top-down initiatives rarely ever have any effect on target populations in our study. Others (Fidler, 2007) have approached global health promotion as a foreign policy issue, by looking at the role of globalization and how it can impact policies in many countries. This approach can be helpful especially in relation to funding and getting cooperation with the government of affected nations. However, just like the strategy by Lee, 2007 that focused on global infrastructure, the macro nature of it ignores the effectiveness of micro community action. In contrast, this project goes directly to nurses who are at the frontline of the fight against public health diseases like Malaria.

## CHAPTER THREE

### METHODOLOGY

#### Research Approach

This study looks into the phenomena of nursing in remote areas of Cameroon through the lived experiences of nurses in the villages surrounding Bamenda. For this reason, the hermeneutic phenomenological research approach was taken. Specifically, the selected approach was informed by the work of Van Manen (1997) research of lived experiences.

#### Study Participants

Participants for this study were made up of two nurses from California State University, San Bernardino (all females), and four community nurses currently practicing in the African nation of Cameroon. Prior to receiving approval for this phone seminar, the researcher of this study completed the course Human Subject Ethics Training in the Protection of Human Participants. The university Institutional Review Board (IRB) required completion of this course before submitting the research for approval.

The study consisted of six participants. Four of the participants were nurses in Cameroon. Of the four, one was a male nurse while the rest were females. The proportion of male to female ratio is not by design, but rather a consequence of the respondents who called for participation. The remaining two participants were U.S.A trained nurses from California State University, San Bernardino (CSUSB) graduate nursing program. All U.S.A participants were females. All participants were at least 18 years of age and voluntarily agreed to participate in the study activities, after meeting all pre-requirements for participation.

#### Informed Consent

Participants were given/read an informed consent form that stressed the voluntary nature of their participation in study activities. This form was designed and executed in accordance with CSUSB IRB rules. Participants had to give their informed consent prior to inclusion in the study activities. All participants were fluent in English language requirements of reading and writing.



Information about the nursing experience in Cameroon was gathered in the context of an educational component and the lived experience of nurses caring for patients with Malaria. The project was divided into two main phases. For simplicity and ease of presentation, the first phase is called the *Disease Introduction* or *DI* phase, while the second phase is called the *Interaction and Knowledge Sharing* or *IKS* phase.

In the *DI* phase, participants took an online course on Malaria provided by the Centers for Disease Control and Prevention (CDC). As part of this course, participants took a pre-test before the main course and a post-test after the course. This course included the pre and post-tests and was very important because it provided a way to have a slight understanding of Malaria knowledge variation before the seminar discussion or the *IKS* phase of the study.

The *IKS* phase is made up of three important activities, the seminar preparation, moderated phone seminar, and the post seminar evaluation. For the seminar preparation activity, participants were placed into four groups of twos. Each group was assigned an article from current Malaria literature that covers the following

topics: Epidemiology of Malaria, Malaria Control/Prevention, Malaria and Pregnancy, and Malaria treatment. The goal of this activity is to give participants a chance to look at the state of the art in terms of Malaria research relevant to the goals of this study. This was critical because this activity is designed to also show participants that important knowledge could be gained from reading published work on Malaria and other diseases. Participants were also asked to complete a pre-seminar evaluation questionnaire (see Appendix C). The questionnaire was designed in the form of a Likert Scale.

The moderated phone seminar was a very important activity in this study. It was a global phone seminar. Nurses from Cameroon joined in by way of a conference bridge. The researcher moderated the seminar. Although the four general topics of assigned papers guided the seminar discussion, participants were free and actually encouraged to relate their points to their practical experiences as health care providers. They were also encouraged to ask questions of each other (see Appendix D). Some of the general trends, themes, and observations will be covered in the results and analysis section of this document.

For the post-seminar evaluation, all participants were asked to fill out an evaluation form designed in the form of a Likert Scale. This evaluation method was selected because it is one of the most widely used scaling techniques, which has been used in many public health research studies (Likert, 1952; and Svensson, 2001). Responses from these evaluations were turned in to the project lead and are part of the data presented in this study.

#### Instrument Requirement

All participants were required to have access to a working computer with Internet connection. All CDC course work was to be completed by participants before or on the stated deadline emailed by researcher. Completed pre and posttest CDC questionnaires were sent to researcher via email before participating in the global phone seminar.

#### Project Site

The moderated phone seminar took place in CSUSB main campus, in the nursing department conference room. The participants in the U.S.A were seated around a round table

in the room and the conference phone was located in close proximity to the participants. The participants from Cameroon were located in the closest city to their villages and participated remotely at a telephone booth site. The "telephone booth" is a business site with multiple telephones cubicles. All the Cameroon participants were in one cubicle during the phone seminar. The rest of the participants attended in person and were all in the same room, conferencing with their colleagues across the globe.

#### Analysis Procedure

The seminar conference was analyzed using van Manen's methodological guidelines for conducting phenomenological research. These guidelines consist of six activities that the research must include (Burhans & Alligood, 2010; and Earle, 2010). They include: "turning to the nature of lived experience, investigating the experience as we live it rather than as we conceptualize it, hermeneutic phenomenological reflection, describing the phenomenon through the art of writing and rewriting, maintaining a strong and oriented relationship to the phenomenon and consideration of parts and whole" (Earle, 2010).

First, this study's focus on the lived experiences of nurses in Cameroon stemmed from a long-term desire to provide solutions to Malaria prevention from a nurse's perspective. The initial contact by nurses from Cameroon drove the researcher to want to know more about the issues faced by these Cameroonian nurses, in their practice and their efforts to fight against common infections like Malaria. Discussion with these nurses affirmed belief on the importance of doing more and developing effective strategies based on the lived experiences of these nurses. This initial motivation falls under the first activity in Van Manen's guidelines. The second activity was captured by the fact that an understanding of the lived experiences was achieved by listening directly to the nurses on the ground in the villages surrounding Bamenda, as opposed to basing such understanding on perceptions. By doing this, the researcher gained a better insight of the phenomenon under investigation. The hermeneutic phenomenological reflection activity in the analysis process involved repeated search through notes taken during the seminar, grouping responses and discussion sections into common themes, and deleting unwanted stories. According to van Manen (1997), this approach is called the selective or

highlighting approach. In the description activity of the guidelines, it was important to pay attention to the conversation between the two groups of nurses and to write down notes as they conversed. The notes were reviewed many times over, including multiple re-writings, to extract meaning used in this study. Finally, the analysis also involved looking at the whole picture/context of the phone seminar conversation. During the phone seminar, the researcher took as many notes as possible. These notes provided a framework from which to look at the whole and extracting themes and sub-themes. The final results of this study consisted of the most important themes extracted from the phone seminar conversation, including the pre and post-seminar evaluations. The activity applications discussed above are also summarized in Table 1.

Table 1: Application of Van Manen's Activity Guidelines

Van Manen's Activity Guidelines	Application to Study
Turning to the nature of lived	This study focused on gaining a greater insight into the lived

experience	experiences of the nurses practicing in the villages surrounding Bamenda, Cameroon.
Investigating the experience as we live it rather than as we conceptualize it.	This study achieved the above goal by learning directly from these nurses. The study's understanding of the challenges faced by these nurses are as a result of what was said during the phone seminar as opposed to basing the understanding on preconceived perception about these nurses' practice.
Hermeneutic phenomenological reflection	Notes taken during the phone seminar were reviewed over and over and participants' responses were analyzed and grouped into themes.
Describing the phenomenon through the art of writing and re-writing.	During the phone seminar, the researcher wrote down as many notes as possible as the two groups of nurses conversed. The

	<p>researcher later on wrote a paper from information gathered during the phone seminar.</p>
<p>Maintaining a strong and oriented relationship to the phenomenon</p>	<p>The researcher reviewed all the notes taken and paid particular attention to the quotes that addressed the lived experiences of these participants.</p>
<p>Consideration of parts and whole</p>	<p>The researcher considered parts and whole of the study. The comments by the participants during the phone seminar and the post seminar questionnaire discussion questions were also taken into consideration when analyzing the data.</p>

## Establishing Rigor/Trustworthiness

This project used two expressions of rigor for interpretive phenomenology, namely openness and concreteness (de Witt & Ploeg, 2006). Rigor is established in two ways. First, the original transcript/notes were archived and are available for future researchers to look through and draw their own conclusions. Second, rigor was also established in relation to usefulness of practice. Data gathered could be used by multiple groups including traveling nurses and/or international Non Governmental Organizations (NGOs), who might someday decide to visit this area, or provide services to the people of these or similar areas.

## CHAPTER FOUR

### RESULTS AND DISCUSSION

#### Study Findings

This study is primarily focused on the lived experiences of nurses serving in the villages surrounding Bamenda, in Cameroon. As such, the study findings focused primarily on the lived experience of the nurses in Cameroon. In addition, the findings or summary from other data collected during the study will also be reported. The DI phase of the study (Figure 2), and seminar preparation step of the IKS phase involved an education component, including a CDC Malaria 101 course with its pre-test and post-test. There also was a pre and post-seminar evaluation questionnaire completed by the participants (see Appendix C). These findings are also reported in addition to information on lived experiences.

#### Lived Experiences of Cameroon Nurses

The seminar discussions on the lived experiences of Cameroonian nurses were driven by assigned pre-seminar readings. In this section, general themes from the discussion were presented. However in Table 2 (see

Appendix D) discussion comments were matched to specific assigned article topics. Table 3 (see Appendix D) also showed general questions that resulted from discussions on lived experiences during the seminar.

The following themes were extracted from the study. Notes taken during the seminar as well as responses to the pre and post-seminar evaluation provided a framework from which the most important themes were extracted for presentation.

#### Theme 1: Thirst for More Knowledge

The Cameroonian nurses expressed excitement about the opportunity to share their experiences and possibly learn from their U.S. counterparts. They were very appreciative about taking the Malaria 101 courses and wished they had easy access for such educational material. They expressed that it is because of their thirst for more knowledge that they were willing to endure the trouble it took to travel to the city (Bamenda) to gain access to usually unreliable Internet resources. They all said they would go to the CDC and similar destinations often if they had the means and resources. This was a very important theme, given the fact that access to a wealth of information is not a concern for the U.S. nurses, at least not at CSUSB.

Therefore, access to educational material is very important to these nurses. For example, while the Cameroonian nurses were all baccalaureate prepared nurses, they said their training did not entail reading published papers or accessing resources online from websites like the CDC. Yet, they all expressed excitement and satisfaction from reading the assigned papers and accessing material on the CDC website.

## Theme 2: Frustration

On access to communication technologies, the Cameroonian nurses expressed their frustration in relation to the difficulty and cost of technology, especially the Internet. They expressed frustration with having to travel to the big cities just so they could look up resources regarding what they are facing in their practice. For example, now that they know about educational resources available such as the CDC website, they expressed regret about their inability to have 24/7 access to such important source of educational material. They talked of the roads being very bad and it took them a minimum of 2 hours to travel twenty miles to reach the city. Another element of frustration was in relation to the reception they get while trying to educate the people in their communities.

On community reception to Malaria education, the nurses from Cameroon reported that they generally have a hard time getting their message across when educating the community about Malaria. This is because the community preferred actions, instead of 'empty words'. What this means was, they will rather have the nurses or the government agency provide them with what they need to protect themselves from contracting Malaria, instead of educating them about preventive strategies against Malaria. The nurses' frustration lied on the fact that, working in these communities required a lot of sacrifice, yet the people gave them a lot of grief. They do not have the resources to provide what the people needed, the reception they get from the community they serve sometimes not always positive, makes them feel as though the beneficiaries of their educational efforts do not care. To overcome this challenge, one of the Cameroonian nurses describe how providing education to the villagers about preventive Malaria measures is usually accompanied by the nurse physically participating in the cleaning work. Her response when asked by the U.S nurses why this was important was because the villagers will tend to mimic the behavior and maintain the good habit if this behavior is

modeled as compared to if the education was only received verbally. Although the nurses cannot afford nets or insecticides, they continued to do their best, knowing how important education is to their community. Education is usually performed at people's houses, or mostly at the health center, when the patient will come in for any reason.

On lack of resources, the nurses from Cameroon also expressed frustration with the lack of resources like Malaria prevention products (e.g. mosquito nets, insecticides). When asked if international efforts to provide free products are not useful, they expressed that such resources never reached their target communities, and although the international community will donate products, local authorities and intermediaries, most of the time, will turn around and sell the products to the population. As such, their target population cannot afford them even when they knew where to go get them.

### Theme 3: Alternative Malaria Treatment and Prevention

#### Methods

On Malaria prevention and pregnancy, it was revealed during the phone seminar that pregnant women with Malaria in Cameroon usually would come to the hospital for

treatment. However, for those who do not have money to pay for the treatment, they tend to visit herbalist in search for treatment. One of the Cameroonian nurses talked of a situation where a pregnant woman opted to visit a 'witch doctor' in search for treatment for her Malaria. Usually the 'witch doctor' will give them a combination of herbs, which had adverse consequences on the fetus. In this occasion, these portions caused the pregnant woman to bleed a lot, leading to miscarriage of the fetus.

On preventive measures, a nurse from Cameroon reported that there are no general standards of care as far as educating the community about Malaria. As such, the nurses reported that they all employed different approaches to help with Malaria prevention. They also reported that they help to reduce Malaria by educating the members of their communities about good hygiene, and the importance of keeping their houses and their surroundings in excellent sanitary conditions.

On alternate preventive methods, due to the limited or no access to prevention resources, and given the fact that these villagers have no hope of ever being able to afford all the Malaria prevention methods, they tend to resort to traditional approaches to keep mosquitoes away. According

to one Cameroonian nurse, one most commonly used technique among the villagers is the burning of wood from cypress tree during the night before they go to sleep. According to this nurse, the smell and chemical from the burned cypress wood acted as a repellent against mosquitoes.

### Pre and Post-Seminar Findings

The pre/post tests were designed using Likert Scale, with 1 being 'Not Applicable' and 6 being 'Strongly Agree'. The questions were selected to get feedback from the participants on their perception on various aspects of the phone seminar and Malaria in general. See Appendix C for post-seminar evaluation form. The pre-seminar evaluation was taken after the participants had gone through the CDC Malaria 101 courses online (see Appendix B). Only one of the U.S. nurses completed the pre and post-seminar questionnaires, while all the Cameroonian nurses sent in their completed pre and post-seminar questionnaires. Since only one U.S nurse completed these questionnaires, the responses from all participants are presented as a group. The bar charts in Figure 3 and Figure 4 below showed the distribution of participant responses.

### Pre-Seminar Evaluation Observations

Going into the seminar, all participants were aware of Malaria statistics in their countries, were willing to improve their knowledge on Malaria and could identify common symptoms of Malaria in patients. Participants' knowledge on the management and treatment options was mixed between the two groups. In this case, the U.S. nurses and two Cameroonian nurses were aware of available options, while the other two Cameroon nurses were not sure. The most significant difference between the U.S and the Cameroonian nurses was on the question of confidence in providing Malaria care, perception about whether or not enough is being done to combat Malaria worldwide, and whether or not Malaria affects all people around the world. Here, the Cameroonian nurses were more confident about their ability to care for Malaria patients. They also felt that enough was not being done to combat Malaria, and did not think Malaria-affected people all around the world.

### Post-Seminar Evaluation Observations

After the seminar, all participants who participated in the evaluation agreed that their knowledge about Malaria has improved as a direct result of this study. They all also agreed that after the seminar, they could provide

better care than they were able to prior to the study. On the question of whether or not enough is being done to combat Malaria worldwide, there was a consensus that more work is needed to fight against Malaria in villages around Bamenda, Cameroon. This observation was very pleasant, given that the most important step towards solving a problem is recognizing that it exists. Finally, although two of the Cameroonian nurses gained awareness that Malaria affected everyone around the world, two of their counterparts were not convinced that Malaria affected everyone around the world. Although only one U.S. nurse completed the post-seminar evaluation, the post seminar response plots showed a general agreement (or less variation) across the board, compared to the pre-seminar evaluation responses.

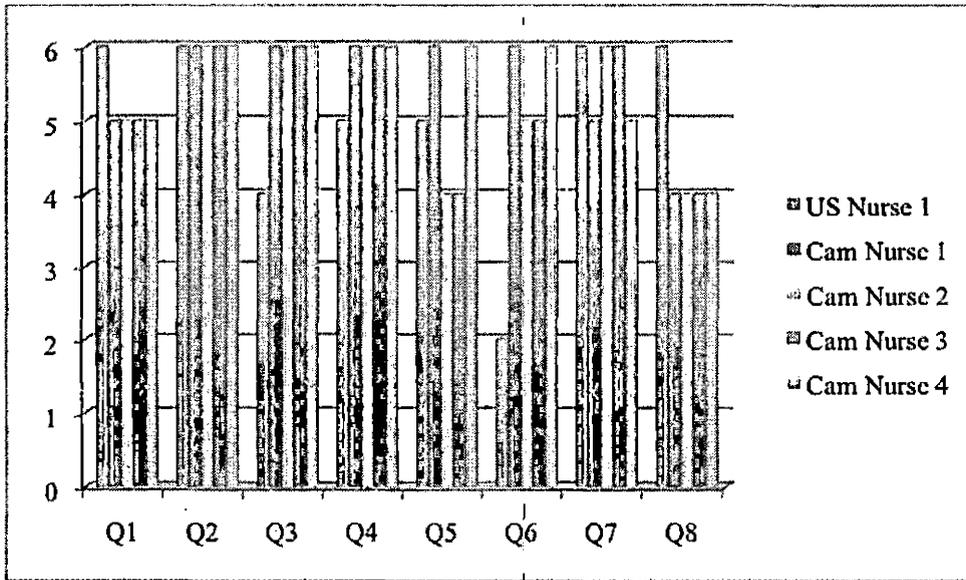


Figure 3. Pre-Seminar Evaluation Response Plots On Likert Scale From 6 For Strongly Agree, To 1 For Not Applicable. Questions Are Labeled Q1 To Q8

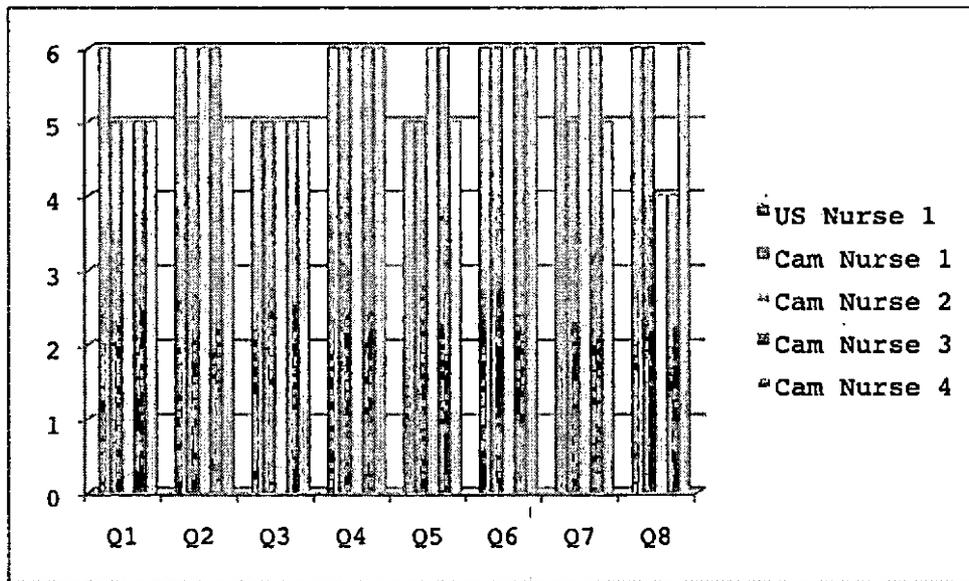


Figure 4. Post-Seminar Evaluation Response Plots On Likert Scale From 6 For Strongly Agree, To 1 For Not Applicable. Questions Are Labeled Q1 To Q8

### Discussion

This study utilizes current web and communication technologies to facilitate direct communication between nurses in the villages surrounding Bamenda in Cameroon, and their U.S. counterparts. Through this communication, the lived experiences of Cameroonian nurses were learned and a greater insight was gained, directly from the nurses practicing in these remote regions. Although many studies have explored the use of ICTs for health promotion and utilization (Vyas, Albright, Walker, Zachariah, & Lee,

2010; Gathoni, 2012; and Smith, et al., 2007), none of these studies have explored the use of ICTs in the study of lived experiences of healthcare professionals practicing in remote regions. One very important aspect of the study presented here is the fact that the research dealt directly with nurses, in a collegial and respectful way. Unlike the study by Williams and colleagues (2010) where they studied the use of computers and Internet in medical education in Africa by interviewing department heads, the approach taken in this study was to learn directly from the nurses practicing in the field. Knowledge gained through this direct insight is far more practical, and not based on theoretical or general assumptions.

The challenges revealed by studying the lived experiences of Cameroonian nurses laid the groundwork for future collaboration that will hopefully lead to development of culturally compelling strategies on Malaria prevention in remote regions of Cameroon.

## CHAPTER FIVE

### CONCLUSION

There is sufficient evidence demonstrating a unique healthcare dilemma in remote areas of Cameroon. This dilemma is such that an area with a multitude of health care crisis is also an area with either a shortage of healthcare professionals, or insufficiently trained professionals. Insufficient training is due to limited training infrastructure and no access to state of the art facilities or information. The Cameroonian nurses are anxiously seeking for more knowledge/new strategies and often are lamented by ineffective and culturally insensitive material that they felt is often driven down their throats. In an attempt to understand this dilemma, this study brought together nurses from Cameroon and their counterparts in the United States, through the use of the web and phone technologies. This study tackled the first most important step in this effort, by looking at the lived experiences of nurses working in remote villages surrounding Bamenda, Cameroon. This study has shown a cost effective way of studying the lived experiences of

healthcare professionals, as a first step in an effort to develop sustainable, effective, and culturally compelling interventions in Malaria endemic areas. With the advent of webinars, phone seminars, and other next generation communication devices, there are endless possibilities to develop such micro collaborations at a fraction of the cost of almost all current efforts. This study laid the necessary foundation for development of a more practical intervention strategy. What is left now is to find out if implementation of an intervention plan designed through this collaboration could be as effective as this study suggested it could be.

#### Study Limitations

The first limitation of the study presented is linked to the methodology used in data collection. This is due to the fact that findings from hermeneutic phenomenological studies are at risk of being subjected to various interpretations (Burhans & Alligood, 2010). However, note that the work presented in this study is a first step needed to gain insight, and talking directly to nurses from the target region is a very credible way of beginning to

understand the challenges they faced. This project was also limited in the sense that the main conference was done by means of a phone seminar. In such a setting, the researcher was almost limited to using a small sample since moderating a conference call with more than just a few people could have been challenging to begin with. Therefore, the conclusions and general observations from the study cannot be generalized with confidence. Another limitation was that during the phone seminar, at times, the telephone line will cut off and the nurses from Cameroon would have to dial in again. There also were some difficulties with the clarity of the phone conversation due to poor connection. Finally, the study was limited by the fact that the discussions were not recorded. Such recording was challenging, given the quality of the phone calls. Instead detailed notes were taken in the course of the discussion. In spite of these limitations, this study still demonstrated the promise of this approach to understanding the challenges through the lived experiences of front line health professionals.

## Future Work

In the future, the intention is to move on to the next phases of the big picture goal, which is development and implementation of an actual intervention using the participating nurses. This work will have to include more phone seminars to discuss intervention strategies as well as development of reliable evaluation instruments for such interventions. It will also be nice to incorporate a web component to this collaboration effort to encourage 24/7-moderated conversations. Finally, it will be useful to use phones that are able to record conversations during the phone seminar, such that the recordings could be archive for further review and analysis. Such recordings will be more reliable than notes.

APPENDIX A

APPROVALS AND INFORMED CONSENT

# Institutional Review Board Approval



Academic Affairs

November 28, 2012

Office of Academic Research • Institutional Review Board

Prof. Teresa Dodd-Dutera and Noella Sub Tatuw  
Department of Nursing  
California State University, San Bernardino  
3500 University Parkway  
San Bernardino, California 92407

**CSUSB**  
**INSTITUTIONAL**  
**REVIEW BOARD**  
Administrative Review  
IRB# 12022  
Status  
**APPROVED**

Dear Prof. Dodd-Dutera and Ms. Tatuw:

Your application to use human subjects, titled, "Transcultural Healthcare and Malaria: Identifying Global Health Strategies through and Educational Webinar Between Public Health Professionals from the USA and Cameroon" has been reviewed and approved by the Chair of the Institutional Review Board (IRB) of California State University, San Bernardino and concurs that your application meets the requirements for exemption from IRB review Federal requirements under 45 CFR 46. As the researcher under the exempt category you do not have to follow the requirements under 45 CFR 46 which requires annual renewal and documentation of written informed consent which are not required for the exempt review category. However, exempt status still requires you to attain consent from participants before conducting your research.

The CSUSB IRB has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval notice does not replace any departmental or additional approvals which may be required.

Although exempt from federal regulatory requirements under 45 CFR 46, the CSUSB Federal Wide Assurance does require all research conducted by members of CSUSB to adhere to the Belmont Commission's ethical principles of respect, beneficence and justice. You must, therefore, still assure that a process of informed consent takes place, that the benefits of doing the research outweigh the risks, that risks are minimized, and that the burden, risks, and benefits of your research have been justly distributed.

You are required to do the following:

- 1) Protocol changes must be submitted to the IRB for approval (no matter how minor) before implementing in your prospectus/protocol. Protocol Change Form is on the IRB website.
- 2) If any adverse events/serious adverse/unanticipated events are experienced by subjects during your research, Form is on the IRB website.
- 3) And, when your project has ended.

Failure to notify the IRB of the above, emphasizing items 1 and 2, may result in administrative disciplinary action.

If you have any questions regarding the IRB decision, please contact Michael Gillespie, IRB Compliance Coordinator. Mr. Michael Gillespie can be reached by phone at (909) 537-7588, by fax at (909) 537-7028, or by email at [mgillespie@csusb.edu](mailto:mgillespie@csusb.edu). Please include your application identification number (above) in all correspondence.

Best of luck with your research.

Sincerely,

*Sharon Ward, Ph.D.*  
Sharon Ward, Ph.D., Chair  
Institutional Review Board

SW/mg

cc:

909.537.7588 • fax: 909.537.7028 • <http://irb.csusb.edu/>

3500 UNIVERSITY PARKWAY, SAN BERNARDINO, CA 92407-2393

The California State University • San Diego • Channel Islands • Chico • Dominguez Hills • Fullerton • Fresno • Long Beach • Los Angeles • Merced • Monterey Bay • Northridge • Pomona • San Bernardino • San Diego • San Francisco • San Jose • San Luis Obispo • San Marcos • San Bernardino • Stanislaus

Informed Consent

\*\*\*\*\*

Top of Form

Participant name:

Bottom of Form

I agree to participate in the online scholarship and collaboration remote exchange project with a full understanding of the following criteria:

1. Participation will be online, through free publicly available sites. In addition, there will be a single live teleconference among participants, study investigator and supervising faculty.
2. The program will last for three months.
3. To promote confidentiality, all evaluation material will be strictly anonymous. As a participant, I am not obligated to participate in any activity in the project, since participation is completely voluntary.
4. At any moment during the three-month time frame, I am free to withdraw without advance notice.
5. Given the nature of the study, I understand that there is no risk associated with my participation in the program.
6. My participation is 100% voluntary and I do not expect any form of compensation in exchange for my participation.
7. I understand that program organizers/moderators reserve the right to suspend my participation if I engage in any actions that violate United States law.
8. Finally it is my understanding that this project will only proceed after approval by the Institutional Review Board of California State University, San Bernardino.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

\*\*\*Note: This informed consent can also be granted verbally upon recruitment of participants in Cameroon.

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APPENDIX B

MALARIA COURSE EVALUATION

CDC Malaria 101 PRE-TEST



Centers for Disease Control and Prevention

CDC 24/7: Saving Lives. Protecting People.™

Malaria  
101 for

the Health Care Provider

Introduction to Malaria CE Module & Pre/Posttest

Question 1

Malaria is caused by a:

- Bacterium  Virus  Parasite  Fungus

Introduction to Malaria CE Module & PretestPage:

Question 2

A traveler can reduce their risk of getting malaria by doing all of the following EXCEPT:

- Take preventive medications  Get an immunization  Use a mosquito repellent like DEET  Use an insecticide treated bednet  Wear protective clothing

Question 3

Some criteria for severe Malaria include all of the following EXCEPT:

- Acute respiratory distress syndrome  >5% of red blood cells are infected  Altered mental status  Hemoglobin < 7  Nephrotic syndrome

CDC Malaria 101 POST-TEST

Evaluation

WB1901 - Evaluation - Malaria 101 for the Health Care  
Provider

Content and Learning Materials

1) The content and learning materials addressed a need or a gap in my knowledge or skills.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

2) The difficulty level was appropriate.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

3) The length and pace of the activity was appropriate.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

4) Feedback (Q and A, knowledge checks) I received during the activity was helpful.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree

- e)  Strongly disagree
- f)  Not applicable

5) Please share your comments about the content and learning materials.

--

### Presentation

6) The content expert demonstrated expertise in the subject matter.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

7) The delivery method used (conference, journal article, webcast, e-learning, etc.) helped me learn the content.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

8) The instructional strategies (lecture, case scenarios, figures, tables, media, etc.) helped me learn the content.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

Learning Environment

9) The learning environment was conducive to learning.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

10) Do you believe this activity was influenced by commercial interests?

- a)  Yes
- b)  No

11) If yes, please explain.

12) Did you experience technical difficulties with this activity?

- a)  Yes
- b)  No

13) If yes, please explain.

Knowledge, Competence, and Practice

14) This activity effectively met my educational needs.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

15 If given an opportunity, I can apply the knowledge gained as a result of this activity.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

16 Describe changes to your competence, skills/strategy and/or practice.

### Learning Objectives

17 I can describe the epidemiology of Malaria in the US.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

18 I can assess a traveler's risk of acquiring malaria.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

19 I can identify strategies to prevent malaria, including drugs for malaria prophylaxis.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided

- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

20) I can recognize common symptoms of uncomplicated and severe malaria.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

21) I can make the diagnosis of malaria.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

22) I am familiar with management and treatment of malaria.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

23) I can identify resources for additional information on management of malaria.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

24) The content was relevant to the learning objectives.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

25) Please share your comments regarding the learning objectives.

--

Quality Improvement

26) The CDC's Training and Continuing Education Online (TCEO) system is easy to use.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

27) The availability of CE credit influenced my decision to participate in this activity.

- a)  Strongly agree
- b)  Agree
- c)  Neither/Undecided
- d)  Disagree
- e)  Strongly disagree
- f)  Not applicable

28) What suggestions do you have to improve this educational activity?

--

Activity Specific

29) In my practice setting, I provide pre-travel consultation to patients.

a)  Yes

b)  No

30) In my practice setting, I currently see (or have the potential to see) patients who are ill after travel.

a)  Yes

b)  No

CDC POST TEST QUESTIONNAIRE

Posttest

WB1901 - Posttest - Malaria 101 for the Health Care Provider

1) Select the true statement below

a)  The vector that transmits malaria is the *Aedes aegypti* mosquito which is present in all US states except Hawaii.

b)  The vector that transmits malaria is the *Anopheles* mosquito which can only be found in Africa, Asia, and Latin America.

c)  Malaria is primarily transmitted by the *Anopheles* mosquito, but can also be transmitted via blood transfusions, organ transplants, and congenitally.

d)  Malaria is primarily transmitted by the *Aedes aegypti* mosquito, but can also be transmitted via blood transfusions, organ transplants, and congenitally.

2) Select the two species of malaria that can cause relapses:

a)  *P. ovale* and *P. malariae*

- b)  *P. vivax* and *P. falciparum*
- c)  *P. ovale* and *P. vivax*
- d)  *P. malariae* and *P. vivax*
- e)  *P. knowlesi* and *P. malariae*

3) Malaria prevention strategies in the US include all of the following EXCEPT:

- a)  Surveillance of cases of malaria diagnosed in the U.S. to detect any locally transmitted cases and prevent reintroduction of malaria in the U.S.
- b)  Chemoprophylaxis use among travelers to endemic countries.
- c)  Personal protection from mosquito bites.
- d)  Prompt diagnosis and treatment of malaria to decrease risk of local transmission.
- e)  Empiric treatment for malaria among all travelers who return from malaria-endemic areas who develop fever to decrease risk of local transmission.

4) Approximately how many cases of malaria are reported each year in the US?

- a)  140
- b)  1400
- c)  14,000
- d)  140,000

5) Strategies for malaria prevention in travelers include (select the best answer):

- a)  Taking chemoprophylaxis and personal protection measures against mosquitoes
- b)  Taking chemoprophylaxis, personal protection measures against mosquitoes, and immunization for malaria
- c)  Immunization for malaria, sleeping under a bednet at night, and using DEET
- d)  Taking chemoprophylaxis

6) A 45 year old man comes for a pre-travel consultation. He will be traveling to Haiti on a mission trip. All of the following questions should be asked to assess his risk for acquiring malaria

EXCEPT:

- a)  Where in Haiti will he be traveling?
- b)  How long will he be in Haiti?
- c)  What type of accommodations will he have in Haiti?
- d)  What is his past medical history?
- e)  Does he prefer a daily or weekly medication?

7) A 12 year old boy presents to the emergency room with fever. He recently travelled to Ghana to visit relatives. He took mefloquine for malaria prophylaxis and did not miss any doses. Malaria does not need to be considered since he took and was adherent to malaria prophylaxis.

- a)  True
- b)  False

8) A 64 year old woman presents to her doctor with fever for 2 days. She recently returned from a trip to Kruger National Park in South Africa. She did not take malaria prophylaxis. What is the gold standard test that must be ordered immediately to make the diagnosis of malaria?

- a)  Antibody titers for *Plasmodium*
- b)  Thick and thin smears for malaria
- c)  Polymerase chain reaction for *Plasmodium* DNA
- d)  Rapid diagnostic test for malaria

9) A 20 year old man presents to the emergency room with fever for 3 days. He recently travelled to Peru and did not take malaria prophylaxis. Thick and thin smears for malaria show *P. falciparum* at 5% parasitemia. He is diagnosed with severe *P. falciparum* malaria.

What medication regimen should be started for severe malaria?

- a)  IV quinidine and doxycycline
- b)  IV quinine and doxycycline
- c)  PO quinine and doxycycline
- d)  PO atovaquone-proguanil followed by primaquine

10) The 20 year old patient with severe malaria from Question 9 deteriorates in the emergency room and develops altered mental status. IV quinidine is not available in the hospital pharmacy. Options for treatment include:

- a)  Use PO quinidine instead
- b)  Use PO quinine instead
- c)  Use IV quinine instead
- d)  Call CDC for IV artesunate

CDC Malaria 101 Course: Participant Pre and Post Test Scores

Nurse	Pre-test	Post-test	Location
(440157)	100	70	Cameroon
(440161)	100	90	Cameroon
(440160)	100	70	Cameroon
(440159)	100	70	Cameroon
(440928)	100	100	USA
(440879)	100	100	USA
(440884)	100	100	USA

APPENDIX C  
SEMINAR EVALUATION

Pre-Seminar Questionnaire

1. I am aware of the statistics of malaria in my country.

- a) Strongly Agree
- b) Agree
- c) Neither/Undecided
- d) Disagree
- e) Strongly disagree
- f) Not applicable

2. I will like to improve my knowledge on malaria disease.

- a) Strongly Agree
- b) Agree
- c) Neither/Undecided
- d) Disagree
- e) Strongly disagree
- f) Not applicable

3. I am confident in providing care to a malaria patient.

- a) Strongly Agree
- b) Agree
- c) Neither/Undecided
- d) Disagree
- e) Strongly disagree
- f) Not applicable

4. I can identify common symptoms of malaria in a patient.

- a) Strongly Agree
- b) Agree
- c) Neither/Undecided
- d) Disagree
- e) Strongly disagree
- f) Not applicable

5. I am aware of the management and treatment options available for malaria patients.

- a) Strongly Agree
- b) Agree
- c) Neither/Undecided
- d) Disagree
- e) Strongly disagree
- f) Not applicable

6. Enough is being done worldwide to fight against malaria.

- a) Strongly Agree
- b) Agree
- c) Neither/Undecided
- d) Disagree
- e) Strongly disagree
- f) Not applicable

7. Discussions about malaria between nurses in Cameroon and U.S.A will help us gain more insight about malaria in these locations.

- a) Strongly Agree
- b) Agree
- c) Neither/Undecided
- d) Disagree
- e) Strongly disagree
- f) Not applicable

8. People all around the world suffers from malaria.

- a) Strongly Agree
- b) Agree
- c) Neither/Undecided
- d) Disagree
- e) Strongly disagree
- f) Not applicable

## Post-Seminar Questionnaire

1. I now understand the statistics of malaria in my country.
  - a) Strongly Agree
  - b) Agree
  - c) Neither/Undecided
  - d) Disagree
  - e) Strongly disagree
  - f) Not applicable
  
2. My knowledge about malaria has improved after attending this seminar.
  - a) Strongly Agree
  - b) Agree
  - c) Neither/Undecided
  - d) Disagree
  - e) Strongly disagree
  - f) Not applicable
  
3. I can provide better care for a patient diagnosed with malaria.
  - a) Strongly Agree
  - b) Agree
  - c) Neither/Undecided
  - d) Disagree
  - e) Strongly disagree
  - f) Not applicable
  
4. I can identify common symptoms of malaria in a patient.
  - a) Strongly Agree
  - b) Agree
  - c) Neither/Undecided
  - d) Disagree
  - e) Strongly disagree
  - f) Not applicable
  
5. I now understand the management and treatment options available for malaria patients.
  - a) Strongly Agree
  - b) Agree
  - c) Neither/Undecided
  - d) Disagree
  - e) Strongly disagree
  - f) Not applicable

6. More work is needed to fight against malaria in under-develop countries.

- a) Strongly Agree
- b) Agree
- c) Neither/Undecided
- d) Disagree
- e) Strongly disagree
- f) Not applicable

7. Participating in discussions about malaria with my fellow counterparts helps me to gain more insight about malaria in their location.

- a) Strongly Agree
- b) Agree
- c) Neither/Undecided
- d) Disagree
- e) Strongly disagree
- f) Not applicable

8. Malaria is a disease that affects people all around the world.

- a) Strongly Agree
- b) Agree
- c) Neither/Undecided
- d) Disagree
- e) Strongly disagree
- f) Not applicable

9. If you had the opportunity, what would you do to improve the seminar experience? Please express yourself in a few sentences.

10. How do you feel about the seminar content and learning material? Please express yourself in a few sentences.

APPENDIX D

SEMINAR COMMENTS AND QUESTIONS

Participant Comments During Phone Seminar

Article Topic	Discussion	Nurse
<i>Malaria and Pregnancy</i>	"My name is ...We are glad to be here. Yes, regarding this paper I read, in my village, I do see pregnant women with malaria coming to our clinic to get medicine for malaria." (Personal Communication, December 6, 2012)	Cameroon Nurse 1 (group 1)
	"Yes, this is ..., I really like to read. This is the first time I read a paper about malaria problem. What I see in my village is that pregnant women who don't have money will go to see the herbalist or wish doctor to cure them. In my village, we have herbalist or wish doctor all over the place. Sometimes they help and sometimes their medicine cause more problems. One example, a pregnant woman in my village go to see a herbalist doctor to get medicine for her malaria since she can not afford the white medicine. The witch doctor gave her medicine and she took the medicine. Then she starts to bleed so much, she came to our clinic for help. We tried to save her and the baby. She lost the baby; we thank God she did not die. Sometimes, some pregnant women will not come for help and they will die." (Personal Communication, December 6, 2012)	Cameroon Nurse 2 (group 1)
<i>Malaria Control Africa</i>	"Where I live, in my village, we can do things that the nurse in the next village does not do. My village has more children dying	Cameroon Nurse 3 (group 2)

	<p>when they get malaria than Philo's village. We do whatever we can do to help. Sometimes we try and buy medicine to help the family. The little salary I get sometimes I use it to help relatives to buy medicine. I use the book I get from the ministry of health and the one I used in school to learn more about how to teach my people. I will tell them that if they keep their house clean, remove all the standing water in the gutter then the mosquitoes will go away and they will not get sick. Sometimes they listen and sometimes they don't." (Personal Communication, December 6, 2012)</p>	
	<p>"It was our first time to go to the website, it has a lot of information. We don't have internet in the village, and then we have to go to the city where the internet is good to take the class. It's different in the city. The nurses don't have to do what we do here in the village. We don't even get paid as much as them. I love my village and that is why I am doing this" (Personal Communication, December 6, 2012)</p>	<p>Cameroon Nurse 2 (group 1)</p>
	<p>"I have the same problem with my village. My village is close to Erica's village. Some people will visit the clinic when their children are sick and I will teach them then. Sometimes I will walk around the village, go house to house and talk to the people who will listen to me. When I go to teach them, sometimes I have to help them to</p>	<p>Cameroon Nurse 4 (group 2)</p>

	<p>clean their houses! When I help them like that, they will try to keep the house clean for a little while because they know I will come back and they don't want to disappoint me." (Personal Communication, December 6, 2012)</p>	
	<p>"The people in my village tell me that they are tired of empty words. They want me to give them the mosquito nets that I am talking about. They complain they don't have money to buy the DDT spray. I don't blame them sometimes but I try to tell them to focus on the things they can do without money like cleaning the house and making sure the water in the gutter drains well. It is hard for us nurses in the village but the nurses in the city will not do this. Nobody is helping us. The government will say they open the clinic and they pay us to work! They don't understand what we are going through. We have no supplies to give for free. We complain to them but they don't do anything." (Personal Communication, December 6, 2012)</p>	<p>Cameroon Nurse 3 (group 2)</p>
	<p>"In all the villages around me, at night time before we go to sleep, we burn the wood from the cypress tree to drive the mosquitoes in the house away. This is helping a little. The mosquitoes don't like the smell so they run away from the house. Like they mention in the paper, most of the mosquitos' nets have a lot of holes in them. So the children sleep, the mosquitoes</p>	<p>Cameroon Nurse 2 (group 2)</p>

	<p>"In all the villages around me, at night time before we go to sleep, we burn the wood from the cypress tree to drive the mosquitoes in the house away. This is helping a little. The mosquitoes don't like the smell so they run away from the house. Like they mention in the paper, most of the mosquitos' nets have a lot of holes in them. So the children sleep, the mosquitoes will still go inside the nets and bite them. A lot of children in our village under 5 years are dying because they get sick and their parents cannot buy the medicine. Our people just manage with what they have." (Personal Communication, December 6, 2012)</p>	<p>Cameroon Nurse 2 (group 2)</p>
<p><i>Malaria Treatment in the U.S.A</i></p>	<p>"It's was interesting to me when reading this article to find out that we also have cases of malaria here in the U.S.A. I have never come across a patient diagnosed with malaria. In the paper, the authors mentioned that the identifiable cases here in the U.S.A are people who have traveled to malaria-infested areas. This article talks about treatment options that are available and used in patients diagnosed with malaria in the United States. In this article, the authors found out that .....</p>	<p>U.S.A Nurse 1 (group 3)</p>

Table 2. Discussion Comments Posed By Nurses. Comments Are Mapped To Specific Assigned Pre-Seminar Reading.

Participant Questions During Phone Seminar

Questions asked by participants during phone seminar	Participant that asked question
1) What about the use of mosquito nets? How effective is that in reducing the risk of contracting malaria?	U.S.A Nurse
2) Can the people get nets from the government or other non-governmental organizations?	U.S.A Nurse
3) How is the government helping to control the spread of malaria in Cameroon?	U.S.A Nurse
4) What about the non-provide organizations that are currently working to provide mosquito nets in Africa, why can the nurses not contact those organizations to get the nets?	U.S.A Nurse
5) Do people in the U.S.A get malaria also?	Cameroon Nurse
6) How can we help our people with no supplies? Can the nurses in the U.S.A help us?	Cameroon Nurse
7) Is there anything you people in the U.S.A can teach us to help our people suffering with malaria?	Cameroon Nurse

Table 3. Questions Asked By Participants During Phone Seminar.

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