

‘Bridges’: Improving Birth Outcomes and  
Uniting traditional and biomedical  
approaches to health in  
Santiago Atitlan, Guatemala

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## **Introduction: Birth outcomes and the need for investigatory research**

The World Health Organization reports 536,000 maternal deaths, 3 million stillbirths, and 3.7 million newborn deaths worldwide each year. WHO advocates for the presence of a skilled birth attendant at every birth worldwide to reduce this global burden of maternal and infant deaths.<sup>1</sup>

WHO defines a skilled birth attendant as an accredited health professional who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies and in the identification, management and referral of complications in women and newborns; the practicing self-taught, midwives of Santiago Atitlán, Guatemala, are excluded from the category of skilled attendant and defined, rather, as traditional birth attendants (TBAs).<sup>2</sup>

Guatemala has the third-highest level of maternal mortality in Latin America, with an estimated 248 maternal deaths per 100 000 live births. In areas of the rural highlands of Guatemala, including the Maya city of Santiago Atitlán, the maternal mortality rate is as high as 446 per 100,000. Almost 80% of the births in this region occur at home with a traditional birth attendant, a family member, or no one in attendance.<sup>3</sup>

This thesis focuses on a ten-month medical anthropology investigation into the culture of birth in Santiago Atitlán, Guatemala focused on dualistic approaches to healthcare and the subsequent impact on birth outcomes in the Maya highlands of Guatemala.

A 2005 community health survey of Santiago Atitlán completed by a team of volunteers from University of Pennsylvania and Hospitalito Atitlán assessed the community

health in this Tz'utujil Maya village upon the reconstruction of the town's Hospitalito Atitlán. 208 hour-long interviews were conducted over the course of four months. The results from this assessment laid the groundwork for a summer research excursion, investigating the factors leading to Santiago's high infant and maternal mortality and morbidity rates. The health assessment identified a lack of education to aid in the recognition of pregnancy complication health concerns within the community.<sup>4</sup>

A summer of grant-funded research helped to identify avenues for further exploration within the culture of birth. This thesis depicts not only the findings of ten months of anthropology research in Santiago, but also the development and maturation of the investigatory approach.

This ten month investigation of birth practices in the highlands of Guatemala, driven by the need to improve poor birth outcomes, was directed by research questions that underwent structural organizations as investigations continued and community practices were better understood.

Examining birth in a dualistic approach required looking at perinatal care from the standpoint of both traditional health care providers and biomedical practitioners. The majority of births in Santiago occur in the home, attended by one of the town's 24 midwives. I apprenticed three of these women, all with varying differing levels of biomedical technique incorporated into their care. As a student of the midwives, I saw pre and post-natal patient visits with the midwives, assisted in deliveries, witnessed ceremonies surrounding birth and attended monthly midwifery training sessions.

Biomedicine, in contrast to the low-technology systems of traditional healthcare, consists of a model high-technology, north-western hemisphere-style obstetrics where

birth is defined as a medical event. Such biomedicine is present in Santiago in four capacities; the Hospitalito Atitlan, the town's 24-hour emergency care facility is staffed by both Guatemalan hired medical professionals and North American and European medical volunteers; the Centro de Salud is the free clinic in town, a government funded health center; Rixiin Tnamet is a private Clinic; and many of the town's doctors, hired by these three establishments, have private clinics out of their homes where they see patients in the evening hours. I maintained a biomedical lens through observing patient visits and births at the Hospitalito Atitlan as well as shadowing nurses employed by the Centro de Salud.

Ultimately, through the adjustment of these lenses and the continuous restructuring of the questions that guided a medical anthropology investigation, subsequent findings on “bridges”—or more specifically bridging individuals—that currently work to unite traditional and biomedical approaches to health in Santiago Atitlán, Guatemala to improve birth outcomes, were revealed.

This research was approached from a western mindset; though a primary step in the investigations was to disassemble preconceived generalizations and ideas of North American superiority, the model of investigation was innately western. Terms such as biomedicine, top-down model and birth outcome stem from a western system and it is important to note this bias in the presentation of data.

The discussion of this investigation is written in first person as it is an account of personal research and observation. Much of the data comes from personal field notes and experiences.

## **Introduction: The development of a medical anthropology investigation**

Beginning in June of 2007, I embarked on two months of cultural integration and exploration in Santiago Atitlán, Guatemala with other members of a University of Pennsylvania undergraduate research team. Santiago's high infant and maternal mortality and morbidity rates led to a project focused on the culture of birth. Working with midwives, our initial intention was to improve birth outcomes by introducing a model for training of traditional midwives. We investigated how we could implement an effective, sustainable midwifery training program to teach safe birthing practices. However, after arriving in Santiago Atitlán, our ethnographic research made it clear that a top-down educational model of biomedical trainings for midwives was neither needed nor appropriate.

I returned to Santiago in February 2008, this time on my own, to continue my research. With the help of advising Penn faculty, I refined the focus of the research I had begun the summer before; this time, I looked specifically at the interaction between the recent biomedical presence in Santiago Atitlán and the community's traditional model of care, provided by midwives. In this system, I looked to identify where from within the community would arise the next generation of care—if change were not going to happen amongst an elderly community of midwives, perhaps the replacements, the next generation of birth attendants, would be more biomedically inclined in their practice, brining about change.

As I placed my self with a foot in both the midwifery and the biomedical communities, the structure of my research question changed once again. In my research

examining medical pluralism—learning how traditional and biomedical health systems affect one another—I found that it was personal relationships, not biomedical trainings, nor replacement providers, which helped to bridge the gap between biomedical and traditional health systems in Santiago. I identified specific individuals who were steadily accelerating the productive co-existence of two markedly different health systems within one community. It was here that I identified the currently occurring change in health approaches. My results show that individuals bridge a divide, two health systems within the community can work together to bring babies more safely into Santiago.

Our task for nine weeks was to learn about the culture of birth. The group of Penn researchers was comprised of ten individuals across disciplines and in all stages of their educational careers—nursing students, medical students, science majors, public health students and anthropology students. Different as we were, we all shared a similar trait: we were novices to field research. Given our vast backgrounds, we all approached the “study of the culture of birth” from different angles.

Some of the researchers talked to mothers to learn about their birth experience; some visited pharmacies and health centers to assess access to medical care; some talked to municipal workers to better understand how legal decisions affect women’s health; a nursing student volunteered at Hospitalito Atitlán, the town’s only 24 hour health care facility; others, myself included, worked with Santiago midwives to understand traditional approaches to birth.

Gaining access to midwife-patient interactions was no easy task. In a society where health is largely treated in the homes of patients, witnessing perinatal care requires

invading privacy to a much higher level than observing such practices in a U.S., hospital-based health system.

The summer of 2007 was an exercise in bidirectional integration; while the researchers became accustomed to the beliefs and lifestyle of Santiago, community members became accustomed to our presence.

I attended monthly midwifery training sessions as an access point to build relationships with the midwives of Santiago. I sat amongst the midwives at the training, chatted with them during the breaks and typically went home with a midwife afterwards to eat lunch and conduct an interview to learn about traditional birth attendants in Santiago.

Initially, I conducted interviews with a fellow student and a translator. As a research team, we interviewed 16 of Santiago's 24 identified midwives. Very quickly, we noticed repetition in the answers we collected from individual midwives. This formal interview setup put an early limit to our data and it became evident that a new means of collection was necessary.

We found that the majority of the midwives spoke enough Spanish (or Tz'utujil with enough hand gestures to translate) such that we could communicate without a translator. While Candelaria, our translator, had been an asset to gain access to the midwifery community, the midwives and women were more comfortable sharing information with an unbiased outsider, in the absence of a member of their own community.

Our shift in data collection required a change in interview format, it also required an adaptation to researcher mentality: though we had left the geographic location of our

competitive university behind, we had yet to entirely abandon its competitive attitude. The midwives were difficult to get to, a prized resource. We were eager to locate as many midwives as possible and get as many interviews as we could. Finally, with feedback from advising Penn faculty and after stepping back to analysis our data collection up to a certain point; we modified our approach to fit the culture.

This was perhaps the biggest adjustment made as an anthropologist in Santiago—the pace. Things run on a much more personal, slow-paced level. We had to abandon our rigid, university scheduling, and take time to sit, talk and really listen to the women, forgetting our own agenda's for a while. It was quality, not quantity that we recognized as the need with midwifery research.

My research partner and I split ways, each finding our own set of midwives that we began to visit on a regular basis. As we had before, we first interviewed these women. However, the interview now served a different purpose: it was the initial meeting, not the end result. It was a relief to complete an interview with a midwife, establish a relationship and revisit the woman casually, without a set agenda.

I treaded lightly. First following up an interview with a gift of bread or eggs; stopping by a midwife's house to visit on a walk; or visiting with the midwife's family. It seemed that when I went with no apparent agenda, my hidden agenda was most successfully addressed.

The first few visits following an initial interview with Josefa, a 42 year old midwife who later trained me as her apprentice, were spent drinking coffee while she wove traditional wipils to sell in the market. Josefa sat on the floor close to an iron-board

shaped spool, her hands moving in a rhythmic motion to wrap thread, her eyes focused not on her work, but on me as she shared stories of births she had attended.

Over the course of the summer, I frequented another midwife's home. What eventually evolved into a midwifery mentorship began as a friendship with her young granddaughter.

Flory lives 8 kilometers west of the city-center of Santiago. It is fifteen minutes by truck, more dangerous than town center and less frequently accessible by transportation.

The midwife was 74 when I met her and had fewer patients than Josefa and some of the other midwives who live in the more densely populated neighborhoods of Santiago. For these reasons, I didn't foresee getting much patient visit "data" from Flory. However, I began to form a relationship with her 5 year-old granddaughter who attended the monthly meetings with Flory; this relationship was based entirely on facial gestures and poking as we barely spoke a word of one another's languages.

I would visit the family, bringing candy to the children and conversing about midwifery experiences. This casual and personal relationship with Conception was a strong foundation for her to serve as my teacher upon my return in February.

As an undergraduate, I initially felt unqualified to work with the midwives. However, my status provided the groundwork for a great relationship. The midwives with whom I worked closely served as my mentors, my teachers. In fact, one patient even began to call Flory "professor" during a prenatal visit as the midwife instructed me on the techniques of massage.

While working with midwives was my primary goal each day, these women schedule their visits around their family lives. Visits generally occurred every 15 days to a patient; in between patient visits a midwife would have other means of income—such as Josefa and her weaving. In order to collect data each day, I explored other areas of birth within Santiago’s culture. I befriended a set of Ladino nurses and one doctor who ran the local triage health stations. I spent time at the hospitalito, in an attempt to see birth from another angle. Unqualified to work in the clinic, I began by helping organize and inventory medical supplies in the storage facility. Though a mundane task, I viewed this as means of establishing myself, an act that would payoff and allow me access to shadow doctors upon my return.

After a summer of research, numerous attempts—some successful, many failed—to see patient visits and births with midwives, it was in the final week of my time in Santiago in the summer of 2007 that I heard a story that would influence my research from there on out.

In an interview with a fellow Penn researcher, the hospital’s social worker shared a dangerous example of the interplay of biomedical and traditional medicine in Santiago. Magdalena told this researcher of some of the midwives’ uses of injections. The recent conversion to a vaccine-centered health culture had made many drugs available by injection, pitocin included. According to Magdalena, there were midwives known for administering shots of synthetic oxytocin to their patients while in labor. Multiple women, induced into early labor by oxytocin injections had come to the hospital seeking emergency care. Midwives known to incorporate this practice in deliveries had been actively recruited to attend the monthly training sessions. <sup>5</sup>

With this conversation on my mind, I returned home thinking about this interplay between biomedical and traditional healthcare approaches. In order to improve infant and maternal mortality and morbidity rates, one might assume that introducing a “western” “biomedical” type of care into the environment would better birth outcomes. We had arrived in Santiago two months earlier, wondering how we could implement a more successful top-down model of training: yet did the unification of two health systems create the opportunity for greater harm? Monthly trainings were structured to teach midwives some biomedical skills to improve birth outcomes, yet would these skills manifest in a dangerous way in clinical practice?

We thought we were going to come home at the end of the summer and have a clear-cut proposal as to “how to solve the problems of birth in Santiago Atitlan”. It became clear after little time that we could not build change, but rather must look for ways to assist change from the ground-up.

I felt at the end of that first summer that my research had only just begun; in two months I had superficially scratched the surface of birth care practices in Santiago. The following February I made plans to return, with the intention of examining the medical pluralism in Santiago and its effects on birth outcomes. Our goal in the initial investigations was to “learn about the culture of birth” from multiple angles such that any future university-based partnership between Penn and Santiago would be approached with greater cultural understanding.

After synthesis and reflection of my initial findings, in February I set out to examine how biomedical presence—recently (re) established—in Santiago has affected the traditional midwifery patient care and outcomes.

Upon return, there were a few very visible influences of biomedicine on midwifery-patient care that I hope to examine in greater depth to answer this question: midwives using their government administered kit to prepare a safe birth environment; midwives wearing gloves while attending a birth; midwives utilizing the firefighter and hospital services in times of emergency; midwives learning how to administer vitamins via injection; midwives perhaps administering oxytocin in the progression of a patient's labor.

I slipped back into the culture with great ease—it took me nearly six weeks I the summer of 2007 to be invited by a midwife and her patient to be present during their healthcare visit; in contrast, I was visiting patients with my midwives less than 48 hours after stepping off of the airplane in February 2008.

By the nature of a research question focused on dualistic approaches to health, I had to examine both the traditional and the biomedical sides of birth. From a traditional side, I attended patient visits three of the town's midwives; for a biomedical perspective, I shadowed doctors at the Hospitalito Atitlán and nurses at the town's public government-funded hospital.

My previous findings led me to believe that change would occur in a new generation of midwives, soon needed to replace members of an elderly, dying community. As I examined pluralism, I sought to identify not only how biomedicine had influenced traditional care, but how pluralism was changing and where change would come from within the community.

My formalized question evolved over the course of the following months. My experiences led me to witness specific examples of where this interplay of biomedicine and traditional midwifery care worked well together and where they didn't. As I identified isolated examples of this interplay, I encountered specific individuals that by their presences on both sides of a pluralistic system, were working to shorten the divide between biomedicine and traditional practices. In her book, *Birth in Four Cultures*, Brigitte Jordan suggests that it is “a mutual accommodation between indigenous [traditional] and cosmopolitan [biomedical] systems—as opposed to a devaluing and eventual replacing of indigenous system” that is needed to improve birth outcomes.<sup>6</sup>

Initially, I searched for answers on “how” to establish an effective biomedical training system of traditional midwives; then I looked for “where” a more biomedically inclined pool of replacement midwives would stem from; ultimately I began to recognize “who” the individuals that were actively synthesizing this mutual accommodation that Jordan discusses. Change doesn't have to wait for a unified, more biomedically inclined group of replacements to bubble up from the next generation; it is occurring daily by the ability of specific individuals to exist in both worlds.

## **Background: Understanding the Healthcare Culture**

### **Santiago background: culture retention and change**

The city Santiago Atitlán sits on the southwest corner of Lake Atitlán. Lake Atitlán is situated 70 kilometers west of the capital of Guatemala City. Of the nearly

twelve distinct Maya communities on the shorelines of the Lake, Santiago Atitlán is largest with an estimated 42,000 inhabitants.

The lake communities are known for their retention of historical Maya culture: while areas of Guatemala fell under Spanish colonial rule in recent history, these lakeside villages closed off their borders to conquest. In fact, conversational Spanish has only made a large scale appearance in Santiago in the last few decades. Tz'utujil Maya is the primary language of the community and many Atitecos (the people of Santiago Atitlán) speak no Spanish.

Despite the close proximity of these Maya communities, each has maintained a distinct cultural identity, visibly evident in the traditional dress of each town. While the shape and material of the traje clothing is common around the lake, each town produces skirts, pants and tops of individual colors and embroidery patterns. The individualism of this traditional garb is a mechanism of identification around Lake Atitlán.

The shores of the lake are home to many expatriates who have built homes and business in the serene communities. While many of the local towns have been overrun by the settled expatriate community, home to many western-style bars and hostels, Santiago remains the Maya epicenter on the lake, with arguably the highest degree of Maya retention. Most of the visitors of this Maya village are day-tourists.

Anthropologists have coined the term “coca-colonization”, synonymous with North American imperialism, to capture recent rewriting of local cultural by North American norms. This change is captured in the influx of soft drinks and propagation of the coca-cola logo through Central America.<sup>7</sup> Santiago is no stranger to the imperialistic spread of coca-cola, a modernization indicator: storefronts in town are painted with Coke

and Pepsi logos; North American, packaged snack foods are served during school recess; and soft drinks are consumed as an expensive delicacy. The simultaneous arrival of coca-cola, cell phones and modern taxis are markers of modernization in Santiago.

Atitecos are proud of their retention of Maya tradition and culture, yet there is a seemingly opposing simultaneous rapid modernization occurring in Santiago; while much of the traditional culture is maintained in Santiago's celebrations, family structure and dress, a rapid influx of cell phones, packaged food and new transportation capture the fast modernization occurring in Santiago. These dualism in the culture—the pride in retention of the traditional, yet the simultaneous desire to modernize—echo the dualistic health care systems in the town. It is vital to understand these cultural changes that parallel changes in birth practices; comfort and tradition rests in midwifery care, yet reintroduced biomedicine strives to better health outcomes and provides increased birth technology.

### **Healthcare dualism in Santiago: the coexistence of two worlds**

In Santiago, there exist two worlds, a dualism, of healthcare. There is a traditional cultural of perinatal attention, where midwives operate their own private practice to assist women through the stages of pregnancy, birth and gynecological care; and there is a biomedical culture of perinatal attention housed within Santiago's three formal healthcare facilities.

While some of the midwives seek professional training, most initially realize their calling in a dream or a vision. Many of the older midwives are self-taught or taught by an older female relative who carried out the same role. For several of the women, attending

births began when they delivered their own children and were subsequently recognized by the community for their skill; neighboring pregnant women began to approach these skilled individuals, asking for assistance in birth care, thus inviting the midwives into their roles.

In recent years, the midwives have gathered on least a monthly basis to receive morning-long trainings on birth techniques. In July of 2007, the RED de Salud, Santiago's biomedical healthcare coalition, reported that there 24 midwives who attend the monthly training sessions. This number has changed over the last two years; some midwives have died, some new ones have begun to attend, and some nurses in town frequent the meetings as they are interested in learning the skills of attending a birth. While there are some midwives practicing in Santiago who do not attend these meetings, those that do have formed somewhat of a coalition. Santiago is closely knit such that each birth attendant in the town, whether she attends the trainings or not, is known among the community and its health care providers. This community-known identity extends beyond the midwifery profession: while there are no addresses in Santiago and many people share the same name, if you identify a citizen by their name and profession, most people in town could lead you to their house.

Though lumped together under the title of comadrona, the midwives of Santiago differ greatly from one another. On an occupational level, some identify themselves not primarily as midwives, but rather by a second trade: Josefa, age 42, weaves the majority of the time, and attends births on the side. Some midwives have sought more training than other, and thus the levels of biomedical exposure and experience varies among the midwives. This is the traditional community of perinatal care in Santiago.

Just as the training and practice levels of midwives vary in Santiago, so does that of biomedical professionals. There are three main health locations in town, and several other satellite practices. The Centro de Salud is the free, public, government funded health center. It is open from eight until noon, then between the hours of two and five on Monday through Friday. The Centro de Salud has led a recent campaign to vaccinate Santiago's youth; nurses hired by the Centro travel door-to-door through the neighborhoods to update vaccinations and answer health questions within the confines of the home. In August 2008, the Centro de Salud opened a 24-hour birth center, staffed by four doctors. Its aim is to serve as a location for midwives to bring their high risk patients for care and to refer individuals to the hospital. Its presence is new and its impact yet to be observed; for the purposes of my research, I will not focus on this as a primary care site as its services were not available until recent months.

Rxiin Tnamet is a private clinic, again only open during the work day. Rxiin Tnamet opened in response to Hospitalito Atitlán's closing during the civil war. Known as "The Clinic", Rxiin Tnamet offers additional bimonthly trainings to midwives on topics mainly centered on herbal remedies and practices. The coordinator of the clinic has closed its doors to most foreign visitors and thus I obtained minimal primary information on its operations; most of the information gathered on The Clinic was through stories and hearsay.

Hospitalito Atitlán sits on the outskirts of the city. It is backed by a board of international and local employees, yet the administrative staff is entirely Guatemalan. Generally Hospitalito Atitlán staffs three full-time Guatemalan doctors, a lab technician and 6 local nurses and nursing students. A dynamic set of 5-10 volunteers, each staying

for at least a month work with the hired staff. The Guatemalan doctors are not trained in surgery; the hospital aims to maintain a constant obstetrical volunteer on site. All volunteers are required to speak Spanish; however, the vital need for a doctor trained in performing caesarian sections, at times, results in an OB volunteer doctor with minimal Spanish proficiency.

Additionally, the government has hired Prodesca, an agency of nurses, to staff nine, one-room “puestos de salud”, or triage health stations, through out the neighborhoods. These mainly serve to administer preliminary medications, vaccines and to refer those in need to higher care facilities.

The RED de Salud, a collaborative community organization led by the head of the Centro de Salud, unites the Centro, The Clinic, Hospitalito Atitlán and Prodesca to unify the providers of Santiago. This collaboration maintains the responsibility of providing the monthly midwifery trainings.

Some doctors hired by the medical facilities in town, also practice privately, out of their homes, attending to patients in evening hours. A few of these doctors will attend births in their offices, and most offer a variety of care. A sign adorning the one-man private clinic a particular doctor in town advertises the diverse services of birth care, surgery, psychiatry and dentistry.

While there are two distinct worlds of patient care worlds, there are many individuals who practice somewhere in between: Josefa, the midwife, began her work as volunteer in the clinic, and then recognized her talent in women’s health and left to practice as a midwife; Antonia had a dream that called her to become a midwife, and after several years of self-taught practice, began to vigorously seek biomedical training,

part of which required she practice in a hospital across the lake; several nurses who work in the town's medical centers also attend midwifery trainings and at times, deliver babies in women's homes.

The traditional world of care has a long history in Santiago. The majority of births occur with midwives, in the home, not in medical facilities. The general feeling among town is that while the Centro de Salud is free, it does not provide the best care. The hospital is the most elite provider, yet many think its services are too expensive and don't follow cultural protocol. It is difficult to gauge the Clinic's impact; in comparison to the packed waiting room of the hospital and the Centro, the Clinic rarely seems full with Atitecos. The service of the clinic seem reserved to a loyal percentage of the population, but on a whole is underutilized.

Embedded in the same culture, these two worlds that make up pluralistic healthcare in Santiago interact on a continuum. Midwives are encouraged to bring all patients to prenatal care at one of the town's health services. At times they accompany a patient on a prenatal visit or in a mid-birth emergency to one of the town's medical facilities. One of the aims of the training is to familiarize the midwives with the care facilities in town, with the hopes that the will be inclined to bring patients to these locations in times of need.

This research does not serve to outline the differences between two models of perinatal care in Santiago, for as Steve Feierman suggests, reflecting on his work in Tanzania, the act of comparing medical worlds begins from the assumption that medical worlds are separate; rather this research attempts to understand the dynamics of the

continuum on which these worlds interact in an effort to bridge these two paradigms to improve birth outcomes in Santiago Atitlán, Guatemala.<sup>8</sup>

*The tension between healthcare paradigms that reflects a culture change*

The biomedical community in Santiago currently has an eye focused on what ‘the midwives are doing’. Historical poor birth outcomes in Santiago are at the center of healthcare improvements for the town. This can be attributed to a constellation of factors: recent influx of the western, biomedically trained healthcare providers who volunteer in the hospital have brought the desire to raise healthcare to their native standards; Dr. Juan, who runs the Centro de Salud, is on a campaign to raise his level B clinic to a level A and has thus focused on improving vaccinations and birthing practices in town. Whatever the reason, improving the standards of perinatal care in Santiago has focused an eye on the midwives who deliver the majority of children in the area.

Yet by nature of the separation of medical worlds, much of the midwifery care is a mystery to those who fit inside the biomedical paradigm. As one of the recent supervisors of the hospital, an American general physician Dr. Tom put it, “the midwives are a black box”; the hospital’s primary insight to the world of midwifery care comes from those patients who arrive mid-labor to the hospital for emergency care, after beginning labor with a midwife.<sup>9</sup>

This has led to somewhat of an investigative eye from the biomedical world to see what the midwives are doing, and even more specifically, what they are doing ‘wrong’ such that these women often come into the hospital too late or in grave danger.

As a response, the midwives have built up a guard and a defense of their practices. They are weary of the physician’s eye in an effort to maintain their patient base and their profession. Away from the ear of biomedicine, many of the midwives were quick to criticize physician patient care. Flory, a midwife, told me of a patient who went to the hospital for a prenatal visit and even after a thorough exam, the doctors “didn’t know that the woman was pregnant with twins”. This information the patient learned from Flory, her midwife. <sup>10</sup> Josefa told a patient who was pondering hospital care that the last patient of hers who went to the hospital was forced to “take of all her clothes and her family was forced out of the room for the birth”. <sup>11</sup>

There is distrust of the other party in both worlds: the doctors minimize the midwives knowledge and the midwives criticize these healthcare centers’ cultural conduct and knowledge. However, this tension seems only to exist in private; when the two worlds meet for trainings, they are cordial and smile at one another. While there are whisperings of contempt from both parties at the trainings, neither diminishes the others abilities audibly to the other party.

This tension has only been exacerbated by an accelerated cultural change occurring in Santiago. On one hand, the town is proud of its history of maintaining Maya tradition, dress and beliefs: Atitecos display their tradition pagan god of Maximón and rely strongly on herbal remedies for illness.

However, there is a growing pressure to modernize: this is seen in the widespread use of cell phones in the last decade; the addition of a belt to the traditional female dress that emphasizes curvature shape, a change in the last twenty years; and the recent introduction of *tuc-tuc* taxis as a means of transportation.

The maintenance of at-home, midwifery care is encompassed in the desire to maintain the traditional culture, while the increased access and emphasis on biomedical care is part of modernization in Santiago.

The reestablishment of the hospital and the opening of the *Centro de Partos* at the *Centro de Salud* are not attempts to eliminate the care provided by the midwives; these facilities recognize both the cultural desires to deliver children in the comfort of ones home as well as their inabilities to feasibly attend to all of the women in Santiago. However, the goal of these establishments is to attend to high risk patients. The trainings aim to teach midwives how to safely deliver children and how to recognize danger signs in pregnancy that warrant care by a physician.

The attempts to bring these two worlds closer together seem to be a largely unilateral process; the biomedical community has collaborated to raise the level of midwifery care by imparting midwives with biomedical trainings. A few individual midwives have independently sought biomedical education, but in both cases, the movement seems to be from traditional to biomedical models, not the other way around.

The success of the biomedical community to influence the midwives has been minimal. The government gave each midwife who attends the trainings a suitcase of tools for a birth—this includes, among other tools, a reusable plastic sheet and apron to prepare a clean environment, a scale to weigh a newborn, scissors to cut an umbilical chord and

latex gloves to wear for checking a baby's position. Midwives selectively use these tools to varying degrees.

The trainings are meant to teach the midwives skills of the trade, yet their effectiveness is minimal. Midwives are enticed to attend with the promise of monetary compensation to be used on maintenance of their tools, snacks through out the day and the inquiry of ones location if she is not present. However, a survey of the room through out the meetings will show midwives napping or daydreaming. Others whom I have set next to during the meeting have remain cross-armed and whisper critiques of the presentation in my ear as the morning progresses. These meetings are mostly lecture, or discussion; there is neither interactive practice of techniques nor variation in format. The only movement from seats occurs at the ice-breaker game often performed at the onset of each meeting. Additionally, many of these midwives don't recognize a need for these trainings. They have learned most of their skills from god or from a dream and many have been practicing for longer than I have been alive; teaching a woman how to treat a patient after she has been doing just that for 25 years seems like a trivial pursuit.

Needless to say, many of the attempts to medicalize midwifery care have been unsuccessful. These meetings have established somewhat of a community among independently practicing midwives to generate familiarity between the doctors and the midwives of Santiago. In June of 2007, the midwives spent three days rotating through the clinic, the hospital and the Centro de Salud to observe the technology and care available to the women of Santiago.

Brigitte Jordan acknowledges the need for a mutual accommodation of health systems: while there exists a minimally effective training of the midwives on the

biomedical world, training of the biomedical world on midwifery care is nonexistent. This mutual accommodation is absent in Santiago.<sup>12</sup>

### *Heightened biomedical polarity*

As a student of the midwives and a loyal supporter of their care, one of my first observations in the dualism of healthcare was the polarity of the hospitalito. Hospitalito Atitlán has the management of emergency care in town maintained. Doctors effectively manage pain and assess when to risk the consequences of a two hour journey on uneven roads to the under-equipped government hospital in Sololá in the hope of more comprehensive care for a patient. However, as a preventative location for care, there are many obstacles in the hospital's success, primarily its lack of community integration. By nature of the hospital's functioning, it is largely staffed by foreign doctors, mostly unaware of local language and customs upon arrival. There is minimal volunteer orientation to Santiago: as one volunteer retold their introduction to life in Santiago to me, "it consisted of a trip to the center of town where I was shown 'this is the church, here is the market and these are tuc-tucs'"<sup>13</sup>.

Conservative modes of cultural operation call for a different mechanism of doctor-patient operation than in developed countries. Food, family and privacy of one's own body are valued and put at the forefront of traditional care. While there is some literature available to volunteers before their arrival, the cultural orientation upon arrival is nonexistent.

Not only are the volunteers foreign, but so is the design of the hospital. Most Atitecos are accustomed to treatment occurring in the comfort of their own homes, in their own bed where their family can serve them warm tea and turn on the radio to the *Voz de Atitlán*. Tiled floors, large medical machines and hospital gowns are distant from the familiarity of one's own bedroom.

While conversational Spanish has arrived in mainstream Santiago in the past few decades, Tz'utujil is still the primary language for those native to the town and many individuals speak no Spanish. As volunteers and some Guatemalan doctors born outside Santiago have little working knowledge of Tz'utujil, the nurses often serve as translators in patient visits. The foreign setting, the foreign language and the foreignness of hospital employees, by nature, separates the hospital from much of Santiago's traditional culture.

The hospital seeks volunteer nurses, physicians, midwives and medical students in their fourth year of school for clinical assistance. With the exception of obstetricians, volunteers are required to commit to at least a month of time and longer stays are encouraged. Somewhere in the history of the hospital's operation, many individuals in the community adopted the notion that the hospital was staffed by students; a fact that is true in part. A common critique of those who refuse care at the hospital is that they do not want to go somewhere and be treated by a student. This community-wide critique only isolates the hospital further.

The eager volunteer on a working vacation often does not align with typical community values and practices. An American attitude of work hard-play hard brought by the typical volunteer clashes with the Atiteco attitude of work hard-work hard. Drinking and smoking are morally frowned upon in the conservative Santiago and to

some, the hospital volunteer has become synonymous with the two. In a quaint society where everyone seems to know the goings-on of everyone else, this behavior does not go unnoticed. If community members don't agree with the lifestyles of the medical professionals, they are unlikely to seek treatment in their care.

### **Establishing a Research Lens**

The first summer, I witnessed and heard stories that left me to wonder how biomedicine and a changing society were affecting the care that midwives provide to their patients. The mere presence of a 24 hour care facility and ambulance transportation provided by Santiago's firefighters meant that women and midwives had an option at all hours for biomedical care: but was the hospital really an option to all birth attendants and patients? Access to transportation required a phone and with pre-purchased minutes; many midwives and patients preferred not to go to the hospital – did this create a tension between provider and patient in the time of an emergency?

Midwifery trainings taught birth attendants to prepare a sanitary room for birth, to wear an apron and glove and, at times, to give vitamin injections to their local community members. Were midwives using these tools in their practices? Were they individually expanding on biomedically taught skills to inject oxytocin or its equivalent into a laboring patient's arm? Was the practice of massage dangerous or not all that different from a doctor's actions to identify the position of the fetus?

Increasing unification of traditional and biomedical worlds was intended to make providers more comfortable to work with one another and seek assistance in a time of need; however, was this leading to increased tensions and heightened protection of providers' work?

From the periphery, it seemed that change was occurring unilaterally in that biomedical establishments had joined together to change midwifery practice.

I returned to Santiago in February 2008 with the aim to enter into both worlds and to listen to what each was saying about the other. I hoped that by observing how change was occurring in the midwives' patient care and outcomes, I could begin to identify if and from where birth outcomes in Santiago would improve.

## **Methods**

The methods for data collection were designed as an experience in participatory observation research, structured on a cocktail of researcher-subject interactions. At the onset of the summer 2007, University of Pennsylvania professors Barg, Guidera, Bream and Valeggia lead the research team through a week-long intensive seminar on data collection, participant observation, data synthesis and field note coding.

### **Participant Observation**

Using a model of ethnographic research and participant observation, I observed the workings of daily life in Santiago. Each situation and interaction I experienced was

data to better understand family interactions, financial decisions and communication within Santiago. The occurrences of life in the market, at my home-stay, in midwifery training meetings, and during perinatal patient visits, were the subjects of my field notes. Though my presence as an outsider inevitably altered these settings to some extent, this research tool was an exercise in “watching” the functions of daily life carry on in their natural state.

### *Semi-Structured Interviews*

As I attended midwifery training meetings, hospital rounds and even walked the streets of town, I built relationships and with Atitecos and gained access to their stories via semi-structured interviews. I conducted semi-structured interviews with the midwives and health care providers in town to understand the dynamics of birth. While I entered these interviews with a set of questions, ultimately they served as conversation guides to allow subjects to share their ethnographic accounts. Initially for reasons access and comfort, I worked with Candelaria, a local woman in her 30s who served as my translator. She conversed in Tz'utujil with her fellow community members, acquired directions to their homes and accompanied me in case Spanish was not a viable means of communication. The initial interviews were somewhat formal—present were one or two researchers, Candelaria, the subject and when appropriate, a tape recorder so that data could be maintained in Tz'utujil and later transcribed. However, as I developed my own relationships within Santiago as well as my own research style, I began to conduct less formal interviews independently. Instead of aiming for high volume of subjects, I focused to work with three midwives on a repeated basis. Thus the interviews, which had

served as an initial means of meeting the birth attendants, were no longer needed. I relied on casual conversations and mentorship to collect more in-depth accounts of birth experiences and trainings.

### Apprenticeship

Ultimately, though a slow process of cultural integration, I achieved the role of “estudiante de las comadronas” –literally, student of the midwives. My initial observations and interviews had served as a means to gain access to the inside world of pregnancy in Santiago. Three different midwives began to teach me as an apprentice. I traveled to visit patients, learned the techniques of massage, herbal medicines and delivery practices. On visits that I accompanied the midwives, they would often ask their patients, in jest, to address them as professor as they guided my hands through the evaluation of fetal position. I continued to compose daily field notes that incorporated details of the logistics of the visits (transportation, payment, meal consumption); patient information (description of the patients’ homes, an assessment of their health state, a history of their gynecological and obstetric care) the proceedings of the visit (the tools of the trade, the patient-midwife interaction); answers to questions that I asked of the midwives and patients throughout the day; and the individuals’ reactions to my presence.

At the end of the initial summer of data collection, I identified that my strength and comfort in data collection, as well as my most applicable information was gained through this model of mentor-student teachings by the midwives.

Upon my return in February of 2008, I expanded my research tools to collect data in the hospital setting as well. I had refocused my investigation to look specifically at

examples of medical pluralism and dissonance between biomedical and traditional models of healthcare.

Again, I worked with the midwives, attending their births and home visits, slipping rapidly into the role of researcher and participant that I had previously established for myself. Yet, in order to observe the goings-on of the biomedical community, I placed myself at the town's Hospitalito Atitlán, a NGO funded, locally and internationally staffed, six bedroom hospital on the outskirts of town. I attended morning meetings (the closest equivalent to "rounds" in a US-based hospital) and listened to the conversations of the local doctors and foreign volunteers. With no certifiable medical experience, I was not qualified to see patients: I worked volunteered for a short time in the storage inventory, a job that I had done sporadically the summer before, in order to establish a presence in the hospital. I soon found my way into the Obstetrician/Gynecology exam room via translation and shadowing.

Beginning in March, a young OB/GYN resident volunteered for a month at Hospitalito Atitlán. Though engaging and attentive in her medical care, her Spanish vocabulary consisted of no more than 5 phrases upon arrival. She found herself conducting visits in almost complete silence, and then finding an unoccupied volunteer who could translate a medical report and prognosis at the end of each visit.

I offered my services to translate for the doctor, helping her out on morning ultrasounds, prenatal and general GYN as well as in-hospital births. In providing assistance, I was able to observe perinatal care centered in a biomedical, hospital setting.

Additionally, I spent multiple days shadowing a nurse from the town's Centro de Salud, the government funded Health Center. However, the bulk of research gathered for the biomedical side of my studies evolved from experiences at the Hospital.

It was by means of these two avenues—student-study with the midwives and translation-observation with biomedical professional—that I compared two medical systems within one culture.

Formal interviews ceased, and data collection shifted to conversations. My level of integration and town acceptance in Santiago allowed for me to converse causally with families, restaurant owners, town individual and health professionals about birth and birth experiences.

In early April, the hospital lost its Volunteer Coordinator. By nature of the facility and its international funding, 70% of the doctors working at the hospital at any time are international volunteers. These volunteers stay for an extended period of time, speak Spanish and work along side Guatemalan trained, full time doctors.

In need of a bilingual individual with little existing structure in their day, the hospital administrators asked me to temporarily fill the role and then once hired, work with the new coordinator to transition her into the role. For four months, from both Santiago and the United States, I worked as a member of the volunteer coordination team, contacting volunteers in English and Spanish, sending their CVs and applications to the appropriate parties for review and updating a schedule that consisted of a high turn over of medical volunteers. It was from this standpoint, within the administrative offices of the hospital, that I observed not only doctor-patient interaction, but also administrative-community interaction and hospital-midwife interactions.

Ultimately, the methods for research collection consisted of appropriately gaining access to the proceedings and ethnographic accounts that surround birth from a pluralistic approach in Santiago. The information gained was recorded in daily and coded into a database of researcher field notes.

## **Results**

### **Biomedical Presence in Santiago**

Several factors are responsible for recent biomedical emergence in Santiago: after begin closed for 15 years during the Guatemalan Civil War, Hospitalito Atitlan reopened its doors on April 1, 2005, accompanied by a biomedical momentum that has rippled though Santiago; the aftermath of Hurricane Stan, which caused mudslides that devastated large portions of Santiago in October 2005, brought multinational aid relief, packaged in a Biomedical framework; coca-colonizing forces Biomedicine have extended beyond the food industry, impacting healthcare paradigms as well; and an increased presence of foreigners as volunteers and anthropologist, has brought western models of medicine to this highland city.

Violence of the Guatemalan civil war radiated throughout the country in the 1980s. The government established a military base just outside of Santiago's city center, in the neighborhood of Panabaj. While a climate of warfare was maintained for over a decade throughout Guatemala, violent tensions erupted in Santiago when occupants of the military base open fire on a crowd of young civilians on December 2, 1990, killing 14

Atiteco youths. In response to heightened violence, Hospitalito Atitlan, formerly located in Panabaj, less than a quarter mile from the military base, shut down its service.

The reopening of the hospitalito united a momentum for healthcare change in the community. It was at this time that the hospital, the Clinic and the Centro de Salud formed a coalition to, on a monthly basis, train Santiago's birth attendants.

Shortly after the newly renovated hospital reopened its doors, heavy rains of Hurricane Stan sent mud barreling down the northern side of Toliman volcano, devastating homes and families in the neighborhoods of Panabaj and Tzanchaj. The reopened Hospitalito Atitlan sat below feet of mud, less than half of the vertical structure resting above the mud line.

The hospital relocated to a temporary facility on the opposite end of the city-center. Once the mud dried, the relief agencies of USAID and Oxfam constructed temporary shelters for the families who had lost their homes in the mudslide. Together with the hospital and health centers in town, these agencies provided large scale medical relief the victims of Stan; this relief, from the United States and Europe, was package in a biomedical framework, thus further accelerating biomedical presence in town.

The growth of biomedical practices in Santiago can also be attributed the colonizing forces of North America. Just as coca-cola, modern transportation, changed dress style and cell phones serve as markers of foreign-influenced change, biomedical growth reflects the presence of expatriates in Santiago.

Santiago's prolonged ability to maintain rich Maya tradition has, for decades, attracted academics across disciplines who have been smitten with the town. In a memoir depicting his time in Santiago Atitlán, Martin Prechtel captures the allure of Santiago:

Atitecos are “addicted to laughter” and the “sociologists, linguists, statisticians, archaeologists, ethnomusicologists, doctors, poets, fiction writers, tourists, developers, churchmen, politicians, journalists and artists” who have passed through Santiago and Lake Atitlan have been “dumbfounded and intoxicated by the beauty and dreamlike quality of the land, lake and people”<sup>14</sup>

Heightened modernization, brought by foreign presence in Santiago, has undoubtedly changed the cultural climate and accelerated the spread of biomedicine.

### **The interaction of two worlds**

Societal changes have accelerated biomedical presence in Santiago. In researching the interaction between traditional and biomedical approaches to health, the focal points of study centered on the points of interaction between these two paradigms.

Research revealed active ‘reaching out’ from both worlds to interact with the other. The biomedical community actively pursues interaction with the midwifery community, offering monthly training sessions of traditional birth attendants and supplying these providers with toolkits for their practice.

The traditional birth care community has reached into the biomedically established paradigm of care, incorporating the use of injections into traditional health care. Introduced by the Centro de Salud in a campaign to vaccinate the youth of Santiago, the presence of injectible medications has rippled through healthcare approaches in Santiago, reaching the traditional perinatal community; midwives actively incorporate the use of injections into patient-care proceedings.

## **Biomedically-directed midwifery trainings**

A local anthropologist who worked for the hospital at the time of its reopening, ties the initiation of the midwifery trainings to the re-emergence of biomedical presence in Santiago, marked by Hospitalito's restoration in 2005. While intended as a collaborative program, with each of the three centers hosting every third installment of the program, success of such a model would rely on continued communication between the Centro, the hospital and the Clinic. In practice, the early responsibilities for the training fell mostly on CIAS, a government sponsored program (that has since hired the Prodesca agency). This anthropologist says that it was never the intention for the program to operate in its current capacity where it is "simply get passed around from place to place each month with limited communication between the three establishments".<sup>15</sup>

Dona Antonia, a midwife, additionally cites that the training programs pioneered a few years ago. At this time "there were many umbilical chord infections and unsanitary practices" surrounding birth. She approached Dr. Juan and began the discussion to commence some sort of training.<sup>16</sup>

Antonia admits that in the beginning, the trainings "cuestaba mucho" for the midwives: literally translated this means "cost a lot", however not in the monetary sense, rather a cost or difficulty for the individual. In this context, the phrase can range in meaning from unavailable time consumption by the morning-long trainings, to physical difficulties in the travel required to reach the training location, to a mental drain in attending.

Despite the strenuous nature of attendance, if “a midwife doesn’t attend, there will be talk and questioning as to where she is, so women come”.<sup>17</sup>

While the date training is set as the third Thursday of each month; the planning for the February 2008 meeting illustrated that the teachings and responsibilities might not be as clearly laid out. On Tuesday morning, February 19, I ran into the hospital social worker in the market. In the course of our conversation, she invited me to the midwifery training that was to occur two days later. The meeting was scheduled for Thursday at 8am, but the location was not yet set as “the facilitating organizations weren’t certain as to who would lead the training”.<sup>18</sup> The following day, Dona Antonia confirmed for me that the training was to be held at the Centro de salud. This meeting started later than others and was minimally attended. I couldn’t help but wonder if this was a direct result of the last minute organization within the biomedical community.

Of the seven trainings that occurred while I was in Santiago, five were hosted by the Centro de Salud and two by the hospitalito. Each meeting is taught by the hosting facility in collaboration with individuals from Prodesca. Each health center sends at least one representative to every meeting and Magdalena, the hospital social worker, orchestrates recording attendance and payment for each midwife.

The teaching style differs depending on the location of the training. However, at each venue, those in attendance play a game that involves movement—this game serves either as an initial icebreaker or to regain attentiveness as the morning progresses. The nurses at the Centro de Salud led a game in February 2008 where a ball was passed down the line of midwives through each subsequent woman’s legs.<sup>19</sup> In June of 2008, Dr. Pedro from the Hospitalito, led a Congo-line game where the group paraded around the

room, and upon command the midwives had to unite to form groups of a given number. The odd midwife left out was to dance for the rest of the group.<sup>20</sup>

The portions of the meetings taught by the Centro de Salud are saturated with pamphlets and picture cards, teaching the days lessons in illustrations. The lesson of June 2007 taught the skills to “*Prepare for a safe and healthy birth*”. The lesson itself worked to complete a poster-board pie, each slice portrayed a step to take to ensure sanity in the delivery process. The pieces depicted cleaning the room of delivery, cleaning the tools for the delivery, bathing the patient before the delivery, preparing clean post-delivery clothes for mom and baby, cleaning the birth attendant’s hands and having a plan in place in the case of an emergency. While this information was displayed on the board, it was also illustrated in a laminated poster that each midwife took home with her at the end of the day.<sup>21</sup>

This lesson additionally reviewed danger signs in pregnancy, occurrences that would warrant a trip to the hospital (again presented on a large poster in addition to personal, illustrated handouts). Finally the lesson reviewed the components of an emergency plan: setting aside money for transportation, packing a suitcase with clothing and a flashlight to take the hospital, establishing secondary childcare to remain at home if family members accompany a pregnant woman to the hospital and arranging for emergency transportation.<sup>22</sup>

In contrast to the meetings at the Centro de Salud that are saturated with both material and information, those in the hospital aim to teach less, but to reach each midwife with one small lesson during each session.

In the summer of 2008, Dr. Pedro led a training in which for two hours, he presented the three warning signs of preeclampsia: high blood pressure, swelling and bad headaches. Each woman in the room had to stand up and say the work “Preeclampsia” three times. They were then individually called upon to recite the symptoms of this dangerous condition.<sup>23</sup>

*What the midwives are being taught (the non-technical message)*

If the intention of these meetings is to teach technical skills for midwives to adopt into their practice, the method of presentation has hindered the adoption of much of the content of the monthly meetings; however, emphasis on the importance of collaborative care simultaneously and more successfully is shared with the midwives in the words of the messages. Through Dr. Juan’s preaching’s on building a community of perinatal-care providers in Santiago, the nurses encouragement of patient education by the midwives, and increasing comfort level by sheer familiarity between the biomedical professionals and the midwives, these trainings teach beliefs about collaborative community care in a classroom established for technical trainings.

In a discussion that evolved during the June 2007 training meeting, midwives identified resistance among individual patients to adhere to suggested care from their midwives; women weren’t taking prenatal vitamins because they didn’t want to; patients refuse hospital treatment because of their personal views of the hospital, even though a midwife will share tales of good experiences with doctors; one woman wouldn’t let her

midwife listen to the baby's heart beat because this entailed unwrapping her skirt, a practice with which she was uncomfortable. In response, the nurses encouraged the midwives to bring information learned in these meetings back to their patients: the purpose of these meetings is to encourage the midwives in their accomplishments, to help them to continue to save the lives and women in their community. The midwives are in a unique position, the nurses shared. They have the ability to teach their patients correct and helpful health information.<sup>24</sup>

During the first meeting I attended in June 2007, and in the next two that followed, including one in February 2008, Dr. Pedro spoke to the midwives for 40 minutes reiterating the points from the day's lesson while stressing the importance of these meetings. Dr. Juan suggested that the "connection and unity among the midwives of a neighborhood will better help the pregnant women in the community". For Juan, these meetings serve as a mechanism of unification among providers: "It is important that all health providers—doctors, midwives and nurses work together to strengthen health in the community, the midwives are important and knowledgeable women in the community".

25

### *What the midwives learn from the training*

While the midwives say that they enjoy attending the trainings, they project mixed signals. It is a time to socialize—the midwives gather outside prior to the meeting and chat lightly; Flory brings chuchitos for her self and her neighbors to snack on—a time to show off their knowledge—the midwives often interject in the presentation and

add their own opinion on the discussion at hand—a time to get a free snack and money for their tools, and for others, a time to nap. The attention and participation from the individual midwives varies during the course of the meetings: some of the more dominant personalities, such as Josefa and Antonia, encourage the participation of their peers: in July of 2007, Antonia volunteered herself and Ana, one of the quietest midwives, age 75, to demonstrate to the group how to put a condom on a banana; some of the stubborn personalities sit cross armed in their chairs, as if to show that they don't have any need or interest in learning new skills for their practice: I have the pleasure of sitting in my saved seat next to Flory each month who makes it her habit to learn over and criticize the presentation and information presented whenever possible; usually two of the midwives are sleeping before the morning break for food.

While the midwives will tell you that they enjoy this monthly gathering, it is no secret that the information taught isn't absorbed by all in attendance. I asked Antonia if she thinks that Santiago's midwives practice what they learn at the monthly training:

She said that some yes, some no. "Many of the older midwives will shake their head yes, but then go home and not use anything they learned". Antonia said that some of these midwives have been practicing for countless years and resist change. According to Dona Antonia, the midwives selectively use materials from the kits administered by the government: women drape the plastic sheets over a bed to prepare for a birth and prevent a mess. Additionally they use the bulb to remove "phlegm from the baby's mouth and face" immediately following delivery. <sup>26</sup>

In February, the midwives broke into small groups to answer questions and to have comprehension assessed by biomedical facilitators. When the entire group

reconvened, they reviewed some of the questions they had discussed in the smaller setting. Concepcion, the director of Rixiin Tnimit, sat next to me and groaned audibly in disapproval at the midwives' incorrect answers. Concepcion was frustrated that these women didn't understand that there should be no bleeding during a delivery and seemed impatient with their inability to articulate accurate responses to the questions at hand.<sup>27</sup>

In early February, between patient's houses on a day of prenatal visits with Flory, the midwife recalled a training that she had attended the previous day at Rxinn Tnamit—while it occurred at one of the three participating establishments, this training at the Clinic was in addition to the third-Thursday trainings. In contrast to the third Thursday meetings, these extra sessions at the Clinic are known for being smaller, shorter and focused on teachings herbal remedies; the midwife shared that the session taught the midwives of the use of *Sacate*, a plant grown primarily in San Juan, to lighten a woman's menstruation when it is very strong.<sup>28</sup>

Flory uses herbs in her routine patient-care. Her ability and interest in volunteering training material reflected the relevant and accessible training of this short-morning session she had attended the day before.

### *The community perception of the trainings*

A hospital volunteer, a veteran to the system as she comes down each year to stay and work for several months, recalled some of her encounters with the midwives and midwifery trainings.

She recalled a training session where some younger midwives from Sololá came to join the older midwives of Santiago. When questions were asked of the group, the younger visitors kept answering the questions until, eventually, the facilitators stopped them, trying to get the older women to speak up.<sup>29</sup>

Joanna agreed that the midwifery training hasn't really found a way to be effective and cited the midwives' lack of involvement in the trainings. They don't want to answer the questions and "they don't get the basic things taught in the trainings." The nurse cites an example of a foot presentation that arrived at the hospital. The midwives are taught that the delivery of "foot first" is a danger sign in pregnancy and commands a trip to the hospital for emergency care. This particular midwife and patient showed up at the hospital: "The baby's foot had come out first, and hours earlier", Joanna recalls. When asked why the pair had delayed coming to the hospital: "The midwife said 'well, we thought it would just go back up' so they waited to bring the patient in."<sup>30</sup>

The owner of one of the most successful comedors (eateries) in town is a ladino woman in her late 50s who is also trained as a midwife. Clara studied to become an auxiliary nurse in 1970 then worked as nurse in the old hospitalito in Panabaj eventually, going to school to become a midwife. Her last delivery in Santiago was three years ago. Clara thinks that what the midwives lack is adequate apprenticeship: "many midwives need to follow other midwives around to learn more skills".<sup>31</sup>

Rebecca, a nurse employed by the Centro de Salud identifies barriers in midwifery training. The difficulty in effective midwifery training stems from these women's inability to "read or write so they can't have classes or exams for training".

Rebecca believes that the midwives attend the current trainings to “get the free stuff” and because if they are absent, “the other midwives will talk about”.<sup>32</sup>

### *The community perception of the midwives*

It seems that negativity enters dualistic healthcare from those who are involved in the biomedical side of health in Santiago: those with ties to the clinic, the hospital, the Centro or the firefighters.

When sharing their “midwife encounters” with me, the language and the examples biomedically inclined individuals utilized were ridden with negative connotations.

Salvador, a firefighter, has seen first hand in his work some of the fatal complications of child labor in Santiago. A few years ago, a woman was in labor with a traditional midwife in Santiago. Following the delivery of the child, the woman quickly bled to death from an inverted uterus; the midwife present at the time lost her credibility. Ruben, shaking his head, added that “some midwives don’t know very much or have very much skill”.<sup>33</sup>

In late February, the current supervisor at the hospital, Dr. Tom shared that the “midwives do pretty bad things”. They don’t want education and they don’t want to learn and don’t want to change their ways.<sup>34</sup>

The effectiveness of the trainings lies in the community building and the familiarity it establishes between the doctors and the midwives—a familiarity that with time, aims to make the midwives more inclined to bring their patients into one of the town’s biomedical establishments for prenatal and emergency care.

The organization and lack there of guiding the meetings hinders the technical skills digested by the individual midwives: meetings are often overflowing with information and structured as a lecture with minimal interactive teaching; these qualities could be a result of last minute planning on the part of the biomedical community.

The trainings might more effective if midwives were taught less information each session with more opportunity for interactive practice of skills in the setting of this monthly gathering. While written exams aren't feasible due to low literacy levels among the comadronas, practical exams could test comprehension of birth practices and seem more pertinent to labor-techniques.

### *The culture of the vaccine*

Recent efforts in Santiago to reduce the number of preventable deaths by vaccination of the population have situated injections at the heart of the town's medical culture. "Vaccine programs" are one of the seven priorities of the RED de Salud, and with great success, as of July 2007, 95.8% of Santiago's population had been inoculated against measles (sarampión), mumps (paperas) and rubella (rubéola).<sup>35</sup> The Centro de Salud provides free door-to-door vaccinations programs to administer shots and to inform people about vaccination plans, their benefits and their side effects. These programs have been successful in reducing the number of preventable deaths from measles and rubella.

While the vaccine has made its way to the vast majority of Atitecos via their front door, this cultural emphasis also adorns the front of the Centro de Salud: The sign

displaying the name of the health center's establishment isn't clear; rather it is old, dust covered and faded. However, the recently painted building is ornamented with a bright, crisp banner that advertises the vaccination campaign.

Rebecca, a nurse who works for the Centro de Salud specifically as a vaccinator for a particular neighborhood in town, administers a progression of shots to children under five and to women in the community. Free of charge, women are vaccinated against tetanus for safety in child labor and because they are at high risk in needle-work professions; while men of the community request vaccines, they aren't eligible for the free, government-sponsored program.<sup>36</sup>

Perhaps it is due to the tangible improvements in infant health or the free access to medication that this vaccination movement has exposed to Santiago, but the impact of the vaccine goes far beyond these childhood vaccinations. For many Atitecos, a "shot", regardless of its content, has come to be a curative medication of itself; often the cure for an illness is not identified by a drug name, such as Ibuprofen or Benadryl, but rather as an injection or an IV.

Clara, a trained nurse-midwife but current restaurant owner in Santiago is a ladino who has emigrated to the community. She gives her outsider, biomedically trained opinion of Atitecos' loyalty to the vaccine, despite resistance their to biomedical professionals:

*Currently, people have a lack of faith in the doctors here. However, now there are many vaccines and people believe in them—believe that they work. It didn't use to be like that, but now it is.*<sup>37</sup>

Mothers who seek prenatal care at the town's health centers are educated, early in pregnancy, about the need for childhood vaccinations. I observed such visits and witnessed doctors and nurses distributing pamphlets on vaccinations detailing when and what shot a newborn should receive.

Mothers interviewed through out the community cite the Centro de Salud and the door-to-door vaccinators as the main avenue of access to injections. While some identify these vaccines to prevent cough, measles, mumps and TB, to many, these vaccines are administered "for sickness" or "to prevent illness" in general.<sup>38</sup>

The vaccine also provides the opportunity for Atiteco women to seek birth control in a discretionary manner. While the protestant church supports the use of birth control, the Catholic Church in Santiago does not. Multiple generations of families often live in the same housing unit and decisions regarding health are made by the men of the household in town. For these reasons, Depo Provera, birth control injections, are the largest used form of medical birth control in Santiago. Each dose of this medicine, administered every three months, cost five quetzals at the Centro de Salud.

While high levels of community education, easy access to vaccines, the discretion that accompanies a shot and medication without charge have accelerated the culture of the vaccine in Santiago, the 'magic bullet' thoughts of the vaccine aren't unanimous. For some mothers, the side effects that their children manifest following a vaccination are reason enough to refuse further injections: Rebecca, the vaccinator for the Centro de Salud, says that some Atitecos refuse vaccination on the grounds that vaccines kill children or that their children are allergic to the shots. After a prior vaccination, these

children “got a fever and their mothers’ thought their children had an allergy”. Even though Rebecca explains that a fever that lasts a few hours is “a normal reaction” and “not a problem”, this message isn’t always powerful enough to change mothers’ opinions. Some women tell Rebecca that their children have already been vaccinated when she arrives at their door. Later, when she returns to the health center and checks on these individual’s records, she sees that in fact, these children have not yet received the necessary shots. Rebecca attributes this as a diversionary tactic for some women to refuse the medication.<sup>39</sup>

As attendants of health in their communities, some midwives have been trained in the administration of injections. Josefa says that neighbors who have been prescribed medication in the form of an injection will come to her house and ask her to administer the drug. Mothers and midwives alike, cite comadronas as individuals with access to injection-administered medicines.

A 39 year old mother of five in Panaj has delivered all of her children with Dona Antonia who gave her “medicines and injections for better ‘force’ during her pregnancies”.<sup>40</sup>

Manuela, a 75 year old midwife in Panabaj says that “some midwives give their patients shots, medicines or suero, [an IV serum].”<sup>41</sup>

The midwives and Atitecos generally see injections as a preventative form of health, giving strength and energy upon administration. At a small groups session during a midwifery training in February, the midwives were asked “what danger a hemorrhage

can cause to the mother and baby” during delivery. One midwife responded that “if you give a woman vitamins and vaccines—if she has taken all of these things, then if she has a hemorrhage and has to go the hospital, she will be ok”.<sup>42</sup>

Injections seem to supply strength and are often the cure to a cocktail of ailments, included those caused in part by prior injections:

*On a day of patient visits with Josefa in late February 2008, we approached the house of a young woman in her first pregnancy, six months pregnant.*

*Josefa told me that the young woman had been fainting quite a bit during for the last six months, the last time was three days ago. The young woman has fainted while cooking and walking outdoors in the heat. She has been getting injections of various vitamins: Complejo B and iron in particular. One of the Prodesca workers has been administering the shots to her, but she has been getting many shots as one vile of vitamins takes 5 injections to administer completely.*

*Often the fainting occurs not long after she gets an injection. She feels pressure in her chest, she faint and usually gets diarrhea shortly after. I asked the woman if she was drinking lots of water—she said no, she doesn't drink water because she doesn't get thirsty. Josefa told her to drink a liter of water a day. I advised her to stay cool, drink water and not over exert herself. Additionally, if it seemed to be the shots that were causing her to faint, was it possible for her to get these vitamins in another form, either*

*by pills or liquid. It sounded as if she has been getting dehydrated and the stress of the injections has triggered fainting.*

*While the midwife advised her patient to drink water, Josefa also suggested this patient take suero, an IV serum, as well. The cure for fainting brought on, in part, by repeated injections? An IV.* <sup>43</sup>

However, the administration of the curative injection doesn't end during prenatal care; instances of the culture of the vaccine appearing during labor with a midwife exhibit the dangerous influence of biomedical practice on midwifery patient-care.

As I concluded my research in the summer of 2007, I was struck by the report of a fellow researcher's conversation with Magdalena, the hospital social worker. Magdalena works closely with the midwives; not only is her mother a traditional midwife, but as the social worker, she organizes many of the hospital's outreach programs, including coordinating the monthly midwifery meetings. In an interview, she mentioned that a few of the midwives were known to use pitocin, a synthetic form of oxytocin, in their practice. While pitocin is often administered via IV in the United States to instigate contractions, these midwives were giving shots directly into the arms or the legs of their patients. Several women, patients of the same few midwives, had come into the hospital mid-labor, in serious danger as a result of this practice. The midwives responsible were actively recruited to the trainings in attempts to monitor their practice. <sup>44</sup>

This interview helped to shape the focus of my research for my return in February. I was interested in seeing how biomedicine, in life-saving and perhaps life-threatening ways was influencing the status of midwifery practice in Santiago.

Heidi, a CNM, MSN from the United States has lived in Panajhachel, across the lake, for a year and frequently takes call at Hospitalito Atitlán. In February 2008, she worked a shift at the hospitalito during which a woman arrived at the hospital after pushing with a midwife for hours. The patient was barely dilated and should not have yet been pushing, but the midwife had given her an injection of some capacity, evident by the needle entry mark on her arm and her prognosis upon arrival. Heidi suspected that the woman had been administered pitocin—she arrived with heavy contractions, barely dilated. Suddenly, the contractions ceased all together. The woman remained at the hospital, labor progressed normally, and the baby was delivered hours later, but Heidi stressed the midwives are using medicines they shouldn't be using and aren't trained to use.<sup>45</sup>

A Harvard medical student volunteered at the hospital for over six months; her long stay cued her in to many of the peripheral birth practices in Santiago.

In referencing the same patient that Heidi had, this medical student added that a local man in town is known to sell and administer a form of synthetic oxytocin. Additionally, she has heard that cloves can be prepared to act as an agonist of oxytocin and there have been rumors that some women are consuming cloves to induce labor. She added how people here love their shots and their IVs.<sup>46</sup>

Margaret, a fourth year medical student shared how often patients will come in, having received prior medication from midwives, but unsure of drug names and dosages. During her first week as a volunteer, a patient arrived after laboring for several hours with a midwife. Eventually the midwife told the woman that there wasn't enough space in her birth canal for the baby to pass through, so the woman sought help at the hospital in the absence of her midwife. Upon arrival, the hospital doctors checked the woman's cervix, used suction and the baby was out within 30 minutes of the woman's arrival. The woman told the doctors that the midwife had given her a shot, but she wasn't sure of what or how much. Though the doctors at the hospital didn't have to administer any more drugs, doing could have presented difficulties as they weren't sure as to what was already in her system.<sup>47</sup>

While vaccine exposure to Santiago has improved children's' health, the subsequent increased access and increased faith in injections has begun to tip the scales; the intersection of traditional and biomedical care at the point of the vaccine presents an opportunity for dangerous uses of biomedical technique.

### **Discussion: Bridges and Bridgers**

With pluralism as a lens to learn about the culture of birth in Santiago Atitlán, researcher conclusions evolved over the course of ten months. The Hospitalito Atitlán/University of Pennsylvania-performed community health assessment of 2005

hoped to identify a need of the community, such that Penn could engage in a formal partnership with the Hospitalito to improve health outcomes in Santiago Atitlán.

The task of the summer 2007 was to learn about the culture of birth in Santiago, such that a Penn-partnership could operate in a culturally effective and appropriate manner. Initially overeager and somewhat naïve in the field of medical anthropology, I thought that the Penn solution that first summer would be to establish a midwifery-training session, to teach safe birth practice and to improve birth outcomes. However, it became evident that this was not needed in the community: there already a training session and such a model was not proving greatly effective in reducing infant and maternal mortality rates.

This unilateral training program has the potential for expansion and improvements to yield better birth outcomes. A more interactive model in which midwives are actively engaged in birth-simulations would retain attentiveness during the meetings; creating bidirectionality in the training programs such that doctors and volunteers are trained in manners to interact with a traditional birth attendants would increase accessibility of the biomedical establishments and motivate more midwives to refer high risk patients; a thorough training on cultural norms and practices before any volunteer interact with patients in the hospital would decrease the polarity of the establishment.

Once evident that the Santiago community did not need Penn's role to be the establishment of a top-down model of change, I began to shift my gaze and look to identify the replacement generation of midwives, hoping that appropriate education of these women would increase birth outcomes. The midwives of Santiago are aging and frail, yet stubborn. Over 75% of the midwives are over the age of sixty, with several in

their 70s; the demands of the job tire these women easily and they are reaching the upper cusp of the town's population. Yet these women, some of whom have been practicing for forty years, are resistant to learning techniques to improve their extensively developed practice.

In February of 2008, I returned, hoping that through a dualistic lens, I would identify the young women of the community, the replacement midwives, who might exhibit some levels of change, harmoniously balancing the two models of care in their practice. If the current generation seemed too resistant to change, perhaps Santiago should focus its energy on the emerging midwives, with hope for improved future birth outcomes.

In looking to identify where this next generation of midwives would come from, I happened across individuals who were currently bridging the divide between biomedical and traditional models of care.

By having a presence in both the biomedical world of care and the traditional, these 'bridgers' actively shorten the gap and decrease tensions within the health community.

I identified three 'bridgers' in the community; via their professional roles and community ties, these women actively balance traditional and biomedical birth models, visibly dissipating tensions to bring engage these two communities in a productive collaboration.

### **Following a Daughter's Example**

Magdalena, the social worker for Hospitalito Atitlán, decreases pluralism tensions by means of her community outreach and her family ties.

As the social worker for the hospital, it is Magdalena's primary obligation to evaluate family status and adjust the sliding scale of hospital visits for members of the community. Magdalena performs a review of family status, income and housing accommodations to adjust the price of a hospital visit when appropriate.

However, her role extends far beyond her office in the Hospital. Magdalena organizes many of the hospital's outreach program, coordinating both the monthly mother-infant education programs and the midwifery training sessions. Additionally, the social worker travels on home visits to maintain contact with gravely ill patients or to maintain patient-compliance for individuals who have missed appointments. Magdalena's home visits actively extend the hospital's care to the front doors of Atitecos; by proliferating hospital care through out the community, Magdalena decreases the polarization of the establishment.

Magdalena's mother, Maria, is a midwife and a traditional healer. In April 2008, working as a translator for an American OB/GYN doctor, I witnessed the social worker's impact on bridging the divide.

Dressed in hospital scrubs, looking like a member of the hospital community, I waited alone for the third ultrasound patient of the morning; the OB/GYN doctor left the ultrasound room momentarily to check on a patient, leaving me to greet the next arrival.

My heart began racing in fear as Maria, Magdalena's mother, entered the room with a patient, a 19 year old woman who was 6 weeks pregnant. As a self proclaimed student of the midwives, I was dressed in the hospital uniform, working with the doctor

and aligning myself with the biomedical world. I feared that my loyalties to the midwives would be tested. However, my fears were soon dissipated as the midwife and patient, happy to see a familiar face, engaged me in a playful banter as we waited for the doctor to return. The women taught me Tz'utujil vocabulary and mocked my pronunciation.<sup>48</sup>

While their quick humor signaled comfort within the technology-ridden walls of the hospital, the midwife additionally confessed that she brings all of her patients to the hospital for an ultrasound and feels confident and comfortable doing so because Hospitalito Atitlán is her daughter's place of work. At the conclusion of the visit, the midwife invited me to visit her in her home later in the week for coffee.

Magdalena's active roles in both the biomedical and traditional communities works to make patients and midwives a like comfortable utilizing the hospital's services.

### **A backup provider in a one-woman midwifery practice**

The co-habitation of traditional midwives and biomedically employed nurses creates familiarity between these two worlds of perinatal attention. Ana, a nurse at the Rxiin Tnamet in the center of Santiago, lives in the same housing compound as Josefa, the midwife. Integrating her professional job and home community, Ana bridges the divide, assisting Josefa in attending to her patients and familiarizing the midwife with the care provided at the Clinic.

In March 2008, Josefa invoked Ana's services to see that all of her patients were attended to. Josefa and I had been attending to a 18 year old patient, in labor with her first child. The labor progressed for days; on the third evening, I arrived back at the patient's

house after going home for dinner, but the midwife was no where to be found. As the contractions progressed and the young woman's family anxiously tried to track down the midwife, Josefa came in up to the house and explained that she had been with another patient. As she frantically attended to the patient at hand, Josefa proclaimed her distress to me "Oh Cara, I don't know what we are going to do". She had two patients in active labor on opposite ends of the neighborhood. <sup>49</sup>

After I turned down the offer to attend to one patient while Josefa remained with the other, Josefa decided that Ana, her friend and a nurse at the Clinic, would be the one to help her provide for the second patient. <sup>50</sup>

These midwives operate one-woman practices: if the primary midwife is not available for the birth, often a patient will deliver at home, alone. Josefa felt comfortable enlisting the assistance of her neighbor to attend to her patient, assuring that each of her patients receives care.

The following morning after 50 hours of labor and minimal progression, Josefa her 18 year old patient decided to seek biomedical attention. The patient's family turned to the midwife for advice: while Josefa admitted that she had previously had a bad experience at the hospital, she suggested that the family and midwife visit the Clinic as this is where Josefa's friend worked. Ultimately, the young woman was transported from the Clinic to the hospitalito with severe pre-eclampsia and pain from pushing on a closed cervix for over twelve hours. While in the end, the patient sought emergency care where the midwife felt least comfortable, Josefa's comfort with the Clinic, Ana in particular, made this needed care accessible to the patient. <sup>51</sup>

The juxtaposition of Ana's personal relationships and professional life accelerate the process of cultural adjustment to biomedical care; by transitive properties, Josefa, comfortable with her neighbor, feels comfortable bringing her patients into the town's biomedical establishment.

### **The leader of the midwives: leading the midwives towards the biomedical community**

The third 'bridger' that I identified was a mentor of mine; one of the midwives. Undoubtedly the most biomedcally trained midwife in Santiago, Antonia has actively sought out additional skill trainings in larger towns across the lake and brings her learned knowledge and motivation back to the midwifery community of Santiago. Her training included working as a midwife among doctors in the government hospital in Sololá where, among other skills, Antonia learned how to use a blood pressure cuff.

Recognizing the need to unify and improve the skills of midwives in Santiago, Antonia was part of the early discussions to establish monthly training sessions. At these sessions, she encourages the women to participate in the lessons and often volunteers her peers to answer questions as a mechanism of involving all of the women in the room.

Antonia recognized her calling to midwifery in a dream:

*I came upon a pool with a pair of scissors sitting at the bottom. There was a young man, sitting on the side of the pool, making no effort to*

*retrieve the scissors. I asked him if he was going to get the scissors out of the water; when he responded 'no' I entered the water myself, and retrieved the tools from the bottom of the pool.* <sup>52</sup>

The midwife acknowledges that the necessary tools of her trade were taught to her by god, but that further education will maximize her practice capabilities. Medical education is part of Antonia's family; her younger sister is a doctor and the medical director of the Sololá hospital. <sup>53</sup>

Sitting around the midwife as she bathed a newborn during a traditional 8-day ceremony in February 2008, Antonia shared with me and a patient, stories that highlighted the bridges she has created between biomedical and traditional care.

The new mother asked about taking hot showers. Antonia told me how there used to be a place for women to bath in warm water, now there isn't. As a result, many women will not bathe in the months that follow a delivery; there is a belief in Santiago that if you take a cold shower in the months after giving birth, you will be unable to produce breast milk and your face will become swollen. <sup>54</sup>

Antonia clarified this myth for her patient; when she worked in a hospital in Sololá, this belief was put to a test. There was no hot water where she was working, and the women produced ample breast milk and their faces did not swell. <sup>55</sup>

By Antonia, a traditional midwife, sharing her learned biomedical experiences with patients and fellow midwives, she works to connect the flow of information and practice between traditional and biomedical worlds.

## **Further Implications**

After identifying the ‘who’, the active ‘bridgers’ of traditional and biomedical health systems, it is time that we once again return to the question that initiated these investigations: what is the need of community? With these identified individuals as possible agents of accelerating the harmonious interaction of two health systems, we must assess how their role can play into a university-community partnership.

The researchers of the Guatemala Health Initiative have worked with individuals on either side of the pluralism divide: multiple students have shadowed Atiteco midwives; University of Pennsylvania doctors and nurses have provided care at Hospitalito Atitlán; others have shadowed providers in the Centro de Salud and hospital. Perhaps the next set of investigations should not focus on investigating birth on either side of this divide, but rather birth in between the two worlds; looking at healthcare on these bridges. By identifying additional ‘bridgers’ and increasing their visibility across paradigms, we can work to unite traditional and biomedical approaches to health and increase the collaborative approach to attending to the woman and children of Santiago Atitlán to improve birth outcomes.

On a personal level, the next phase in this investigatory process will be to review existing literature on perinatal healthcare in Latin American. By examining prior cultural analyses of birth and looking at improved birth outcomes in the region, I will better the possibilities for change in Santiago Atitlán, Guatemala.

## Works Cited

- 1, 2 : *Skilled Birth Attendants Fact Sheet*. Geneva, World Health Organization, 2008.  
([http://www.who.int/making\\_pregnancy\\_safer/events/2008/mdg5/factsheet\\_sba.pdf](http://www.who.int/making_pregnancy_safer/events/2008/mdg5/factsheet_sba.pdf))
- 3: Bailey, Patricia E., José A. Szászdi, and Lucinda Glover. "Obstetric complications: does training traditional birth attendants make a difference?" *Pan American Journal of Public Health* 11 (2002): 15-23.
- 4: Schram, Justin, and Nancy Etzel. "Assessing Community Health in a Tz'tujil Maya Village upon the Reconstruction of Hospitalito Atitlán: Community Health Assessment, Santiago Atitlán". University of Pennsylvania. 15 Jan. 2005.
- 5: Cara McGuinness. Field notes, July 25, 2007.
- 6: Jordan, Brigitte. *Birth in four cultures a crosscultural investigation of childbirth in Yucatan, Holland, Sweden, and the United States*. Prospect Heights, Ill: Waveland P, 1993.
- 7: Nagata, Jason." Coca-Colonization and Hybridization of Diets Among the Tz'utujil Maya" *Medical Anthropology Quartley*. *In Press*.
- 8: Feierman, Steve. "Explanation and Uncertainty in the Medical World of Ghaambo." *Bulletin of the History of Medicine, Johns Hopkins University Press* 74 (2000): 317-44.
- 9: Cara McGuinness. Field notes, March 3, 2008.
- 10: Cara McGuinness. Field notes, March 26, 2008.
- 11: Cara McGuinness. Field notes, February 14, 2008.
- 12: Jordan, Brigitte. *Birth in four cultures a crosscultural investigation of childbirth in Yucatan, Holland, Sweden, and the United States*. Prospect Heights, Ill: Waveland P, 1993.
- 13: Cara McGuinness. Field notes, February 29, 2008
- 14: Prechtel, Martin, *Secrets of the Talking Jaguar*. New York: Tarcher Publishing, 1999.
- 15: Cara McGuinness. Field notes, February 16, 2008.
- 16, 17: Cara McGuinness. Field notes, February 17, 2008.

18: Cara McGuinness. Field notes, February 19, 2008.

19: Cara McGuinness. Field notes, February 21, 2008.

20: Cara McGuinness. Field notes, June 19, 2008.

21, 22: Cara McGuinness. Field notes, June 14, 2007.

23: Cara McGuinness. Field notes, June 19, 2008.

24, 25: Cara McGuinness. Field notes, June 14, 2007.

26: Cara McGuinness. Field notes, February 23, 2008.

27: Cara McGuinness. Field notes, February 21, 2008.

28: Cara McGuinness. Field notes, February 15, 2008.

29, 30: Cara McGuinness. Field notes, February 29, 2008.

31: Cara McGuinness. Field notes, March 23, 2008.

32: Cara McGuinness. Field notes, July 17, 2007.

33: Cara McGuinness. Field notes, July 25, 2007.

34: Cara McGuinness. Field notes, March 3, 2008.

35: Cara McGuinness. Field notes, July 2, 2007.

36: Cara McGuinness. Field notes, April 26, 2008.

37: Cara McGuinness. Field notes, March 23, 2008.

38, 39: Cara McGuinness. Field notes, April 26, 2008.

40: Monica Burnett. Field notes, July 2007.

41: Cara McGuinness. Field notes, June 24, 2007.

42: Cara McGuinness. Field notes, February 21, 2008.

43: Cara McGuinness. Field notes, February 26, 2008.

44: Ali Nill. Field notes, July 2007.

45: Cara McGuinness. Field notes, February 21, 2008.

46: Cara McGuinness. Field notes, February 29, 2008.

47: Cara McGuinness. Field notes, February 16, 2008.

48: Cara McGuinness. Field notes, March 4, 2008.

49-51: Cara McGuinness. Field notes, March 1 and 2, 2008.

52, 53: Cara McGuinness. Field notes, July 7, 2007.

54, 55: Cara McGuinness. Field notes, February 2, 2008.