Obstetric Fistula in Mali

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1. Introduction

Obstetric fistula is arguably the most devastating result of childbirth complications, aside from maternal and neonatal mortality, the latter of which almost always occurs during deliveries which result in fistula. Defined as a hole in the birth canal, obstetric fistula is generally caused by prolonged obstructed labor in the absence of prompt medical intervention.[20] This injury results in chronic incontinence through the vagina as well as many other secondary health consequences.[33] Additionally, it is impossible to measure the extensive social and psychological burdens suffered by women because of this affliction. Despite the fact that obstetric fistula is both preventable and treatable (it has been eliminated in the Europe and North America)[33], it is estimated that two million women world wide are living with this condition and that up to 100,000 new cases develop each year.[2] These figures are almost certainly underestimates of the magnitude of the true problem, as they are based on the number of women who seek treatment, and cannot include all the potential patients who, likely because of the same reasons they were unable to medical care when they experienced delivery complications, are unable to reach these services. Some studies estimate that there are as many as 100,000 to one million fistula sufferers in Nigeria alone.[2] Indeed, many of the known fistula cases can be found in Sub-Saharan Africa, with nearly the entirety of the injured population being women from this region along with Asia and the Middle East.[33] Mali, the largest country in West Africa, bordered by seven other countries including Nigeria and completely landlocked, falls within this affected region.[31] In addition, it is characterized by a very high maternal mortality rate, an indicator which is closely correlated with the occurrence of obstetric fistula; one can be certain that Mali is affected by this malady.[18] And it is the community as a whole that is finally affected by fistulae. In addition to the physical, emotional and psychological pain of the women who develop this injury, which comes after the trial of childbirth and usually the loss of a child, and is followed by shame and ostracism,

this is an injury that affects husbands, families and communities. Society is affected by the condition of its mothers and the health of mothers reflects the health of the country. In the words of Professor Kalilou Ouattara, head of the Urology Department at Point G Hospital in the capital city of Bamako, "The existence of fistula is the barometer of maternal health in the country. If year by year fistula decreases, we know that maternal heath is improving."[21] It is a well established fact that obstetric fistula is generally experienced by the most marginalized members of a population: impoverished, illiterate, young women from remote areas.[33] Fistulas are important not just in recognizance of the impact they have on those afflicted but also because of what they can tell us about the health of a community and how a society takes care of its most vulnerable members. It is for these reasons that I chose to study obstetric fistula in Mali. I based my research on the goal of understanding how the malady exists within this unique context.

2. Study Area

Mali is approximately 1.24 million kilometers squared and is located in West Africa just south of the Saharan Desert. Its climate is subtropical to dry with a relatively short rainy season from June to November and a hot season that generally stretches from February to June.[31] Prone to droughts and with 65% of its land characterized as desert or semi-desert, agriculture, Mali's main industry, is heavily dependent on the Niger River, which cuts through the savanna found in the south to the northeast, which is marked by rocky hills and cliffs.[31] Only 3.7% of the land is arable, much of it found along the river's banks.[31] A former French colony, Mali became independent on September 22nd 1960 and in 1991 established what has become a stable multi-party democracy after a successful military coup, supported by a popular revolution against the ruling leader.[15] This coup was led by current President Amadou Toumani Touré who was elected for the first time in 2002 and is now fulfilling his second term.[34] A lack of confidence in the government led to support for

decentralization and in 1999 three levels of local governments were established, which include 703 communes, 49 districts, and eight regions, plus the Capital District of Bamako.[15] The country has a population of approximately 12,300,000 that is made up of people of diverse lifestyles and backgrounds. About 50% of the population is Mande, an ethnicity made up by Bambaras, Malinke, and Soninke people. The other half of the country is made up of Peul, Songhai, Taureg, Moor and various other ethnic groups.[31] Mali is therefore home to a broad range of local languages, though Bambara is the most commonly spoken, being used by 80% of the population. French remains the official language. 90% of Malians are Muslim, a figure which speaks strongly to their historical interfaces with the Arab world, and 9% are reported as practicing indigenous beliefs.[31]

Mali is one of the poorest and least developed countries in the world, with 36% of the population estimated to live below 1 USD a day and 63.8% living below the national poverty line[17]. Most Malians live in rural areas, with 80% of the population involved in farming or fishing, and 10% living a nomadic lifestyle (often associated with a pastoral economy).[31] The urban population is increasing however, with an estimated 33.7% of people living in cities.[17] Mali's main exports are cotton or gold, the former of which is vulnerable to climatic events and both can be strongly affected by fluctuations in the global market.[31] Because of its extreme poverty and other historical and structural factors, Mali is heavily dependent on outside financial assistance and is home to many international non-governmental organizations. In 2006 691 million USD in official development funds entered the country.[18]

Education within the country is weak, with adult literacy (those over 15 years of age) being estimated in 2006 at just 24%, with a significant gap existing between women and men.[18] Youth literacy rate is reported at 32% of males and 17% for females. The Mali school system basically follows the French organization with children expected to complete a 1st and 2nd cycle before commencing secondary schooling. Between 2000 and 2006 primary school

enrollment was 74% for boys and 59% for girls, with secondary school enrollment dropping to 29% for boys and 18% for girls.[18] These figures are in many ways reflections of the poverty of the nation and the related barriers faced by many potential students in terms of cost, or lost time to help their parents, or insufficient school resources, or a lack of value placed on education. The disparity between girls and boys (and men and women) is also a strong expression of the traditional role of women in Malian society and some of the gender biases found in those traditions.

In the traditional setting it is the daughter than leaves her family to join that of her husband, a man that can be chosen solely by the parents of both partners.[14] This situation means that the boy is favored as the individual who will continue the family line, while the girl is often seen as a provisional member of her husband's family. Her duties are generally to obey and respect her husband and to submit to him in all areas.[14] She is charged with all of the cooking, cleaning and childcare, and she must also contribute to the education of the children and in production for the family, often being involved in agriculture and other economic activities.[14] In return, she has the right to expect respect and protection from her husband, as well as being provided with food and housing. The realm of reproduction is by far the most important role for a woman in Malian society, and her ability to have children is seen as a gift.[14] She is expected to produce as many children as possible for the benefit of her husband and the community at large, a prenatal stance that is apparent in the fertility rate of the country, which reports the average number of children per woman as about 7.[31] Numerous births, which are often precocious or too late in life and often closely spaced, can be detrimental to a woman's health, but child bearing is considered by many as the only way to be recognized as a woman by the society.[10] Failure to have children sometimes leads to divorce, or in other cases the husband marrying a second wife. Because of both indigenous and Muslim traditions, polygamy is very prevalent in Mali, and, in my opinion, contributes to

the inequality in power between men and women. These factors, especially the value placed on submission to husband and parents, all contribute to a lack of autonomy for women, an important point to note before discussing any female health issue.

Health in Mali is poor and the overall health system weak, with life expectancy at birth being just 49.94 years.[31] Mali's health care system is decentralized and composed of a network of community health centers known as CSCOMS (centres de santé communautaires) at the lowest level, with district health centers and centers of reference making up the second tier and the seven regional hospitals serving as the third level of resources.[30] There are also four national hospitals, including Gabriel Touré and Point G, both of which are found in Bamako.[15] Access to health facilities is often discouraged by distance and cost, with structures and resources generally not being equally distributed in space. A study reported by the Ministère de la Santé in 2000 reported that as of 1999, 60% of the population was living within 15 kilometers of a source of primary, basic health services, and a report by the World Health Organization showed that that are only 0.04 midwives and 0.08 physicians for every 1000 people (many of whom are centered in urban areas).[4] The health system is characterized by a lack of resources. Aside from the official health system and services provided by non governmental organizations, many Malians also depend upon traditional health care. The types of ailments found in Mali include food and water-born diseases and malaria, which remain significant causes of morbidity and mortality.[31] The infant mortality rate is estimated to be 103.83 per 1000 live births and maternal mortality is reported as 970 cases per 100,000 live births.[31,18] Maternal Mortality in Mali is one of the highest rates in the world, with women having a one in 15 lifetime risk of dying during pregnancy or delivery.[18] It is within this specific context of

Figure 1. Mali

health, culture and economy that I studied obstetric fistula. My research was divided between Bamako and Mopti, both cities found along the Niger River (Figure 1).

Bamako, as mentioned before, is the capital city of Mali and is home to over 1,500,000 people. The city is characterized by large numbers of health and government facilities and resources and is therefore a central point for many activities relevant to obstetric fistula, especially because l'Hopital du Point G is the largest provider of fistula repair in Mali. Mopti is a city of 115,000 that's industry is largely based on trade and fishing. The Mopti Regional hospital is located there along with a fistula center run by the Non-Governmental Organization Delta Survie, the headquarters of which are found in the neighboring town of Sevaré where I lived during that portion of my study.

3. Methodology

I based this study on paper and web based research, informal and formal interviews and participant observation carried out between May 9th and April 5th. The first two weeks of my research was spent living in Sevaré, primarily working with the Malian NGO Delta Survie, who runs an artisan shelter for women suffering from fistula next to the Sominé Dolo hospital in Mopti. The center provides free housing and a chance to earn money through fabricating and selling crafts as a group, while women await treatment or recover from surgery on their fistula. My first week at the center I helped the women and the center employees to finish an order to the United States for the group SERRV International. During this time I was able to observe the daily life at the center and carry out extensive informal interviews with Beth Echols, a Peace Corps volunteer who worked with the center, as well as talking to Madu, the center guard. In addition, with Echols translating, I was able to pose questions to the three assistants who worked at the center. I also conducted interviews with Monsieur Ibrahima Sankaré, Secretaire Generale of Delta Survie, the Medecins du Monde team at Sominé Dolo and Dr Noumou Diakite from Sahel Consult. My second week was

dedicated to interviewing the women, with the help of Madu, who translated between French and Bambara (only one of these interviews was conducted entirely in French). There were many women at the center who did not speak Bambara, so it was sometimes necessary to have multiple people involved in translation between myself and the interview subject. I take full responsibility for any errors that may have occurred at any point in this process. Madu was a skilled and patient translator and I owe him a great deal. Consent was verbal. My interviews with the women were formal and structured, consisting of 16 questions ranging from age to age at marriage to the number of operations that had been experienced (Appendix 1). For the most part these questions were quantitative. There are a few possible sources of bias that could affect this data set. First of all, while I was not limited entirely to women who spoke Bambara, I was only able to utilize multiple step translations in a few instances and when someone was not available to translate from Bambara to Peul for example, I was obligated to exclude those women from my sample population, therefore my data maybe be ethnically skewed (though the Bambara language is spoken by people from many different ethnic groups). Secondly, the women's perceptions of what I wanted to hear may have influenced their responses, though this was not my impression. Finally, the women may have been affected by the often communal nature of the interviews. All the interviews conducted were carried out in the public spaces of the center (the only place readily available) and a small group of women would often group around as they waited for their turn to respond. Therefore, while I have maintained anonymity of all respondents from the point of recording data to the writing of this report, at the time of questioning complete confidentiality was not maintained. Two points should be made on this subject. While it was certainly not an ideal situation and I had concerns about the comfort levels of the women with whom I was speaking, it was impossible to have fewer than three to four people involved in the interview because of the need for translation. Secondly, while 51 women were present at the center

during my visit I only spoke to 32 of them, because the other 19 chose not to respond, numbers which seem to indicate that women did not feel pressured to participate. The remainder of my study time was spent in Bamako where I conducted interviews with Professor Kalilou Ouattara of Point G, Doctor Mariam Sissoko of the United Nations Population Fund Mali office, and Doctor Binta Keita, Chief of the Division of Reproductive Health at the Ministére de la Direction de la Santé. All of the interviews were generally informal and conversational in style, though based around a prepared set of questions specific to each interviewee.

4. Obstetric Fistula

Obstetric fistula is a hole in the birth canal that results from childbirth complications. During normal labor the bladder base and urethra are compressed between the descending fetal head and the posterior surface of the pelvic girdle.[2] In the case of obstructed labor, the duration of this compression is extended, and if it is not relieved the lack of blood-flow results in the necrosis of the intervening soft tissues.[2] The dead tissues usually slough away between the 3rd and 10th day following the original necrosis, resulting in a hole between the vagina and the bladder, known as vesicovaginal fistula, or, less frequently, in a hole between the vagina and the rectum, referred to as rectovaginal fistula, or in both.[2] Obstructed labor is due in most cases to the unfavorable position of the descending fetus or to fetopelvic disproportion, in which the fetus is too large to pass successfully through the birth canal.[2] This is a complication experienced by approximately 5% of women and is responsible for 8% of maternal mortalities.[33] Those are global statistics, and though you could likely find regional trends in rates of obstructed labor due to some contributing factors such as malnutrition, it is certainly a complication that occurs in developed countries, but nearly all deaths resulting from this complication happen in developing countries, and fistula (the other likely consequence) is virtually non-existent in the West because of improvements in obstetric

health services that proliferated at the end of the 19^{the} century. However, in the absence of prompt emergency obstetric care, which usually takes the form of a caesarian section, obstructed labor, even in the case that the woman survives, almost always results in the delivery of a still born baby. Dr. Keita of Sominé Dolo, the Mopti Regional Hospital, reports that this has been the experience of 90% of the women that he treats for fistula.[3] Tragically, if the mother survives without the help of any medical intervention at all (versus receiving medical care, but too late in the labor to save the baby or prevent the fistula), obstructed labor may last up to 7 days and often only comes to an end when the fetus (which usually dies during the 2nd or 3rd day of labor) decomposes enough to pass through the birth canal.[20]

Depending on the severity of the injury the fistula or fistulae can be very small (less than 1cm in diameter) or extensive enough that the vagina and bordering tissues are almost completely destroyed.[2] The hole allows urine and or feces to leak through the vagina resulting in complete incontinence. In addition to chronic incontinence, if left untreated, this injury can lead to infections, ulcerations, and kidney disease.20 Fistulae are also commonly associated with nerve damage in the legs which can make walking difficult or impossible, because, in accordance with traditional birthing practices, some women squat during labor and if this position is held for too long (days in the case of obstructed labor) it can be detrimental to the health of a woman. Amenorrhea, the cessation of the menstrual cycle, also sometimes occurs.[20] these medical conditions can contribute to a general decline in health and in an early death, though many women have lived with a fistula for decades.

Social consequences of obstetric fistula are generally even more devastating to a woman than the physical hardships of the condition.[26] Psychological trauma resulting from the loss of a baby is compounded by the common perception of the injury as being extremely shameful.[20] Women with fistula are often hidden by family members and are frequently reported to be ostracized and rejected by their communities. Their position as outcasts

extends so far as to prevent them from participating in even basic daily activities, such as preparing food, taking public transportation, or praying. The smell caused by their incontinence, as well as the inability to have children (without the help of medical intervention), frequently leads to women with fistula being abandoned or divorced by their husbands, as well as to a general loss of status and dignity.[21] Their shame, combined with the obvious lack of acceptance by the community, often leads to women isolating themselves. These factors can also worsen her economic situation, which will likely augment the physical and psychological challenges she faces.

Obstetric fistula is completely preventable with the use of skilled delivery services and emergency obstetric care. It is therefore considered to be a result of a weak maternal health system, with the risk factors for developing a fistula being primarily socially rooted. As previously stated, the injury affects the most marginalized groups in society: young, poor, illiterate women from remote areas and members to societies with traditional (and often harmful) gender biases are the most likely to develop these injuries.[20] Specific risk factors include early marriage, malnutrition, female genital mutilation, and lack of access to health services.[20] Child marriage, defined as marriage before the age of 18, and the subsequent precocious pregnancy that is likely to occur, are huge risk factors for obstructed labor, because the girl's pelvis is probably still immature, both in shape and in size. This makes natural delivery a challenge.[18] According to the UNFPA girls age 15 to 19 are twice as likely to die during pregnancy or childbirth as women 20 to 24. For girls younger than 15 the risk is five times as high.[16] The risk of developing an obstetric fistula can be expected to mirror these figures. Indeed, in studies done on the incidence of fistula in Africa, it has been found that 50% to 80% of women with the malady were less than 20 years old. The same percentages have also been found to describe the number of women who developed the fistula following their first pregnancy.[2] Malnutrition also can play into the issue of feto-pelvic disproportion,

because malnutrition experienced as a child can lead to skeletal stunting, a condition that means the skeleton does not fully mature, so just as in child marriage, the risk of obstructed labor may be higher because it will be harder for the descending fetus to traverse the birth canal.[20]

Female Genital Mutilation, the practice of cutting or removing portions of a woman's genital organs, can also contribute to the risk of obstetric fistula. Female Genital Mutilation or Cutting can be relatively limited in scope, such as clitoridectomy, or can involve extensive removal of tissues of the vagina and vulva. Mutilation may also involve practices such as sewing shut the vagina opening. This can result in extensive scarring and can increase the risk of childbirth complications, including obstructed labor. There is some disagreement on this point, and few statistics exist, but the World Health Organization reports that these injuries may make the risk of complications up to seven times more likely than in the case of a woman who has not experienced genital mutilation.[4]

The UNFPA defines three delays which are huge contributors to the development of a fistula as delays in seeking medical treatment, delays in reaching a medical facility, and delays in receiving care upon arriving.[20] These factors are most likely to come into play in remote areas, far from a health facility. Cost and transportation (which can be made worse in areas of difficult terrain) as well as lack of resources at the health structures them selves can act as barriers to accessing medical services. These factors are typical of many developing nations that are characterized by weak infrastructure, at least in some remote regions of the countries. It also brings us back to two of the most important root causes of fistulas: poverty and a lack of education.[20] While poverty may prevent a family from trying to access a health facility, being uninformed and uneducated may prevent someone from even being aware of the risks involved in pregnancy, or knowing in what situations they need to seek medical services. Therefore, both traits increase the likelihood that one will experience the delays

described by UNFPA, but they also contribute to the likelihood of all the other risk factors mentioned, specifically malnutrition and early marriage.

As mentioned before, obstetric fistula is a treatable injury, requiring a relatively simple surgical procedure. Unfortunately, the global capacity to treat fistula is only 6,500 operations a year.[33] If one recalls that there may be as many as 100,000 new cases each year, it is easy to see the huge problems that face any attempt to help women living with this malady. For the women who are able to access treatment, they must wait three months before receiving the operation. This allows time for some spontaneous recovery and revascularization of the involved tissues to occur. The surgery is usually performed by vaginally, but a repair involving an abdominal route is also possible. If the patient has multiple fistulas (either of one type or a mix of vesicovaginal and rectovaginal) they should all be repaired in the same surgery. After the intervention the woman should be encouraged to become mobile as soon as possible, though she should remain at the hospital for more than a week to allow for postoperative monitoring. Possible complications include hemorrhage, vaginal stricture, stress incontinence or blockage of the catheter, infertility, or a failed repair. For fistula repair there is, as with all surgeries, a small risk of death, with the fatality rate in Sub-Saharan Africa being from 0.5% to 1%. A successful surgery is defined as one in which a woman is no longer incontinent through the vagina. In the case of secondary incontinence, doctors can provide patients with what the World Health Organization refers to as "the bladder re-education programme" which tries to help women stretch their bladder, so that it can perform normally. Global success rates for fistula repair surgery are fairly high with uncomplicated injuries being treated with a success rate of 90% and complicated fistulas being repaired 60% of the time. If an operation is unsuccessful, additional interventions can be performed, but a three month recovery period between surgeries must be observed.[13] During the recovery period women can not do heavy work or have sexual intercourse. A final note on treatment is

that for the most part, women with fistulas are not infertile. They are capable of both conceiving and bringing a fetus successfully to term. The danger lies in delivering the baby, and consequentially most doctors stress the importance of a caesarian section in avoiding the recurrence of fistula.

I have already made reference to the fact that fistula is a large problem for a significant part of the world. This fact was recognized internationally in 2003 when UNFPA launched their Global Campaign to end obstetric fistula. Before this plan was initiated, fistula had received shockingly little attention from actors in the realm of global health (and global reproductive health). The goal of the UNFPA campaign is to make the occurrence of obstetric fistula as low in developing countries as it is in developed countries by the year 2015. The campaign consists of three phases: conducting a needs assessment, receiving financial support to develop plans to meet those needs and the implementation of the developed plans and interventions. 12 countries joined in 2003, but by 2006 that number had grown to 40. Mali is considered to be at phase III because fistula has been integrated into a national health plan. Fistula in Mali has therefore been recognized both on a state and a global level.[20]

5. Obstetric Fistula in Mali

No technical country wide estimates exist on the number of women who have a fistula are living in Mali, and throughout the course of my interviews it became clear that no one felt able to hazard a guess. However, one can know that hundreds of women are treated for fistula each year in Mali's hospitals. According to Professor Ouattara, two out of every three women who come into the Point G urology department have a fistula.[24] A study commissioned by Medecins du Monde that was carried out in the Mopti region in 2001 determined that half of more than 2000 villages were home to at least one women suffering from fistula.[10] Ibrahima Sankaré, the director of Delta Survie, an organization that works with women with fistulae,

was a researcher on that study. He recalls meeting 58 women with fistula while passing briefly through villages in the Niger flood zone, his area of responsibility.[24] All of these figures can hint at the prevalence of fistula in different areas, but they allow no sure way of knowing the real extent of the problem. What we can say for certain is that in many ways Mali is a high risk area for obstetric fistula. I am now going to offer an explanation of how the risk factors described previously for obstetric fistula in general, are manifested in Mali specifically.

According to the Population Fund, Mali has one of the most extreme situations of forced early or child marriage that exists today. Legally, Malian girls are allowed to marry by the age of 15 as long as she has the consent of her parents, and girls younger than 15 may marry with the authorization of a judge. However, even this stipulation can be avoided, by only performing the religious ceremony and not having a civil marriage.[16] In a the study commissioned by Medecins du Monde (mentioned above) on reproduction in the Mopti region, it was found that the ideal age for marriage for women was between 10 and 14 while for men it was between 18 and 20 for men.[10] This ideal is often fulfilled; a 2001 health survey performed in Mali found that 65% of women 20 to 24 years old were married by 18 and 25% were married by 15. In addition, according to UNFPA, 29.9% of urban women 15 to 19 had already begun childbearing, while 49.9% of that demographic in a rural milieu had begun.[17] In addition to the physical risk factors intrinsic in the young age of these potential mothers, it is often more likely for a young pregnant women to neglect prenatal consultations etc.[14] In my research I found that of the 32 women I spoke to at the Delta Survie center for women with fistulas, 14 knew their age and of those, 11 were married between the ages of 12 and 16, while the other three were married before the age of 20. Malnutrition, and the possibility of pelvis immaturity due to this nutritional insufficiency, is also a reality in Mali, with 38% of under-five-year-olds suffering from moderate to severe stunting level malnutrition.[18] Therefore, one could expect that Malian women affected by these phenomenons would have a relatively high risk of experiencing obstructed labor.

Female Genital Cutting is an extremely common practice in Mali, where 92% of the female population has had the procedure done (usually now as an infant).[17] Excisions in Mali usually take the form of cliterodectomy and therefore involve the removal of less tissue than some other types of genital mutilation. However, it does still result in scarring and the constriction of tissues surrounding the vagina, so it may contribute to instances of obstetric fistula. I am unaware of any studies that have studied the strength of this potential causal relationship, but there are now efforts being made in the Mopti region to track possible risk factors (including excision) and who develops fistula to try and better understand these potential correlations. I will talk more about this project in section 6.

One of the biggest factors in developing a fistula is where you deliver, because if you experience complications, this plays a large role in determining whether the potential delays in accessing medical assistance are fulfilled, and to what extent. In Mali, 63% of women deliver at home.[21] 17 out of the 32 women interviewed at Delta Survie reported giving birth in the home, while 15 reported delivering in a medical facility. This number however, is probably not a true reflection of the women who primarily labored in her household. Many women who reported giving birth at a hospital later made me aware that they only went to the hospital after labor lasted too long. These are high figures for a number of reasons. First of all, for many people in Mali health services are hard to access because of factors of distance, transportation and cost. A study performed in 2007 it was found that only 10% of births occurred within 5 kilometers of a structure with emergency obstetric care capability, and in addition, 17% of births were in areas dependent on seasonally impassable roads and about 70% of births were in areas without emergency auto transportation.[9] In 2003 it was reported that 85% of women living in rural areas lived at least 30km away from the nearest hospital. These are relatively old figures, but there have not been any drastic changes in the number of health facilities over the last few years. Therefore, the impracticalities of reaching a medical

facility can be large deterrents when deciding where a woman is going to labor. Additionally, there are many women who do not want to give birth in a health center. It is not a well-established setting for a Malian birth, and because the woman is less likely to know the midwife, who is often young, and may be more aggressive and use different techniques than traditional birth attendants, she may not want to labor there.[10] Additionally, people have reported receiving a poor welcome at such facilities. However, it is important to note that even if a woman wants to give birth in a maternity clinic or a CSCOM, she is often not free to make that choice. The decision is left up to her parents, parents-in-law, or her husband.[14] This of course depends on whether you live in a rural or an urban area. In Bamako 91% of women give birth in a facility and many of these women are reported as having made the decision themselves.[21]

Living in an urban or a rural area also affects if you are attended during childbirth. According to the UNFPA, 85.6% of urban deliveries are accompanied by a skilled attendant while only 28.5% of rural births are. One factor in this is that most clinically trained midwives are based in Bamako, so there is a lack of resources in other parts of the country. Birth attendants in Mali include accoucheuses traditionnelles, (traditional birth attendants), matrones (matrons), and sage femmes (midwives).[10] Midwives have their DEF (their diploma of fundamental studies) as well as 4 years of professional training at a secondary school for health care. Matrons usually don't have a diploma, but have likely finished five to seven years of school and six months of professional formation.[10] Matrons are anywhere from 20 to 55 years old and some work with official health centers. Traditional birth attendants are usually older and in the study done on Mopti reproductive practices it was found that 85% of attendants questioned had had no training. They sometimes receive a small sum for their services (maybe 500cfa) or else gifts at the baptism. The traditional attendants are typically better known within the community.[10] Because of this, the issues already mentioned with

seeking a health facility, and the cultural importance placed on maintaining secrecy and privacy around delivery (traditionally this can be related to fear of sorcery) it is very likely that in the instance of childbirth a traditional attendant will be called and a woman will only go to a health center if she is forced to because of complications.[10]

I am now going to use the context of the Mopti region to demonstrate how the three delays defined by UNFPA are often fulfilled in the case that complications do occur. If you are a woman going into labor in a village in the region of Mopti you are likely at home and accompanied by a traditional birth attended as well as a female family member; perhaps your mother or mother in law. Traditional attendants recognize the undesirability of a prolonged labor, and do not want a delivery to take longer than eight hours. However, they will generally wait, and hope for a good outcome until the labor hits the 24 hour mark.[10] At this point the attendant may start seeking outside help, by talking with other birth attendants or healers. If nothing changes, however, she will inform the mother or mother-in-law and then the husband and/or other male family members.[14] It is at this point that the decision to evacuate gets made. This is the delay in seeking care. If the family decides to evacuate the mother, the husband then gathers the money and means of transportation to make the trip, neither of which are necessarily in easy supply.[10] If the village in question is in the area of Mopti with access to a good road system, evacuation might not be very challenging. However, the Mopti region also includes a portion of the Niger flood zone, which is seasonally difficult, and an expanse of cliffs and plateaus from which evacuation is always arduous and risky. Transportation of laboring women has been done by pirogue, cart, donkey, vehicle, and motorcycles.[10] These factors can all cause the delay in reaching the health facility. Finally, when trying to access emergency obstetric services women often go to CSCOMS which can be understaffed and under equipped. Finally, not all health structures

are capable of performing the necessary medical interventions, so a woman must be sent on. This can result in the delay of receiving treatment upon arriving at a medical facility.

It is only too easy to see how these delays and obstacles can come together to hugely increase a woman's risk of developing fistula. And again, all these factors can be tied back to the issues of education and poverty. Examples of these relationships are the facts that only 8.1% of women in the poorest wealth quintile in Mali are attended during childbirth by a skilled attendant, while 81.9% of women in the richest fifth of the population are attended, and that 66% of women who deliver at home have never been to school.[17] Out of the 32 women interviewed at Delta Survie only one had been to school; she was able to attend for just three years. Obstetric fistula is problem intricately entwined with some of the most important health and social issues that Mali faces today. And one of the biggest challenges is that many of these risk factors are culturally based. This connection between culture and health is also apparent when we look at the social affects of obstetric fistula.

As typical of the injury in most societies, obstetric fistula is considered very shameful. It is not an injury that is very well understood by the community and in some milieus it is still perceived by some as to be a matter of fate, sorcery, or the will of god than the result of childbirth complications.[11] This lack of understanding most definitely contributes to the ostracism and rejection that these women experience. Additionally, as previously explained, Mali is an extremely prenatal society, and children play a huge role in how much women are valued. Because fistula often occurs at the culmination of a woman's first pregnancy, many women with fistula have no children, and without the benefit of treatment, are unlikely to have more, so this alone can be extremely psychologically and emotionally distressing. At the Delta Survie center 20 of the 32 women reported not having children. Often because of the issue of children, combined with practical factors such as the smell and the difficulty of sexual intercourse among others, afflicted women are often abandoned or divorced by their

husbands, or sent back to their family of origin by their parents-in-law. This situation is compounded in the case of polygamy when co-wives often insist that the injured wife does not assist with cooking or perform any of her other marriage roles. If the woman is Muslim, she may not be allowed to pray with others because she is considered "dirty".[21] In the Mopti regional reproductive study researchers asked representative members of the communities they visited, such as traditional birth attendants, young women, old women, and husbands to give popular qualifications used for women with fistulas. They included the following (all of which have been translated from various local languages to French and then to English): sick, unimportant, smelly, broken, the woman who is not considered like a woman, repugnant, degraded, dirty; excluded, pitiable, not a person, without dignity, sterile.[10] The existence of women with fistulas in Mali is not an easy one. Even those who are able to receive treatment and have a successful repair continue to have problems in their communities of origin. They often leave their home, and in some instances change their name, so as to be able to start a new life and family. For many this injury is truly a tragedy regardless of treatment; what we therefore must strive for is to prevent this injury all together.

6. Prevention

Due to the deeply rooted causes of obstetric fistula any attempt to prevent this childbirth injury must look at the social wellbeing and health of a population in general and maternal health in particular. According to the World Health Organization to prevent fistula you must improve the status of women in many areas, including, but not limited to the following: education, timing of marriage, family planning, access to skilled services and emergency obstetric care during childbirth. One must thus consider the broad projects of Mali's ministry of health to improve reproductive health as part of the prevention effort. Mali was classified as being at Phase III of the UNFPA global campaign to end fistula because fistula was integrated into the National Strategic Plan for Reproductive Health that

covers 2008 to 2012. According to Doctor Binta Keita of the Division of Reproductive Health, and Doctor Mariam Sissoko of UNFPA in 2003 a study entitled *La Strategie National de Prevention et de Prise en Charge de la Fistule* (The national strategy to prevent and take charge of fistula) was conducted.[29] Currently, an elaboration of this original project is being performed, that according to Doctor Binta Keita, chief of the Division of Reproductive Health at the Ministére de la Direction Nationale de la Santé, will impact the fistula strategy for future years.[12] I was unable to find out what exactly this would entail, though in our interview she did mention that formation through the media will play a role. The government also works in partnership with UNFPA (whose role was described to by Dr. Sissoko of UNFPA as being to support and augment the work of the government) and together they support prevention efforts done within small communities carried out by other organizations such as AMINAH-Suisse. It should be noted however, that much of that group's work is focused on finding women already suffering from the malady and helping them access treatment, rather than on preventative efforts.[29] Indeed, I did not find in the course of my research in Bamako an example of a prevention program focused specifically of fistula, but instead large scale (both in scope and time frame) projects. The most important example I found of this was the health policy put in place in June of 2005, which made caesarian sections free. It's expected that funds pledged to this service will reach two billion cfa by 2009. This is a hugely important development, as previously the operation cost 60,000cfa, a prohibitive price for many Malians.[28] In 2001 births by caesarean section accounted for only 1% of all deliveries in Mali, while in countries with stronger maternal health systems that rate is usually between 5 and 10%. Hopefully the change in policy has started to bring this number up.

In Mopti I learned about a few specific Fistula prevention programs that are run in the region (which, as discussed in Section 5, is a high risk area for fistulae). Medecins du Monde,

a French non-governmental organization who is completely responsible for all fistula treatment performed at the Mopti Regional Hospital works with a local theater troupe. The group puts on 40 to 50 performances of the story of a woman who develops fistula.[3] The play is meant to explain what the injury is, what causes it, and how women can access treatment. Additionally, Medecins du Monde records radio segments on the subject in French that are translated into other languages and played on local stations.[3] Delta Survie also produces sensibilization tapes for the region, though according to Monsieur Sankaré their tapes are translated into more of the local languages (including four dialects of the Dogon language) than is done by Medecins du Monde.[27] Delta Survie is also deeply invested in a new test project known as fistula observatories that they hope to establish in over 2,000 villages in the Mopti region. The system would consist of the training of approximately seven community members in each village on the subject of fistulas.[26] Their role would then be to inform their fellow citizens of the risks and causes of fistula and the availability of health services. For example, if the team heard that a child marriage was going to occur they could approach the parents and inform them of the risks that their daughter will face in the incidence of an early pregnancy.[27] If a reproductive health issue was brought to their attention, they would be able to advise individuals as to what health resources are available and where they should go. In this way a permanent presence would be established by the community itself to serve as a resource to its members. An additional aspect of this project would be to keep track of events such as early marriage or excision as well as who develops a fistula. It is hoped that this data will increase our understanding of fistula in Mali as well as to provide a better idea of the extent of the problem.[26] Monsieur Sankaré is highly optimistic about the feasibility and impact of this project. A phase test has already been carried out in 150 villages by Delta Survie, the UN Volunteers, and other organizations (including support from the Canadian government). The required infrastructure is expected to be two to three coordinating agents

and a vehicle for each circle in the region, and it is estimated that it will cost 530,000,000 cfa to run the program for three years.[27]

If funding is found for this project, it could become the primary preventative endeavor for obstetric fistula in Mali. For the moment however, prevention efforts are limited and as of yet does not seem to be visibly effective. This, of course, must be considered in light of the fact that it's hard to tell if progress is being made if you don't know where you're starting from. However, based on the fact that 100% of the women I interviewed at the Delta Survie center had not heard of the risk of fistula, or even that the malady existed, before developing the condition themselves, I feel it's fair to say that prevention programs are weak. What is in any case clear is that Mali can expect to continue seeing new cases of fistula at least in the near future, and treatment will remain an essential component in the struggle against fistula.

7. Treatment

> *"Women with obstetric fistula must be identified and encouraged to come to the hospital for treatment early before the damage becomes irreversible."*
>
> -The World Health Organization

In Mali, women can face many obstacles in trying to access medical help. One of the largest problems is simply lack of information. Many women are just not aware that there is a surgical treatment available and thus may never get the chance to be healthy and improve their situation. Traditional healing does not include an effective treatment for women with fistulae and is limited to providing products which can decrease the odor caused by the chronic incontinence.[10] If a woman is lucky enough to learn that help is available, she still may have to deal with barriers of cost and lack of familial support that can be very difficult, as she is likely to be dependent on the financial and social resources of her family and may not have the autonomy to make her own health care decisions. It is because of these factors

that treatment of obstetric fistula must also include seeking women out, and similarly, must include efforts to reintegrate treated women into their communities. In literature produced for a presentation done by Professor Ouattara and other members of the fistula team at l'Hopital du Point G, the goals of treatment were described as follows: closure of the fistula, prevention of recurrence by use of a caesarian, the reestablishment of continence, guarantee (if possible) the ability to have children in the future, and to assure social reinsertion.[23] If all of these goals are met the ideal result of fistula repair surgery has been achieved.

I focused this aspect of my research on the programs at l'Hopital du Point G and at Sominé Dolo (the Mopti Regional Hospital). There are other hospitals in Mali that perform fistula repair including Tombouctou, Gao, and Ségou, but these two have the greatest capacities and are the only two associated with housing centers specifically for women with fistulas.[12]

At L'Hopital du Point G fistula surgeries are handled by the Urology Department, which is led by Doctor Ouattara, who has been working there since 1982. The surgical team consists of four surgeons as well as nurses, interns and students working on their specialisations. The department has two operating rooms, one of which is reserved solely for fistula operations and was equipped by UNFPA. Surgeries can be performed every day and each year 200 to 300 women are treated, which means as many 400 surgeries are actually performed, because some women need to have multiple interventions. The hospital also runs an annual intensive program in which foreign surgeons come and work with the Point G team for two weeks, during which time they treat as many women as possible. If the woman has already had her medical examination at another hospital before arriving (at the hospital that referred her to Bamako) she will generally only be at the hospital for about 6 days before her operation. Following the procedure she stays in the Urology Department for 10 days to be observed and is then sent to Oasis, a building located on the hospital grounds, for an

additional two weeks of recovery time.[24] Oasis was created in 2000 with the help of Mme Adame Ba Konare, ex 1st lady and President of the Fondation Partage, and provides 40 beds to women being treated for obstetric fistula. After three months patients are asked to return for a check-up to evaluate the repair and operate again if it was unsuccessful.[32] According to Professor Ouattara the success rate at the hospital is 85% to 86%, though he notes that a successful operation doesn't necessarily mean perfect continence.[24]

The women who make it to Point G for treatment are a diverse group, with girls as young as 13 and women as old as 70 having been patients in the past. Some of the older women have lived with fistula for 40 years. Most of the women are accompanied by their parents. The cost of the operation that these women receive is 100,000 cfa plus 40,000 cfa for food and lodging during their stay, a price that would be considered relatively inexpensive in the United States, but that could represent a near to impossible figure for many of these women, even with the financial support of their families.[24] Luckily, every woman that comes to Point G is taken charge of by a partner organization which pays for their treatment. This is often done by AMINAH-Suisse, the organization mentioned in Section 6, whose involvement generally begins by finding the affected woman and sending her to Bamako. UNFPA is also involved in funding this effort.[29]

One of the most interesting aspects about the treatment program at Point G is how prominent it is in the regional field of obstetric fistulas. Resources to treat this condition are limited, in regards to funds, facilities, and surgeons. Point G is involved in training surgeons to perform this operation and its team members also work in other areas. Professor Ouattara spent time in Mauritania performing surgeries and training local doctors. In respect to this there are efforts to make Point G a sub-regional center for West African fistula repair.[24]

Sominé Dolo is home to a smaller fistula program than Point G, but it plays an extremely important role in the context of Malian treatment resources. Medecins du Monde

first began sending fistula missions to Mali in 1986 that were comprised of four to five surgeons who would come to Mopti each year. Mopti represents a high risk area for fistula, as discussed in section 5, but it was also chosen by Medecins du Monde because it was more easily accessible to Mali's Northern populations than the more Southern Bamako. In 2003, following the completion of the study of reproductive health and fistula they commissioned on the region, they established a permanent fistula program at Sominé Dolo.[3] The Medecins du Monde hospital staff consists of three members and is assigned one nurse who works solely on fistula cases, though all the nursing staff can help. Monday and Wednesday are fistula days at the hospital and one of the two operating rooms available is reserved for fistula repairs on those days. It is possible to do four to six operations a week, but the flow of patients is sporadic and so the rate of surgeries isn't steady. Anywhere from 60 to 110 women have been treated per year, but again, this translates into more operations actually performed.[3] The data on the number of women treated over the past nine years is shown in figure 2. Currently, the program is working on developing another operating room that would only be used for the treatment of obstetric fistula. Capacity at the hospital itself is limited to six beds for fistula patients, but generally women do not spend much time at the hospital. Prior to their surgery women are examined and a medical consultation form is filled out (Appendix 2). Starting this year, in 2008, a psychology form has also been added that will allow the hospital to guard a more thorough profile of their patients (Appendix 3).[3] After the surgery women are obliged to stay

Year	**2000**	**2001**	**2002**
Patients	68	73	110
Year	**2003**	**2004**	**2005**
Patients	91	82	63
Year	**2006**	**2007**	**2008***
Patients	64	79	22

Figure 2. Number of Women Treated at Sominé Dolo, 2000-2008

Number of Interventions	**Number of Women**
0	5
1	9
2	6
3	6
4	5
Many	1

Figure 3. Number of operations had by women at Delta Survie

one week in the hospital, and an additional two weeks at the Delta Survie shelter for women with fistulas. This shelter will be discussed in the following section. At the three week and three month postoperative marks women are asked to come in for checkups, or in the case of an unsuccessful surgery to come in to try again. Dr. Keita reported to me that 86% to 87% of operations result in recoveries.[3] However, it should be noted that this figure includes a near 100% success rate on the first intervention for simple fistulae, as well as a low success rate for women with complex fistulae, some of whom have to have up to five or seven interventions and who may never fully recover (Figure 3).[3]

Medecins du Monde subsidizes all of the fistula operations it performs; only asking women to pay a symbolic 15,000cfa. However, if a woman can not pay she is still treated.[3] Until 2000 this program was funded entirely by Medecins du Monde but as of 2003 65% of the project is funded by private organizations. This year the program has also started refunding women for their transportation to the center and paying for 40 days worth of food during their stay. Medecins du Monde advertises this program over the radio, with their theatre troupe and by sending letters explaining the services they offer to other non governmental organizations, health structures, and community leaders (Appendix 4).[3] In talking to women at Delta Survie it also became clear that the spread of information involves a significant word of mouth component. While 17 women were referred by other health facilities and six received sensibilization on the topic, nine found out from other women who had received treatment. An additional fact is that all but one of the 32 women were originally accompanied by a family member or members when they came to the hospital; seven were accompanied by their husbands.

An important aspect of obstetric fistula treatment involves taking care of a woman's reproductive future.[23] As explained in section 6, caesarean sections are free at all hospitals in Mali, but both Point G and Sominé Dolo ask their fistula patients to come back to their

facilities in the instance that they become pregnant again. At Sominé Dolo women can come and stay at the Delta Survie center for the 8th month.

Reinsertion of treated fistula patients into their communities is one of the biggest challenges in the area of fistula treatment. Neither Point G nor Sominé Dolo have programs established to really help in this area. In many ways, it seems like this aspect of treatment must be tightly bound with all prevention efforts, as both require educating and informing the population. Only with greater understanding by the community will true reintegration be possible. The creation of safe and considerate environments for women with fistulae is a worthy and challenging goal. Delta Survie is one manifestation of an attempt to do just that.

8. Delta Survie

Delta Survie was created in 1994 by Ibrahima Sankaré. At the time he was working in his home village as the president of a village association that was working on development. The scope of this work was limited to just one or two villages and Sankaré wanted to make his impact broader and less peripheral. He continued working with village association for four years before moving to Sevaré to establish the Delta Survie headquarters. At this point the organization focused on a prospective study to figure out how to best help the Mopti region which was already the recipient of large amount of aid.[26] In 2000, the Sahel Consult Bureau d'Etudes was created and began working on the report "Gestions Populaires et Medicals de la Fecondite dans la Region de Mopti" that was commissioned by Medecins du Monde.[6] Sankaré was in charge of one section of the study and it was through this work that he was first exposed to the problem of fistulas. He described himself as being shocked and disgusted by seeing women thrown aside by society, even the ones who got help having no choice but to live in hospital courtyards while waiting for their operations. Sankarés conclusion was that women suffered more from the psychological aspects of her injury than

from the physical consequences. He says that women are not scared of the operation; they are scared of rejection by her husband, family, and community.[26]

The social consequences of obstetric fistula were therefore the inspiration for the creation of the Delta Survie artisan center for women with obstetric fistulae. Constructed in 2001 on hospital land, the center now includes two dormitories with 36 beds, a block of toilets, water pumps and a garden plot. There is a lot of open space and women cook and spend much of their day outside in the communal courtyard.[8] Until the center was created women who came to Mopti to receive treatment had to live in the hospital courtyard, which is generally an unhealthy environment, crowded with patients and that lacks facilities. The number of women who stay at the center varies each year, but in 2007 126 passed through and during my two week visit 51 women were living there, along with various family members.[26,8] Most of these women stay around three months- the recovery time required following treatment. However, women who need multiple operations may stay for a very long time as there are no technical rules on length of stay. Many women come and go multiple times, returning home between operations, or returning to the center to await caesarean sections.[26] I talked to seven women who had been living in the shelter for one year or more. It is worth noting that some women who stay for an extended period of time at the shelter do so not for medical reasons, but because they prefer staying in Mopti to returning to their home villages.[8]

Life in the center is arranged around several key activities. Medical appointments and consultations may occur throughout the week, but women are primarily occupied with normal household tasks such as cooking and cleaning. Some chores are communal, such as cleaning the bathrooms, but most activities are considered personal responsibilities. Additionally, Medecins du Monde runs literacy classes at the center in Peul, Bambara and French which are very popular. Of the 32 women I spoke to during my research only the new arrivals didn't

participate. These classes were originally held during only 51 days out of the year, but as of 2008 they last for eight months.[3] The other large communal activity that takes place at the shelter is jewellery making.

A big aspect of Delta Survie's program is that they train the women to make crafts (primarily jewellery) which is then sold to tourists and international partners (Bilou Toguna, Ojoba, and SERVV International), so that the profits can be shared among the women. Jewellery making is completely voluntary, but a woman must participate if she wants to make money, so the three assistants who work at the center keep a record of how much the women work. The only exception to this rule is if a woman is hospitalized or invalid, in which case she can still share in the profits.[26] This aspect of the program is run with the help of the three assistants who help with jewellery construction and in coordinating the women. A man from the artisan market also works with the center, finding materials and taking part in design and assembly of products.[8] The center currently has its second Peace Corps volunteer positioned there. Echols describes her role as helping with small business development. The first week I spent at the center I was helping the group finish an order of 500 necklaces which was the first big order the center was doing for SERVV International. This partnership could represent an important source of money for Delta Survie and the women at the center, so Echols goal was to provide quality control and the benefit of an American business prospective to try and make this first order the beginning of a sustainable exchange.[8]

Profits from the craft sales are divided as follows: 55% for the women, 10% for the artisan representative, 17.5% to be shared among the three assistants (who do not receive a salary), and 17.5% for Delta Survie. In 2007 the women's share was 1,032,195 cfa.[26] Though these profits obviously benefit the women who participate there are some problems. The goal of the center is to be autonomous and sustainable, but right now jewellery profits aren't sufficient to keep the center running: it costs 2,000,000 cfa per year.[26] Instead the group is

dependent on many outside funding partners, including UNFPA and the UN volunteers. Because of this Delta Survie would like to make more partnerships, and fill more frequent and bigger orders, as sales to tourists are sporadic at best.[26, 8] This goal is also related to dealing with the problems caused by slow turn around of profits. Tourist sales are not steady and large orders are generally paid for by sending half the money with the order and half the money when the order has been filled, possibly months later. Women who work on the jewellery often leave during this gap and therefore do not share in the profits.[8] Additionally, it means that income is not received regularly which limits how women can use the money.

The craft and jewellery making is presented by Delta Survie not just as a way to provide these women with a temporary income, but also as a development tool. The idea is that women will be able to use these skills when they return home to improve their economic and social position.[26] While this sounds good on paper, it really does not translate in real life. Women who leave the center rarely continue to make and sell jewellery.[8] When I questioned women about this the vast majority said that they lacked the means to start, and even if they had that the products wouldn't sell. Many of these women come from remote villages where the tourist trade is barely, if at all, existent. Women from larger cities know that the market is already flooded with artisan products and that competition would be very hard, especially removed from the resources offered by the shelter. The language classes; however, likely do provide benefits to women after they leave the center.

Despite these challenges, the shelter is a success in its role as a transitional shelter and as a source of support for this marginalized population. Having a place to stay for free during and after treatment removes a huge barrier for these women. The three month recovery period requires that women rest and not take part in sexual intercourse, both of which can be difficult to avoid if she has to return to her home environment.[3] The importance of this resource and its uniqueness is demonstrated by that fact that even women treated at Point G in

Bamako have been known to come to Delta Survie to stay, and that during my two week visit I met women from as far away as Gao and Toumbouctou, as well as two women from the Cote d'Ivoire. Aside from the strictly practical role that the shelter plays in these women's lives, the center provides important social support. Many of these women have lived for months or years dealing with the sometimes devastating social affects of obstetric fistula, but when women come to Delta Survie, they are a part of community of people who understand. Having a place where they can live normally, where they can cook and eat and talk and work with others, while they get help to cure them physically, is an extremely powerful thing. They are able to be at ease. Additionally, while eight women at the center have family members living with them and another six have someone living close by, 17 are alone. The community that these women form is really important, even taking account the frequent arguments and conflicts that arise when people are living in close quarters. In a conversation I had with the Delta Survie Guard who has worked at the center since its construction, he explained to me how great he thinks the program is. Without a place like this he believes that the psychological pain of the women would be even greater.

9. Analysis

Obstetric fistula is a significant problem in Mali. Though the numbers of women affected nationwide remain unknown, the high level of maternal mortality, the hundreds of women who make it in for fistula treatment each year, and the strong presence of many of the known risk factors for the malady, are all convincing indicators that the magnitude of the problem is much greater than we currently have numbers to support. When analyzing this issue it was helpful to divide the topic into three areas that would mirror must health policy decisions or plans on the subject: prevention, treatment, and reintegration. It is in these areas that we can look for weaknesses in the status quo and ways to approach these essential facets of the problem.

Current prevention programs in Mali are inadequate. The broad scale reproductive actions and plans that are administered by the government and it partner organizations are necessary and fundamental components of any campaign against fistula. However, if they fail to include at significant focus specifically on the issue of fistula education, efforts will be limited in their affect. As discussed above, obstetric fistula is a disease characterized by shame and isolation. To break the cycle of the injury it is necessary to make people come forward and be willing to say my daughter, my wife, my friend, has a fistula. I have a fistula. Only then will this disease come out of the shadows and into the public sphere where people are able to talk about it. The encouragement of awareness and understanding are critical. None of the 32 women with whom I spoke to in Mopti had ever heard of fistula before developing the injury. If their neighbors or a family in a nearby village or the village beyond that, had felt free to share their experience, maybe these women could have avoided the same outcome.

That is not to say however, that efforts to change root causes of fistula are not important. They are indispensable. Providing women access to education can contribute to the avoidance of child marriage and pregnancy, achieving a better economic situation than might have been possible otherwise, being more informed on health and other subjects, and to generally achieving a higher quality of life and social status. The potential of education is far-reaching and if improvements are made for girls and boys, the occurrence of fistulas and other maladies will be positively impacted. Other areas that deserve particular focus in the prevention arena are birth control and child marriage. It is reported that in Mali the rate of modern contraceptive use for women ages 15 to 19 is 5.7%.[17] The unmet need is estimated at 29%.[17] If this need was fulfilled a large number of unwanted and risky (too early, too late, too closely spaced) pregnancies could be avoided, cutting down on the number of childbirths that result in complications. Child marriage is basically at an emergency level and must be dealt

with now. A legislative bill that has spent the past five years gathering dust in the legislative books as it has yet to be passed. If made into law, the legal age of marriage would be raised to 18.[16] This law should be passed and it should be enforced (one should note that this law would likely include a similar caveat to the current legislation allowing younger girls to marry as long as the parents agree). Of course, enforcement would also have to be included in this law, a steep order, as many forced and child marriages involve members of the girl's own family.[16] Changes in these areas alone could significantly reduce the number of delivery complications and therefore fistulae suffered by women (and girls) in Mali.

These efforts relate to a general shift that has to occur in perceptions and behaviors, specifically in regards to how the desire for lots of children is tempered by the desire to protect the health of our mothers. In some ways Malian women are trapped in a paradox. They are highly valued as reproductive agents and for their role in child care, but at the same time her traditional obligation to submit to her husband in all areas, can severely limit her personal autonomy to affect her own destiny (in health and otherwise).[14] Mali is home to a rich and unique culture, but all cultures must be willing to take a critical look at themselves and find their internal conflicts- if traditional practices are being maintained to the detriment of maternal health, something needs to change.

The treatment programs at Point G and Sominé Dolo are both amazing resources. Looking to the future, treatment needs to reach more people- an effort that will continue to be contributed to by outside organizations such as AMINAH-Suisse, but all prevention programs should make sure to include information on where to go in the case that a fistula does occur. Aside from finding more women suffering from fistula, fistula treatment centers need to expand their capacity, and not just for Mali's benefit, but for the whole region. More resources are needed to deal with this problem and Mali can lead the way. Indeed, despite the fact that Mali is one of the poorest countries in the world Point G (with the help of

organizations like UNFPA) has become one of the strongest fistula centers in the region- which explains its candidacy to be a sub-regional facility for the problem. There is a global shortage of fistula surgeons and resources and we can't afford to wait another day to address this issue. All surgeons trained in Mali should be required to learn how to perform the fistula repair operation, and not just theoretically. Additionally, relationships should be maintained with the foreign doctors who come to Mali yearly to participate in fistula surgeries. Dependence should not be encouraged, but at Point G it seems like the interaction is a collaboration pursued in order to help the greatest number of women possible, an impression that is encouraged by Professor Ouattara's role in training foreign surgeons, including some from France and the United States.[24]

For the Medecins du Monde team at Sominé Dolo, it is first necessary to recognize wait is a great charitable program. Their efforts have resulted in the improvement of hundreds of human lives. Additionally, their new programs to pay for transportation and food costs are pragmatic solutions to the barriers that are often faced by women even in the instance that they both hear about medical care and are able to pursue it. On that note, in the future, treatment of obstetric fistula must remain free in Mali. Cost for many is an insurmountable barrier and because of the marginalized aspects of the population affected, access must be made as easy as possible.

But while Medecins du Monde runs a positive program in Mopti, this cannot be the model for the country as a whole. Mali's other hospitals should develop their own fist situation for all of Mali. The country's other hospitals should develop their own fistula programs, so as to ensure sustainable services. In respect to this concern, the Medecins du Monde should also train more local surgeons to perform the fistula repair. Partnerships, not safety nets, should be emphasized when looking at the relationships between Malian health services and those provided by non-governmental organizations. If outside groups are

constantly used as band-aids for infrastructure, health services will never be fully self sufficient, because gaps will be left with the expectation that someone else will take care of it.

Treatment centers should work with shelters similar to Delta Survie. The importance of a housing facility to make treatment feasible for women is huge and the social support and benefits of the community cannot be underestimated. The literacy and jewelry making activities are also important programs to help increase a woman's autonomy and sense of self-worth. Other hospitals could follow the model of the Sominé Dolo Delta Survie partnership by finding local groups with whom to work. To start off, even just a few long term beds available next to the hospital could improve the situation of fistula patients, as long as the dorm is a healthy environment.

Delta Survie (and future groups modeled off of it) should play a larger role in reinsertion and reintegration of woman into the community. Aside from activities currently linked with prevention, and thus education, there are practically no reinsertion programs established in Mali. This is a large issue, as reintegration into normal life is very challenging. As reported above, some women even leave their villages to completely start over because of the treatment. Delta Survie, though presenting itself as a tool for development, it provides no long term economic resources, aside from some potential economic affects resulting from the literacy classes, and no support system once the women leaves the center. Perhaps if the Observatory project is successfully implemented in the Mopti region, it could also play the role of a support system for women returning to the village, with Delta Survie forming the connection between the two.

It's hard to know how useful or applicable the statistics collected by the observatory program will be, at least on a short time frame, however data collection generally is worth the effort in the long run. Aside from that aspect of the program, I believe the observatories have high potential to provide education and lead prevention efforts within the village. That's

assuming of course that the community structures are backed up with appropriate resources, such as a vehicle based in the area which can be used to provide transport to a hospital or other health center. It is hard to expect people who are facing economic and other social hardships to change their behavior, when this will cost them money or other resources, especially in the situation where one can make the argument "but almost everyone gives birth at home here, so why should I go to the trouble." But, if the change in behavior is made just a little bit easier to make (maybe by having a vehicle available) and that is combined with good information, more people will try. That sets a precedent, and now there is a group of other people who (for example) have given birth at a health center, so the rest of the community will be able to look at them and hopefully be able to see that those women had successful deliveries and healthy babies, or if she experienced complications they were dealt with. Of course, if people are going to have faith in a health system, it is necessary that centers can actually provide the needed services. More health centers need to be able to provide emergency obstetric care, and in general medical services and reference systems should be improved. The structure for dealing with obstetric fistula in Mali has both strong and weak aspects, but as National and International attention continues to remain focused on this issue, it is not foolish to hope that this situation will improve in the near future.

10. Conclusion

When someone works to prevent fistula they are also working to prevent the death of mother and child. The fight against obstetric fistula is therefore one battle in the war against all maternal mortality and morbidity. Fistula is a painful and destructive injury and requires a passionate and strong plan of defense and attack. In Mali, a country richly defined by its people, its environment, its traditions and its history, the time to face this issue is now. And it must be faced by all levels of society, from the afflicted to the family to the community to the government and the nation as a whole. Only if everyone comes together as one to shine light

on this problem, often left unmentioned and unknown, will things get better. Society must never forget its mothers.

Appendix 1

Questionnaire for the Women of Delta Survie:

1. How old are you?
2. What town are you from?
3. Did you go to school?
    a. If yes, for how many years?
4. At what age did you get married?
5. Do you have children?
    a. If yes, how many?
6. Where did you give birth prior to developing the fistula?
7. Is there a health center in your town?
8. Had you heard of fistulas before you developed one?
9. How did you learn that there were surgeons at the Mopti Regional Hospital who could help you?
10. Did someone accompany you when you came to the hospital?
    a. If yes, who?
11. How many fistula operations have you had?
12. How long have you lived at the fistula center?
13. Are there members of your family living here with you?
    a. If yes, who?
14. Do you take the literacy courses?
15. Do you make jewelry?
16. Would you like to continue making jewelry to sell when you return home?

Appendix 2

Appendix 3

Appendix 4

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