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## Purpose, Significance, and Projected Effects of Mother-Midwife Matchmaking Website

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## **Introduction and Website Design**

The goal of this paper is to describe the details of design and purpose of creating a matchmaking website for expectant mothers and certified midwives. Midwifery is a widely unfamiliar and untouched market which provides medical and societal benefits that will be discussed in further detail. I desire to design such a website to promote the profession of midwifery and increase its prevalence in society, while educating expectant mothers about the significance of a mother-midwife relationship. This relationship's significance will also be discussed in further detail. The website would pair mothers and midwives based on compatibility and allow them to communicate and form a professional relationship. I will begin this endeavor by discussing how effective matchmaking websites operate and achieve success. I will apply this information to my personal website and then explain key components to its functionality. My website's homepage will contain information pertaining to the requirements of participating midwives. These requirements are that every midwife using the website to promote his or her service is certified either as a certified professional midwife (CPM) or a certified nurse midwife (CNM). The website would explain these professions so that mothers can understand exactly what education and training each midwife candidate was required to complete. CPMs learn the profession through independent facilities that provide training, education and supervised clinical experience (NARM, 2014). The CPM-in-training must then pass a skills assessment and a written examination (NARM, 2014). Certification is given through the North American Registry of Midwives (NARM), which is accredited by the National Commission for Certifying Agencies, or NCAA (NARM, 2014). Next, CPM certification is granted when the applicant demonstrates the proper

NARM Job Analysis competencies, as determined by completion of the Portfolio Evaluation Process (NARM, 2014). Finally, there is a NARM written examination to obtain a certification (NARM, 2014). A CNM attains a bachelor degree in nursing and then attends a midwifery education program (ACNM, 2014). These programs provide education and training consistent with the Accreditation Commission for Midwifery Education (ACME) essential criteria (ACNM, 2014). Furthermore, the students must be integrated into education programs that provide master's and doctoral degrees (ACNM, 2014). After attaining at least a master's degree in nurse midwifery, the graduate must pass the American Midwifery Certification Board (AMCB) certification exam to be granted licensure (ACNM, 2014). Restricting my website to only CPMs and CNMs guarantees that all midwife candidates registered on the website have a professional certification based on training, education, and a board exam. Expectant mothers can rest assured that they are considering only certified professionals for their childbirth experience.

There will be a small fee of about \$50 for midwives to register with the website because it is a means of advertising their services. It is free for expectant mothers to register and view midwife profiles. Each midwife will be expected to design a profile that lists his or her attributes, achievements, education, training, certification, goals, preferred methods, recommendations from previous clients, and other details that would concern a possible client. Expectant mothers are also expected to make a profile that includes current family dynamic, preferences and desires, plans and goals concerning her pregnancy and labor process, necessary details that would concern a midwife's professional involvement, and any other details she may find useful to provide. Any

information that is not willing to be publicly shared is not required to be presented in the profile but rather can be discussed during physical meetings.

A registered mother can contact a desirable midwife through a messaging tool on the website. She can inquire about more information or reference contacts and ask any questions she sees fit. The midwife can then view the messenger's profile and agree to communicate with her or not. Information such as telephone number, address, and email address will not be allowed on the website. After initial messaging, the midwife and mother can decide to make plans about a physical interview of sorts and provide such personal contact details at this point. Any midwife and mother that are considering a client-based relationship are required to have at least one encounter in real life before solidifying a professional contract. The website will send a professional contract template once the first meeting has been verified and both women desire to enter a professional relationship. The contract template will have basic mother-midwife interactions with blank spaces that allow for variability. Examples of these interactions are number of prenatal meetings, responsibilities during childbirth, liability clauses, number of postnatal meetings, and expectations from both women throughout. The contracts are not rigid and allow for consensual manipulation by the mother and midwife, but all contracts must be signed by both women and turned into the website facilitators so that the terms of the professional relationship are complete understood by all parties. The method through which mothers and midwives will choose one another is through a compatibility test. Each individual will complete a personal questionnaire that asks questions about demographics, desired traits in a candidate, goals/methods of child delivery, and any other information that might rule out possible matches. The

questionnaires are evaluated and placed into an algorithm that matches midwives and mothers based on highest compatibility. The algorithm takes into consideration the location of individuals and limits available matches to people within the distance each mother or midwife desired to travel.

Once the matchmaking is complete, expectant mothers will be presented with the 20 best midwife candidates based on compatibility and distance. If none of the 20 options are desirable, mothers can adjust answers to their initial questionnaire and then recalculate their matches. The reason that 20 matches are displayed is based on a study executed by Lenton, Fasolo, and Todd (2008). The study contained two parts and the first showed that the ideal amount a person would like to be matched with is 20 subjects. This was determined by surveying the participants about which number of online dating candidates seemed preferential. Amounts smaller or larger than 20 are seen as less preferential. A larger amount is often associated with greater difficulty in choice, and a smaller or larger number is believed to result in less choice satisfaction, more choice regret, and less enjoyment during the selection process. The second part was executed by providing participants with a mock dating website and asking them to select which candidates they would like to become more acquainted with. A selection size of more than 20 indicated an information overload. This overload was indicated by a decreased accuracy in memory of the available choice profiles. The study showed a greater benefit to restricting choices to around 20 because an excessive amount of choices often leads to information overload and a negative effect on users' choice (Lenton, Fasolo, & Todd, 2008). By displaying 20 compatible profiles for each expectant

mother, the chances of users establishing a successful, positive relationship in a more efficient manner is greatly increased.

### **Purpose of Website**

The purpose of this matchmaking website is to provide an efficient and user-friendly intermediary that helps mothers to hire a professional midwife and assists certified midwives in advertising their services. The majority of births are attended by a physician in a hospital setting. In 2010, hospital births accounted for 98.8% of all U.S. births, and 92% of these hospital births were physician-attended (Martin, Hamilton, Ventura, Osterman, Wilson, & Mathews, 2012). These statistics show that midwifery is a fairly uncommon and small market as compared to standard hospital-physician deliveries. Approximately 309,514 births (7.8% of total U.S. births) in 2011 were attended by a certified midwife whether at a hospital or in a different setting (Martin, Hamilton, Ventura, Osterman, & Mathews, 2013). There are currently only 13,071 CNMs (American Midwifery Certification Board, 2013) and about 1,400 CPMs certified in 2008 (Certified Professional Midwives in the United States, 2008). Despite the small and often untouched market for midwifery, there is still an extremely large disparity between the number of births attended by midwives and the supply of available midwives. Thus, midwives are a minority compared to physicians. There are fewer options for midwives to hire and also fewer births that midwives are asked to attend.

### **Internet as a Social Intermediary**

The midwifery market would most likely be labeled a thin market due to its small supply of midwives and its larger (yet still low) demand of midwife-attended births. Rosenfeld and Thomas (2012) use thin market examples to explain the increase in

partnerships due to the internet. In their article, they describe how the internet has grown in popularity as a social intermediary for meeting other people. They specifically observe using the internet to establish romantic relationships. Examples of thin dating markets are homosexuals, individuals in their 30s and 40s, and religious minorities. Midwifery can be considered a thin market because, like the mentioned examples, there is a constantly limited selection for expectant mothers pursuing a certified midwife. The authors focus on homosexuals as a thin market (2% of all U.S. couples) and evaluate the effect internet has had on their dating success. Before 1995, which began the boom of internet use, homosexuals relied mostly on finding partners at bars and restaurants or through friends. When the internet became a common social intermediary, it became the main source of establishing same-sex couples. Traditional methods of meeting other homosexuals declined because the internet offered a greater variety and selection size. It also increased the ease with which individuals could introduce themselves and filter out candidates who do not meet their basic criteria. Homosexuals, comprising a thin market, now utilize the internet as their predominant dating intermediary, which established over 60% of same-sex couples in 2008 and 2009. The authors use this data to support their hypothesis which states that people in thin dating markets are especially likely to meet online. Classifying midwifery as a thin market could also apply to their hypothesis using professional midwife-client partnerships as a substitute for romantic relationships. Establishing this fact, it is legitimate to say that the internet is a predominant source for introducing midwives and expectant mothers to one another and forming such client-based relationships. Considering this information, the chances of my website succeeding are extremely high. Not only would my website provide a direct



source for midwives and mothers to interact but would also assist in filtering candidates for best selection based on individual preference. My midwife-mother matchmaking website should greatly reduce the limitations and difficulty of finding a suitable midwife in such a thin market.

## **Significance of Mother-Midwife Relationship**

### **History of Midwifery**

Currently mother-midwife relationships are established through initiative of the mother to seek out a midwife in the phone book or online or through references from colleagues. There is no single source that provides midwife options nationally and certainly none that provide midwife options based upon compatibility. It may be questionable why anyone would desire to design a matchmaking website for such a thin market, seeing as large-scale success could be prolonged and difficult to obtain. To portray my passion for midwife-mother compatibility, I will discuss the significance of such a professional relationship. Midwifery is a concept that precedes any other birthing profession in history. Its roots are unclear because it has been used by most cultures for as long as we know. Ancient cultures considered it indecent for a man to attend a birth, and thus midwives played a vital role as the primary attendants of all births. Without medical education, these birthing experiences and the newborn's health relied on the midwife's experience, knowledge, and skill. Without medical technology, labor and birth were considered to be natural processes rather than clinical procedures. There was a higher emotional attachment to the process as there were more risks involved and less knowledge about how the process occurred in the body. Labor and birth was far more mysterious than it is now, and a woman's strongest connection to it was her emotional

and psychological attachment to the experience and baby. During the Middle Ages and Renaissance eras, it was believed that midwifery was a mystical and magical force. Unfortunately this led to the death of thousands of midwives who were believed to be witches of some sort. Barber-surgeons gained control of most deliveries because only men were allowed to enter medical schools. Cesarean sections came into being in the late 1500s and were performed only by men. Midwifery made a reappearance during Colonial Times and were revered for their work and often paid well. Midwives gained licensure during this time, and it became required for midwives to have a license in America. During the 1700s, obstetric wards were opened and male doctors attended many upper-class births, often becoming doctors by merely attending a birth and taking a quiz afterward. There was debate between the use of the obstetrician or the midwife in the early 1800s, but obstetricians fought for their dominance using forceps and chloroform during the birthing process. Midwives attended 20-40% of births in America and less than 5% of births took place in hospitals. The Twilight Sleep method was developed in 1914 and offered in all hospitals. It became a status symbol and desired by most women. Twilight Sleep combined morphine and scopolamine, which was an amnesiac. In 1915 Joseph DeLee published a paper that declared birth to be a pathological process that was not a normal function and could not be properly attended by midwives. Thus, hospital birth rates increased to 30-50%. Around this time, the medical profession gained stronger licensing and led to the current primary structure for deliveries in America. Nurse midwifery appeared in the 1930s and was originally made to assist obstetricians. By 1980, 98.9% of births occurred in the hospital. The Midwives

Alliance of North America (MANA) was established in 1982, but most insurance companies refused or barely covered CNM services (Jones, 2010).

### **Models of Childbirth**

It is clear from this history of childbirth that midwifery has drastically decreased due to the medical profession's surge. The ideas about childbirth and connection to it have also changed due to this decrease in midwifery. The medical perspective is the predominant view of birth, whereas midwifery has always viewed birth as a natural process that should not be feared but should rather be empowering for the woman. Obstetricians ply women in labor with drugs that decrease her awareness of the experience and do not allow her to connect consciously with what is occurring. Obstetricians symbolize the opposite side of the birthing and labor spectrum than midwives do. There are currently two models when it comes to labor and birth. The first is the medical model and is the predominant model in America. It is physician-centered, contains a passive role for the women, and views childbirth as a risky procedure. The second model is the social or humanitarian model that midwifery relies upon. It considers birth to be a natural, physiological process. It focuses on the mother and gives her an active voice that increases self-efficacy, her trust in the midwife and the process, her ability to illustrate all expectations, and personal control. This model creates a positive birth experience and empowers the woman in a way that has long-lasting benefits (Christiaens & Bracke, 2007). This model represents the significance of the mother-midwife relationship. It is vital that we strive to return to this model of birth and utilize the midwife perspective so as to increase the positive connection women feel

toward the birth experience. It is my desire for the website I detail to promote such a model and increase its prevalence in our society.

## **Satisfaction of Childbirth Experience**

### **Fulfillment of expectations.**

To clearly convey the importance of the social/humanitarian model, I will discuss specific effects that midwifery has been documented to have on mothers and their birthing experiences. Most women report significantly higher quality of care scores during labor and birth when they know their care provider, give birth at home, and give birth with a midwife (Wiegers, 2009). Aside from quality of care, I have drawn the conclusion from primary data that birthing with a midwife rather than an obstetrician results in higher satisfaction and positive long-lasting effects. This is due to use of the social/humanitarian model. A large benefit of this model and midwifery itself is increased satisfaction. Satisfaction is said to be dependent on four main factors according to Christiaens and Bracke (2007). These factors are fulfillment of expectations, personal control, labour pain, and self-efficacy (Christiaens & Bracke, 2007). Fulfillment of expectations is the most influential factor of satisfaction (Christiaens & Bracke, 2007). The article explained that expectant mothers' expectations are built around the familiar and outline the roles each person should assume (Christiaens & Bracke, 2007). If satisfaction is most attributed to fulfillment of expectations and if women individually build expectations about each person's role in the childbirth process, then it is vital to the women's overall satisfaction to clearly voice these expectations so that they may be fulfilled. This is a key reason why the social/humanitarian model results in increased satisfaction. The model allows for fulfillment of expectations by valuing the woman's

active voice. Midwives most often ask for the mother's input, giving her an active voice, and use this information to discern what expectations the mother has. Expectations can be easily fulfilled and satisfaction will consequently be greater.

Christiaens and Bracke (2007) also found that the expectations of pregnant women are context-specific, but the association between their fulfillment and the women's satisfaction is not. Expectations are undoubtedly context-specific, and to take this a step further, they are also extremely individually specific. Each woman's expectations derive from a multitude of factors including preferences, personality, experiences, and knowledge. Thus expectations will be best met and satisfaction most achieved when the individual woman is prioritized and listened to. A healthcare professional who takes time to discuss the woman's expectations will be more likely to meet these expectations, providing an overall satisfying birth experience. This fact scrapes the surface of how vital a woman's active voice is to her satisfaction throughout the process. As will soon be discussed further, a woman's active voice is a core element in achieving all four determinants of satisfaction.

### **Personal control.**

Personal control is another large indicator of satisfaction. Christiaens and Bracke (2007) describe personal control as being the opposite of powerlessness, which is a form of alienation. Alienation is thought to be a consequence of medicalisation of child birth. To support this thought, the article confirmed data that showed hospital births resulted in lower overall satisfaction than home births. Satisfaction also lowered in cases of medical intervention (Christiaens & Bracke, 2007). It is reasonable to attribute the lower satisfaction scores to feelings of alienation and loss of personal control, which

most women do experience during hospital births or medical intervention. Home births often promote higher satisfaction due to the familiarity and subsequent personal control.

***Personal control's long-lasting effects on labour pain.***

Another influence on satisfaction is labour pain. It is noted, however, that labour pain can be greatly lowered by personal control (Christiaens & Bracke, 2007). Thus if satisfaction is increased by personal control, it will be further increased by its resulting effects on labour pain. Data in Christiaens and Bracke's (2007) article showed that satisfaction with a midwife increased when women had higher self-efficacy and personal control, even when the women were suffering from serious labour pain. Personal control and self-efficacy can quell the displeasure from severe labour pain and are stronger indicators of a woman's overall satisfaction. Pain management is the best short-term solution for labour pain, but personal control provides long-term benefits (Christiaens & Bracke, 2007). The long-term benefits of personal control during the childbirth process last for many years and most likely for the duration of the woman's life (Milan, 2003). In this article by Milan (2003), an independent midwife interviews three of her past clients. Each client had her first birth in a hospital with an obstetrician and experienced extremely low satisfaction that compelled each to hire a midwife for a home birth of her second child. Each woman was interviewed at different points after her second birth. One is interviewed 2 months postpartum, one is at 7 months postpartum, and the third is interviewed 3 years after her home birth. All three women considered personal control to be extremely valuable and was influenced by external factors (Milan, 2003). The long-lasting effects from having personal control and from home birthing with a trusted midwife were feelings of empowerment and self-efficacy (Milan, 2003). These positive

long-lasting feelings of empowerment and self-efficacy also prevent the severity or occurrence of postpartum depression, a condition that affects 13% of women giving birth (Jayasekara, 2010).

### **Self-efficacy.**

One of these long-lasting feelings, self-efficacy, is another determinant of satisfaction. Milan (2003) discusses self-efficacy in her semi-structured interviews in further depth. According to the article, self-efficacy was essentially only achieved during midwife-attended births rather than hospital births with an obstetrician (Milan, 2003). The three women described their self-efficacy to be built upon the active voice each woman had, the support and respect offered by the midwife, the midwife's faith that the process would go well, the relevant information and strategies for coping that the midwife provided, and personal control over decisions (Milan, 2003). The social/humanitarian model promotes all of these features and does this by promoting midwifery. Midwifery allows self-efficacy to develop through these and other similar features by utilizing one-to-one care (Milan, 2003). The level of support and depth of trust the midwife will provide takes time to build and can only be achieved through one-to-one care. This type of care offers the opportunity to introduce therapeutic treatments and approaches in a person-centered and integrated way, uniquely fitting each woman's situation. This is also important for giving the woman an active voice, which enhances her sense of personal control. The four main determinants of satisfaction have been discussed in terms of the social/humanitarian model. To achieve this model, the four determinants should work hand-in-hand and influence one another. Fulfillment of expectations should be achieved through the woman's active voice, which cultivates

personal control and self-efficacy. Both personal control and self-efficacy lower labour pain (Christiaens & Bracke, 2007). Expectation fulfillment, personal control, decreased labour pain, and self-efficacy are interrelated factors a woman must achieve to maintain overall satisfaction throughout and after her birth experience.

### **Shared Decision Making**

One key ingredient to overall satisfaction that influences almost all other satisfaction determinants is the woman's active voice. Seeing as how it greatly influences all other determinants, it is vital to the social/humanitarian model. Shared decision making is a tool that can establish an active voice for expectant mothers. An article by Freeman and Griew (2007) discusses shared decision making and why it is necessary. Clinical guidelines are utilized by all health professionals and focus on adherence, safety, and risk management (Freeman & Griew, 2007). They often lack the role or needs of the patient, thus forcing pregnant women to surrender their personal control in order to follow protocol (Freeman & Griew, 2007). Shared decision making, on the other hand, takes into account the woman's values and preferences along with information from clinical assessment to help the woman stay in control of decisions (Freeman & Griew, 2007). In other words, shared decision making allows women to have an active voice while following clinical guidelines and protocol. Successful midwife-mother partnerships use shared decision making and are able to learn one another's perspectives and negotiate to meet defined aims (Freeman & Griew, 2007). During shared decision making, it is important to address the roles and responsibilities each woman should have for perceived tasks (Freeman & Griew, 2007). This gives both the midwife and mother an active voice and gives the mother personal control and self-



efficacy. The woman's active voice achieved from shared decision making also allows expectations to be understood and easily fulfilled, increasing overall satisfaction. A protocol was developed in 2003 to include shared decision making and is the Royal Prince Alfred (RPA) Women and Babies "Use of the Bath in Labour and Birth" policy (Freeman & Griew, 2007). Feedback was acquired from all participants. Results were zero concerns and a high degree of satisfaction among mothers, significant others, and midwives (Freeman & Griew, 2007). A personal account from one mother who followed this protocol detailed her experience. She explained how she was able to use her awareness of her body together with the midwife's observation and guidance to navigate a number of decisions of varying risk level to achieve an outcome desired by the mother (Freeman & Griew, 2007).

### **Shared decision making and website**

Shared decision making is a concept that provides the mother with an active voice that will increase her overall satisfaction by allowing fulfillment of expectations, providing personal control, establishing self-efficacy, and consequently lowering labour pain. Shared decision making is a beneficial implement that should occur in every midwife-mother relationship. Having this knowledge, I will be sure my website employs shared decision making to elevate the success and satisfaction rates of its mother-midwife relationships. Once the midwife and mother are matched and agree to a first meeting, both women will receive documents detailing possible birthing processes, typical roles and responsibilities most midwives and mothers assume throughout the process, and possible risks that may occur. The documents will also discuss the benefits of shared decision making and how valued it is by the website creators. This

will give the women a clear idea of the documents' purpose and how desirable shared decision making is in the partnership. The women will be asked to address the documents with one another and formulate detailed plans using shared decision making. In order to make constant improvements to the website, a form will be sent to both midwife and mother after the first scheduled meeting. It will inquire as to the usefulness of the shared decision making document and its contents. This will allow the website to keep track of how many partnerships exercised shared decision making and how, if at all, the documents assisted in this exercise. The documents and emphasis on shared decision making can be thoroughly revised and improved according to feedback from mothers and midwives.

### **Significance of Mother-Midwife Compatibility**

Having covered the significance of the relationship between the mother and midwife, it is vital to note that the benefits described above require more than just a relationship. A mother-midwife relationship must be based on compatibility for it to have any positive effects. If the mother and midwife are not compatible, it is likely that the mother's child birth experience will resemble a negative obstetrician-attended delivery, if not worse. My website certainly serves in providing a feasible and user-friendly interface for creating mother-midwife connections. However, my website aims to delve further into the mother-midwife relationship and establish connections based upon compatibility that can naturally develop into relationships of trust and security. I will communicate one woman's personal experience with an incompatible midwife to exhibit the importance of establishing compatibility-based connections on my website.

The woman's name is Viola, and she divulged her upsetting story in June of 2013 on a blogging section of HumanizeBirth.org called *Birth Stories*. There are many personal narratives written in *Birth Stories* similarly traumatic to Viola's, but most involve obstetrician-attended hospital births. Viola's is a unique incident involving an extremely negative midwife experience and connection. After first establishing a professional relationship with a midwife, Viola made the decision to explain her history of sexual violence to her midwife (Viola, 2013). This was a difficult choice for Viola because she learned to keep it a closely-held secret from most persons in her life (Viola, 2013). She was taken to a hospital after 26 hours of labour in a planned home birth (Viola, 2013). Immediately, she was coerced into an IOL and an epidural but adamantly refused a cesarean section (Viola, 2013). She had not eaten a meal in 37 hours and asked the hospital staff for food, but they would not allow her to eat until the baby was delivered (Viola, 2013). She was made to labour for 2 days, surviving on only a few crackers and a slice of toast, which she ate before venturing to the hospital (Viola, 2013). Viola's midwife put the most pressure on her to have a cesarean section (Viola, 2013). This was due to the midwife's concern for the baby's safety although the fetal monitors never once showed indication for concern (Viola, 2013). The midwife and nurses did not believe Viola would be fully dilated, but after 36 hours she was (Viola, 2013). At this point, the midwife told Viola that she did not want to assist Viola in delivering the child (Viola, 2013). Viola asked her to continue assistance and the midwife replied, "I don't know," which caused Viola to become very insecure about pushing and giving birth (Viola, 2013). Viola pushed for an hour when the fetal heart rate monitor showed a brief acceleration, and this angered the midwife who had strongly desired the cesarean

section (Viola, 2013). Viola no longer trusted her midwife and also knew that brief heart rate accelerations are commonplace due to maternal fever or drugs given in labour (Viola, 2013). After the acceleration, the nurses changed shift, and the new nurse demanded that Viola push her baby out while lying on her back with her knees pinned to her chest (Viola, 2013). Viola became distraught as she could not push in such a position due to her history of sexual assault (Viola, 2013). She offered to push in any other position but could not bring herself to tell a room full of strangers that she was raped (Viola, 2013). While still attempting to pin Viola down, the nurse asked Viola's midwife why she refused to push in such a position (Viola, 2013). The midwife replied sarcastically and flippantly that Viola had seen a video of the same position on the internet (Viola, 2013). This greatly angered Viola as the midwife knew her history of sexual abuse and why this made it uncomfortable to lie on her back with her knees pinned to her chest (Viola, 2013). The nurse began to furiously accost Viola, telling her that she was not doing what was "best for the baby" (Viola, 2013). Viola understood that the nurse and midwife openly treated her like a terrible mother for refusing their demands, and she worried that they would take the child away when it was born (Viola, 2013). Viola describes her experience as dehumanizing and terrifying as she was surrounded by staff that only held their own interests in mind, rather than hers or her child's (Viola, 2013). After finally agreeing to lie on her back and unwillingly being pinned down, Viola blacked out and does not remember most of the night from that point onwards or even the first time holding her baby (Viola, 2013). For the next 10 days after birth, Viola vomited everything she ate and had persistent suicidal thoughts (Viola, 2013). She returned to the ER room 5 days after birth because she passed a large clot

and was treated for dehydration and given antibiotics (Viola, 2013). Viola's nausea eventually passed, but the doctors never determined a medical cause (Viola, 2013). Viola stayed in contact with her midwife for 6 weeks after the birth and remained compliant and impassive to conceal her honest feelings (Viola, 2013). At the last postpartum visit, Viola calmly informed the midwife that, in the future, she should not force a woman to labour on her back with her knees pinned to her chest (Viola, 2013). The midwife argued that the baby's health is all that matters, and Viola replied that her own comfort and emotions were also important (Viola, 2013). Viola felt, once again, judged as a bad mother and told the midwife that she felt assaulted by her and the nurse (Viola, 2013). The midwife responded by saying that she had the right to do whatever she wanted to Viola's body if she thought it was best for the baby (Viola, 2013). Viola became hysterical at hearing this due to her history of sexual abuse and felt psychologically scarred for a long time (Viola, 2013). She suffered through flashbacks that would wake her up in the night and random fits of rage and crying (Viola, 2013). After about 5 months of this, she sent letters to those that caused her the pain she consistently experienced (Viola, 2013). Unfortunately, the intensity of pain and anguish may subside over time, but Viola will live with these memories forever.

Traumatic birth experiences can occur in any setting and with any healthcare professional if a relationship of trust and security is not first established. These factors most easily develop when a relationship is first built on compatibility. If Viola were to use a website similar to mine that paired her with a midwife who holds similar beliefs and values as she does, then she might have been able to avoid the negative delivery she suffered through. It is my desire to see a complete eradication of stories similar to

Viola's by increasing the prevalence of compatible mother-midwife relationships through national success of my website.

## **Societal Effects of Website**

### **Change in Perspective**

The website's main function is to provide an uncomplicated, user-friendly social intermediary for midwives and expectant mothers to establish professional relationships. Assuming the website has great success and is utilized by women with varying geographics and demographics, the prevalence of midwifery should be strengthened immensely. Midwifery would become more popular and the overall rate of obstetrician-attended births—around 86.3% in 2010 (Martin, Hamilton, Ventura, Osterman, & Mathews, 2013)—would resultingly decrease. A surge in the use of midwives due to this website would yield more common use of the social/humanitarian model. If midwifery were to increase enough and the social/humanitarian model became popular and widespread, the nation's entire perspective on birth could be altered. Birth would be viewed as a more natural physiological process and less of a disease that needs to be treated medically in a hospital.

### **Changing perspective impacts prenatal care.**

Consistent with the social/humanitarian model, the birthing process would become less rushed and more empowering for the birthing women. More women would gain positive long-lasting feelings of empowerment and self-efficacy, and more women would have satisfying birth experiences due to evidence revealed in the "Significance of Mother-Midwife Relationship" section. Midwives are often noted for the relationship they build with the mother throughout her pregnancy. Not only does this relationship create

trust in the midwife and in the natural process but also provides unique care for the woman and her developing fetus. Most midwives provide mothers with advice on coping techniques, diet, and understanding her own body. I will use a specific CNM Nancy Duncan to represent the social/humanitarian model of caring for women throughout pregnancy. Nancy Duncan is a CNM who cares for mothers with traditional midwifery, which is the term she uses to describe her practice (Duncan, 1991). Nancy strongly feels that traditional midwifery is not a passive occupation but rather an active one that revolves around building trust in the process and the lessons involved (Duncan, 1991). The expectant mother should use the duration of her pregnancy to develop herself and grow in personal ways (Duncan, 1991). Using these beliefs that expand upon the social/humanitarian model, Nancy assists women in receiving fundamental prenatal care. Nancy works with the mother to organize a birth plan and simultaneously learns about the mother's lifestyle, body, and beliefs (Duncan, 1991). Knowledge of these areas will allow Nancy to give the mother unique, individualized care that she can easily follow. Nancy teaches women to understand their own bodies and then cope with any stress or negativity. For example, Nancy explains to expectant mothers that hand-clenching and shallow breathing are manifestations of the mother's built-up anxieties (Duncan, 1991). The mothers are then able to take notice of such physiological cues and use techniques such as deep breathing and massage to relax her (Duncan, 1991). It is important for pregnant women to understand their bodies so that they may know when and which beneficial coping techniques to implement. Nancy also uses the meetings with an expectant mother to gain an understanding of her life history, which may contain past experiences that will impede the women's ability to progress naturally

through childbirth (Duncan, 1991). Discovering hidden emotions and memories, Nancy teaches the mother to actively listen to herself and others (Duncan, 1991). To address negative emotions the women may have, Nancy often uses herbs to cure ailments or instill positive energy throughout the process (Duncan, 1991). I do not claim that all midwives or even the majority use such tools as herbs to help women cope with pregnancy. However, all midwives have at least one technique, such as yoga or merely talking to the mother often, that aims for a similar outcome as the herbs provide. No matter which technique is preferred, the method for all midwives must involve talking with the mother and providing her with knowledge about her body and useful coping techniques. If midwifery rates were to escalate due to extensive success of the website, this type of personal, individualized prenatal care would be put into practice for a larger percentage of pregnant women. Thus, pregnancy would become more readily handled by women who would gain an arsenal of coping techniques and a vast awareness of their bodies' nonverbal cues. Pregnant mothers across the nation would have decreased stress and anxiety and would be more empowered for birth and her future after.

### **Changing perspective impacts time of the process.**

As briefly mentioned earlier, heightened use of the social/humanitarian model would alter the nation's perspective of birth to one that views it as a natural process that does not center around time constraints. Currently pregnancy is viewed as a distinct schedule that climaxes at the height of labour. Furthermore, it is a common belief that the labour process can and should be rushed to decrease the time a mother experiences labour pain or has to wait for the child's spontaneous arrival. With this



frame of mind, most physicians and nurses will feel the need to induce labour. Labour induction is a terrifying experience for most mothers that become stressed and pressured. When consent is not given by the mother for induction of labour, she can feel as if she has lost all personal control and self-efficacy. To illustrate the negative reactions most women have to induction of labour, I will use one mother's personal birth anecdotes. The mother is Maureen O'Leary Wanket who birthed two children and had extremely contrasting experiences for each delivery (O'Leary Wanket, 2005). The first child's birth took place in a hospital where perfunctory nurse practitioners only knew Maureen by her chart (O'Leary Wanket, 2005). She was induced 17 days after her due date and was fearful for her condition (O'Leary Wanket, 2005). Maureen explains that the personnel began to prod her with needles and an IV caused pain in her hand (O'Leary Wanket, 2005). Her water broke and she did not receive a towel, even after pleading for one, because the nurses did not see the towel's purpose since Maureen would continue to leak water (O'Leary Wanket, 2005). Maureen had decided beforehand that she would refuse chemical painkillers and would instead use pain-relieving techniques such as squats and other positions (O'Leary Wanket, 2005). The hospital personnel would not allow Maureen to remain in any position aside from on her back due to difficulties in monitoring her through attached wires, which could not handle any movement (O'Leary Wanket, 2005). Due to this elimination of personal control and self-provided pain relief, Maureen disregarded her previous wishes and asked for an epidural (O'Leary Wanket, 2005). Administration of the epidural itself was a painful, terrifying, exhausting experience that took over an hour (O'Leary Wanket, 2005). Maureen was petrified and dreadfully uncomfortable throughout the labour induction.

Her second child was planned to be a home birth with an independent certified midwife, influenced by a friend's positive experiences with one (O'Leary Wanket, 2005). Maureen and her husband became close to her midwife Nicole and felt respected and completely secure (O'Leary Wanket, 2005). Unfortunately for Maureen, her child had still not arrived after its due date and Nicole would be unable to attend a home birth over 2 weeks past the due date (O'Leary Wanket, 2005). Maureen was horrified by the idea of a hospital birth or induced labour due to her previous experiences, but was forced to endure both for safe delivery of the child (O'Leary Wanket, 2005). Although Maureen was fearful of the process at this point and extremely distressed about the pitocin drip, she was fortunately surrounded by personnel who previously or currently worked as independent midwives (O'Leary Wanket, 2005). They understood her desire to have a natural home birth, and almost all of the personnel had experience with home births (O'Leary Wanket, 2005). During her second child's labour, Maureen and her husband were treated as the top priority for the staff, and Maureen was allowed to have as much range of motion as possible (O'Leary Wanket, 2005). She was free to dance to hip hop music and relax in a rocking chair (O'Leary Wanket, 2005). Maureen's decision to forego chemical painkillers was honored, and an epidural was never brought into conversation (O'Leary Wanket, 2005). Maureen is overjoyed about the experiences and personal control she felt while birthing her second child and was able to use the available midwives' trust and compassion to overcome her fears of labour induction. Not every woman's birth experiences will mirror Maureen's; however, Maureen's descriptive anecdotes denote the overwhelming fear and lack of personal control that is most often associated with induction of labour. More often than not, pregnant women do not require

induction of labour to spontaneously deliver. The social/humanitarian model fosters a practice that does not rely on clocks or dates to measure the childbirth process but rather focuses on the mothers' abilities to endure the entire process in a positive and satisfactory manner. Nancy Duncan explains that endurance is maintained by obtaining proper nourishment and alternating between rest and activity (Duncan, 1991). When the expectant mother does not feel pressured by time constraints, she is able to listen to herself and her body to determine what her individual needs are at that moment (Duncan, 1991). Midwives who encourage expectant mothers to listen to and trust themselves before and during labour often find that the mother is fully able to relieve herself of considerable stress and pain through intuitive self-awareness. Personal control and self-efficacy for pregnant women should be encouraged during childbirth so that she may endure the entire process at its natural rate. With increased midwifery, the United States can aspire to be a nation that fosters women who have trust in their own child's natural birth and are able to comfortably endure labour in a sober and empowered state. This ideal is unlikely to ever be achieved when hospitals remain medicalised facilities that desire to induce labour and rid mothers' bodies of their children as quickly as possible.

### **Change in Hospitalisation for Childbirth**

With tremendous success of the website, hospital births—which were 98.8% of all births in 2010 (Martin, Hamilton, Ventura, Osterman, & Mathews, 2013)—would also decrease. This would occur because hospital births adhere to protocols that do not involve the social/humanitarian model. Hospital births are well-known for the large profit they gain. Out of all women who stay in a hospital, 25% are staying for pregnancy and

childbirth (Healthcare Cost and Utilization Project, 2000). Obstetric conditions are the most common reason for women who are hospitalized (HCUP, 2000). The most recurrent diagnosis for hospitalization among women is perineal trauma due to childbirth, which is the principle diagnosis for 4.3% of all females discharged (HCUP, 2000). Standard pregnancy and delivery is the principle diagnosis for 2.6% of females discharged (HCUP, 2000). These numbers would decrease drastically from a sharp rise in midwifery. Parallel to this change in hospital births, the number of births that take place at home and in birth centers would increase greatly. Home births and birth centers would increase in prevalence as most independent midwives perform in these settings. This combined with the decrease in hospital births would lead to lesser rates of cesarean births, since these are not performed by midwives or in locations outside a hospital. A decrease in cesarean rates will have significant medical effects on society that will be discussed in further detail.

### **Profiting from obstetrics.**

The large amount of hospitalizations for obstetric causes can allow hospitals to turn a massive profit. Obstetricians and gynecologists impact about 11%, or \$30 million, of inpatient costs by referring women to fellow physicians in the same hospital for nonreproductive reasons (Hanold, 2002). Since most women visit a hospital obstetrician for pregnancy, and 98.8% of births take place in a hospital with around 86.3% of these births being attended by an obstetrician, it is clear that there is a large pool of women to give referrals to. Assuming at least a portion of the referred women follow through with the referral, there is a profit created that would not exist without the women's use of an obstetrician during pregnancy. Without the large amount of obstetrical care provided by

hospitals, these referrals would not be so conveniently available for women. A woman is also more likely to continue her and her family's care at the hospital that attended her birth, due to some level of familiarity and trust. This fact also leads to increased profit for hospitals.

Maternal and newborn care combined are the largest reason behind hospital expenditures for most commercial health insurance plans and state Medicaid programs (Center for Healthcare Quality & Payment Reform, 2013). The costs for only maternal care increased by over 40% between 2004 and 2010 for most commercial health plans (CHQPR, 2013). Costs for actual childbirth of women with commercial health insurance is typically \$5,809 for vaginal delivery and \$11,193 for cesarean section (CHQPR, 2013). Mothers with Medicaid were charged \$3,014 for vaginal delivery and \$5,607 for cesarean section (CHQPR, 2013). None of these costs include the prenatal visits required by mothers or the postnatal visits that may be preferred by the mother or suggested by the hospital staff. Mothers without health insurance or with insurance that does not cover child delivery are charged over \$30,000 for vaginal delivery and over \$50,000 for cesarean section (CHQPR, 2013). In 2010, average provider cost for a cesarean section was \$51,125 (CHQPR, 2013). This is how much an uninsured individual would be expected to pay, and a mother with commercial health insurance was typically covered for 55% of the total cost, which is \$27,866 (CHQPR, 2013). The majority of such exorbitant costs of child delivery is used to pay for facility costs. Of total vaginal birth cost, 59% are facility fees, which constitute 66% of total cesarean section cost (CHQPR, 2013).

#### **Effect on insurance companies.**

With an increase in midwifery, physician-attended hospital births and cesarean sections will inevitably decrease. Maternity wards would consequently decrease in profit margin. Overall hospitals would lose quite a bit of profit, and many would be forced to close their obstetric units to save on facility costs. Commercial health insurance companies would likely take notice of the growing midwifery trend and include more midwife services in their offered plans. Insurance companies would benefit from increased midwifery coverage because hospitals would be forced to raise costs in response to a decrease in obstetric service demands. Furthermore midwife services are significantly less than hospital obstetric care and would place less strain on commercial insurance companies. Home births attended by a midwife most often cost between \$2,000 and \$3,000 and include the cost of all prenatal and postnatal care, on-call services, and transportation for the midwife (New Moon Midwifery, 2013). Midwife services for birth center deliveries cost around \$5,000 including all prenatal and postnatal care (The Birth Center). The home birth and birth center costs do not reflect insurance coverage and would be extremely deflated after insurance companies offer more coverage for these birth settings.

### **Change in Midwife Supply**

A higher demand of midwifery will require a larger supply of CNMs and CPMs. Increasing the supply will be feasible as more women will become aware of the profession and will choose to pursue such a career. In response, midwifery schools and training centers will grow in popularity and more will sprout into existence. With a surge of midwifery training and education, there are likely to be national standards and laws developed. Eventually there will be a national licensure test to certify a midwife, such as

the national tests for certified nurse aides and physician assistants. The large increase in midwifery schools and certifications received will guarantee that midwives remain a prevalent profession for many years to come. Midwifery would be more unlikely to be disregarded and untouched as it currently is. Eventually it is my desire to see midwifery acknowledged and respected as highly as other healthcare professions.

### **Medical Effects of Website**

#### **Quality Prenatal Care**

##### **Effects on diet.**

As discussed earlier, midwifery provides more in-depth and detailed prenatal care that will enhance the emotional and psychological wellbeing of pregnant women. This prenatal care will also improve the physical wellbeing of the developing fetus and mother by reducing risk factors associated with pregnancies. When first meeting the expectant mother, Nancy Duncan asks for preliminary information and a 3-day dietary history (Duncan, 1991). Using information about the mother's typical dietary habits, Nancy details the ideal diet and provides advice on which habits will achieve the ideal diet. This particular focus on the mother's intake will allow for healthier growth of the fetus, who receives components of the mother's intake via the placenta. Most pregnant women take a daily prenatal vitamin, which provides nutrients essential to proper fetus development; however, daily vitamins do not substitute for a healthy diet, which is also critical for a developing fetus. Unhealthy diets during pregnancy have been evidenced to increase the child's risk of high blood pressure, Diabetes Type II, obesity, and premature birth, along with preventing proper fetal growth throughout pregnancy (Sfakianaki, 2013). A Cardiovascular Risk Reduction Diet in Pregnancy trial found that a

Mediterranean-type diet with low cholesterol and low saturated fat items reduced preterm births in 7.4% of women compared with 0.7% reduction rates from typical diets of nonsmoking, healthy European women (Skakianaki, 2013). The trial also found that the regulated Mediterranean diet improved uteroplacental circulation (Skakianaki, 2013). A healthier diet for the child will also improve the mother's health and give her more strength and energy throughout the process. With greater use of midwifery and the social/humanitarian model, expectant mothers can improve their general wellbeing and their child's health due to understanding of the body, a variety of coping techniques, and improved dietary habits. The prenatal care and attention from the midwife will help mothers to establish a proper diet that will provide adequate nutrition for the fetus and herself.

### **Effects on teratogens.**

Persistent prenatal care and communication with the mother will also allow midwives to identify aspects of the mother's lifestyle that can negatively influence the baby's development. Any external elements that may cause malformation in a fetus are considered a teratogen. A midwife teaches mothers about various teratogens she should avoid, such as alcohol, cigarettes, other drugs, and caffeine. Some of these substances may be hard to relinquish, but close contact with the midwife can provide the mother with a support system. Keeping in close contact will also alert the midwife to any possibilities that the mother is consuming teratogens. If there is a different aspect of the mother's lifestyle that may be teratogenic, the midwife will most likely take notice and mention it. Teratogens that the mother may be in contact with and fail to notice are certain medications, mercury found in some fish, or lead. Midwives supply a valuable,



educated set of eyes that will recognize dangerous teratogens and confront pregnant mothers about them.

### **Decreased Induction of Labour**

Induction of labour (IOL) is used for one of two reasons. It is either an elective IOL chosen for the convenience of the mother or healthcare provider, or it is an indicated IOL suggested to avoid medical risks. Acceptable medical indications for IOL are currently considered to be prolonged pregnancy (pregnancy that continues beyond 42 weeks of gestation), prelabour rupture of membranes, maternal conditions such as diabetes and pre-eclampsia, or concerns for fetal safety such as growth restriction (Patience & Irons, 2012). Macrosomia occurs when a baby has a birth weight greater than 4 kilograms, and this condition is not an appropriate indication for IOL (Patience & Irons, 2012). It is a challenge to predict the exact weight of a baby before it is born and ultrasounds are not always correct in identifying macrosomia. Ultrasounds are incorrect 70% of the time they detect a macrosomic fetus (Amis, 2007). IOL results in vaginal birth 88.2% of the time, and synthetic oxytocin is the method used in 65.9% of IOL cases (Guerra et al., 2011). Pitocin is the most common synthetic oxytocin used for IOL, but sometimes physicians order misoprostol, whose brand name is Cytotec. Misoprostel is FDA-approved for stomach ulcers and not for labour inductions due to extreme possible side effects, such as tearing the uterus (Amis, 2007). This may result in a hysterectomy or death for the mother or child. Mothers with low-risk pregnancies should almost never utilize IOL because it is for elective purposes, not indicated. These women, in particular, face greater risks of adverse outcomes when choosing to induce labour (Guerra et al., 2011). The risks associated with IOL, especially for elective

purposes, are high compared to small benefits that have yet to be proven. IOL in the United States has risen 77% from 1989 to 1995 and 125% from 1989 to 2002 (Wilson, 2007). Nearly two thirds of all IOL occurrences are initiated for elective reasons (Wilson, 2007). IOL should be regulated and significantly less prevalent for a variety of reasons.

### **Adverse outcomes of IOL.**

First induced labours are more difficult than spontaneous births because the contractions peak earlier and remain intense for longer periods of time, which increases the need for pain-relief medications or anaesthetic and analgesic procedures such as epidurals (Amis, 2007). The need for such pain relief measures is 1.6-3.7 times greater in women who induced labour than women who spontaneously birthed (Guerra et al., 2011). Miscellaneous complications for IOL include hypertension, cord prolapse, and uterine rupture (Patience & Irons, 2012). The most common effects associated with IOL include a doubled risk for cesarean section (Odent, 2013) and a 150% increased risk for postpartum hemorrhage (Guerra et al., 2011). Further well-referenced effects of IOL include an increased relative risk of 5.2 for hysterectomy and 3.0 for admission to the ICU (Guerra et al., 2011). Decreased quality and delayed initiation of breastfeeding between one hour and seven days are also frequent consequences of IOL, occurring in 22% of deliveries (Guerra et al., 2011). Evidence of this phenomenon was found in videotapes of induced infants 45-50 minutes after birth that showed fewer breastfeeding cues (Odent, 2013). Another less-discussed outcome of IOL is an 890% elevated risk for neonatal psychomotor abnormalities, evidenced by video studies of primitive reflexes that were depressed in induced newborns (Odent, 2013). Additional consequences of IOL include increased risk of vacuum or forceps-assisted births, problems during labour

such as fever, fetal heart rate changes and shoulder distocia, admission to the NICU, two times greater risk of amniotic fluid embolism, and increased length of hospital stay (Amis, 2007).

Elective IOL often results in premature births. These can cause jaundice and low birth weight in the newborn (Amis, 2007). It is important to induce after 42 weeks of gestation, or when the pregnancy is considered prolonged. Inducing at 41 weeks would raise the number of inductions per year by about 500,000 women (Amis, 2007).

Premature birth cause by IOL can result in severe outcomes for the child. Babies who are induced between 34 and 36 weeks of gestation are 3 times more likely to die within their first year postpartum due to infections, breathing problems, birth defects, and Sudden Infant Death Syndrome (Amis, 2007). Children induced between 35 and 36 weeks of gestation had a greater amount of breathing or feeding problems, jaundice, and difficulties maintaining body temperature (Amis, 2007). A benefit found from eliminating IOL before 39 weeks of gestation was decreased admission rate to the NICU (Odent, 2013). It is not unlikely to misinterpret the actual gestation week of a fetus because ultrasounds are only accurate within 7 days during the first 20 weeks of gestation, 14 days between 20 and 30 weeks of gestation, and 21 days during the last 10 weeks of gestation (Amis, 2007). An error in calculating a due date can lead to significantly premature IOL and resulting complications.

### **Benefits of spontaneous labour.**

Midwives do not practice elective IOL due to its infringement of the social/humanitarian model. Elective IOL favors a rushed delivery that increases stress and anxiety and does not promote birth as a natural physiological process. IOL also

reduces freedom in range of movement due to the connected IV lines for the pitocin drip and wires for fetal heart rate monitoring (Amis, 2007). IOL will not permit mothers to access tub baths or showers to soothe contraction pains and essentially limit the mothers' personal control. Labour should be a natural process that occurs when the baby and mother's body are both ready. Before labour, the fetus releases a small amount of chemicals to alert the mother's body that he or she is ready to exit the body, so it is extremely important that the mother wait for the baby's signal (Amis, 2007). Allowing labour to begin on its own is not only safer for the baby but also increases the mother's confidence in herself and in her ability to give birth and take care of the baby when it arrives (Amis, 2007). Increasing midwifery will decrease the amount of induced labours and consequently reduce rates of cesarean section, postpartum hemorrhage, premature births, delayed breastfeeding, instrument-assisted vaginal deliveries, hysterectomy, admissions to the ICU and NICU, hospital stays for birthing mothers, cord prolapse, and uterine rupture.

## **Decreased Cesarean Sections**

### **Prevalence of cesarean sections.**

As mentioned before, the mere reduction in IOL deliveries will lead to a decrease in cesarean sections due to their causal correlation. With an increase in midwifery, cesarean sections will be expected to decrease independently of the IOL rate reduction. Cesarean deliveries are a major surgical procedure and are thus performed only by surgeons, obstetricians, and other hospital staff. Midwives do not practice such invasive procedures, and an elevation in midwifery will result in an inverse reduction in cesarean sections. Currently in the United States, we are ranked 169<sup>th</sup> in infant mortality with a

rate of 6.17 deaths per 1,000 live births (Central Intelligence Agency [CIA], 2014). I will establish a comparison to measure the relevance of the United States' current statistics. The Netherlands are a country with an above average midwifery rate. I will use this country's statistics as a representation of the medical effects of the social/humanitarian model, which favors midwifery. Brazil has an unusually extreme prevalence of cesarean sections and obstetrical-attended births. I will use this country's statistics as a representation of the medical model, which favors obstetricians and hospital births. Ranked above the United States at 94<sup>th</sup> in the world is Brazil with an infant mortality rate of 19.21 deaths per 1,000 live births (CIA, 2014). The Netherlands have an infant mortality rate of 3.66 deaths per 1,000 live births, putting the country at 205<sup>th</sup> in the world (CIA, 2014). The infant mortality rate follows an increasing trend as the countries move from a social/humanitarian model to a more medical model. This same trend is seen in maternal mortality rates. They become more prevalent in the United States and even more so in Brazil. Maternal mortality rates, respectively, are 6.00, 21.0, and 56.0 deaths per 100,000 live births (CIA, 2014). To emphasize the difference in the country's primary birth models, I will list the occurrence of cesareans in each. The rate of cesarean sections is 13.5% in the Netherlands, 30.3% in the United States, and 45.9% in Brazil (Gibbons et al., 2010). Increasing cesarean rates follow the same trend as increasing infant and maternal mortality rates. This correlation is not a coincidence, and it hints at a deeper cause-and-effect relationship.

### **Adverse outcomes of cesarean sections.**

#### ***Infant mortality.***

The World Health Organization has established that cesarean rates above 15% are supraoptimal and will present more risks than benefits, while rates between 5% and 10% are optimal (March of Dimes, 2007). It has been gathered from primary data that a supraoptimal rate of cesarean sections in the United States has led to a significantly high rate of maternal and infant mortality. For the purposes of this paper, I will use cesarean sections to refer to only those that are elective. Emergency cesarean sections are excluded from the scope of this paper as they are medically-necessary procedures. Elective cesareans are desired by a mother for nonmedical reasons and are unnecessary. Cesarean sections increase infant mortality most often via prematurity or respiratory morbidity. Infant mortality from cesarean sections has been recorded as 1.5 times higher than infant mortality rates from vaginal deliveries (Bakalar, 2006). Delivering with a cesarean disrupts the natural hormone cocktail that is released during vaginal delivery. These hormones typically promote healthy lung function. Infants delivered through cesarean section are more likely to experience respiratory problems. In fact, infants born through prelabor cesarean section are 7 times more likely to experience respiratory morbidity than infants delivered vaginally (Signore & Klebanoff, 2008). The leading cause of infant mortality within the first month is prematurity, or birth that occurs before 37 weeks of gestation. In 2005, prematurity-related complications represented 36.5% of all infant mortalities (March of Dimes, 2008b). Prematurity is such a severe cause of infant mortality that even babies born a few weeks early had mortality rates three times higher than full-term babies (March of Dimes, 2008b). Prematurity-related complications are commonly listed as low birth weight, respiratory distress syndrome (RDS), feeding difficulties, temperature instability, and jaundice (March of

Dimes, 2007). Prematurity has increased more than 20% since 1990 and currently afflicts about 1 in every 8 births (March of Dimes, 2008a). A 9-year analysis of birth statistics between 1996 and 2004 shows that preterm births increased by about 10% and 92% of these deliveries were a cesarean section (March of Dimes, 2008a).

Prematurity is a significant cause of infant mortality that is made even more prevalent by the supraoptimal rate of cesarean sections in the United States.

### ***Maternal mortality.***

Maternal mortality is not an overwhelming occurrence in the United States and is considered to be a pregnancy-related death of a mother up to one year postpartum. Due to the little data there is on maternal mortality, which is often misattributed in death certificates, I will discuss the effects cesarean sections have on maternal morbidity, which is a common cause of maternal mortality. Cesarean sections are linked to severely elevated chances for specific maternal postpartum adverse conditions. One study by Liu et al. (2007) found the odds ratio for certain maternal illnesses were higher for cesarean deliveries than for vaginal deliveries. These odds ratios are as follows: 3.1 for overall severe morbidity; 2.1 for hemorrhage requiring hysterectomy; 3.2 for any hysterectomy; 0.5 for uterine rupture; 2.3 for anesthetic complications; 5.1 for cardiac arrest; 2.2 for acute renal failure; 2.0 for assisted ventilation or intubation; 2.2 for venous thromboembolism; 3.0 for major puerperal (relating to childbirth) infection; 1.9 for in-hospital wound disruption; and 5.1 for obstetric-wound hematoma (Liu et al., 2007). These postpartum complications reflect the increased risks associated with elective cesarean sections and remain a common source of maternal mortality in the United States. It is my desire to see both maternal and infant mortality decrease along with the

national cesarean rate due to an increase in midwifery. I hope to promote my website to such a degree that this rise of midwifery becomes, not only possible, but probable.

## **Perineal Tears**

Aside from improved prenatal care, decreased IOL, and fewer cesarean sections, increased use of the social/humanitarian model will also result in less perineal tears.

The strenuous labour of vaginal delivery can result in perineal injuries and anal sphincter ruptures. For the purposes of this paper, perineal injuries will also refer to anal sphincter ruptures. Such damage usually causes pain and sometimes incontinence.

Aside from the physical consequences of perineal damage, there are often negative psychological effects for the women afflicted. Hospital deliveries have a higher opportunity for perineal tears due to certain risk factors, such as instrumental deliveries, episiotomy, adverse birth position (supine), and epidural analgesia (Lindgren, Brink, & Klingberg-Allvin, 2011). Each of these risk factors is more likely to occur in an obstetrician-attended hospital birth than a midwife-attended birth at home or in a birth center. Due to these risk factors, perineal injury is five times more likely to occur in a hospital birth than in a midwife-attended home birth (Lindgren et al., 2011). The main factor Lindgren, Brink, and Klingberg-Allvin (2011) found in their study on perineal injuries is fear. In their study, they interviewed twenty midwives who attended home births and also worked in a hospital maternity ward (Lindgren et al., 2011). The midwives stated fear as a main causative factor in perineal injuries because a mother's fear during childbirth causes her pelvic floor to tighten, which increases her opportunity for tears (Lindgren et al., 2011). Midwives are also able to recognize the times that a woman's perineum is in most danger of injury due to her expansive experience with



attending deliveries (Lindgren et al., 2011). Even newly-certified, inexperienced midwives acquire knowledge of perineal injuries and protective strategies from their more-experienced colleagues (Lindgren et al., 2011). To reduce fear in the women and consequently reduce her risk for perineal injuries, midwives utilize the social/humanitarian model and strive to make the mother as comfortable as possible. They focus on key areas, such as preparing for the birth, actively allowing the natural physiological process to advance, establishing a sense of security, paying keen attention at the critical moment (crowning of the child), and utilizing certain midwifery skills (Lindgren et al., 2011).

I will touch on each of these key areas and discuss specific techniques midwives use in each to reduce fear that can cause perineal injuries. In preparing for birth, midwives make sure to become well-acquainted with the mother, understand the birth process intricately and relay this information to the mother, and make the birth setting comfortable and welcoming (Lindgren et al., 2011). When the mother feels relaxed with the midwife attending her birth and in the birth setting, she will experience less fear during labour. To display the midwife's trust in the natural process of childbirth, she actively listens to the mother, assures the mother that there is no reason to rush or worry about time constraints, pays keen attention to signals of stress or anxiety, and remains responsive to the woman during any difficult or unexpected moments (Lindgren et al., 2011). The midwife allows herself to center her attention on the mother and process, rather than on timing so that she can actively listen and remain responsive to the mother in need of guidance and encouragement. Being such a comfortable, reliable presence for the mother gives her personal control and self-efficacy, increasing the

mother's confidence in the childbirth process and reducing her fear. To give the mother a sense of security, midwives make sure the birth setting is explored and prepared before labour so that the mother is completely comfortable and familiar (Lindgren et al., 2011). They also make sure to communicate throughout the process as consistent communication is a vital tool in avoiding perineal injury (Lindgren et al., 2011). In particular, communication revolved around the relationship between the midwife and the mother, between the midwife and the couple, and between the couple (Lindgren et al., 2011). This communication is feasible and natural because the midwife got to know the mother and couple extremely well in preparation for the birth. During the critical moment of crowning when perineal injury is most likely to occur, midwives focus on the mother's birth position and ability to handle the pain (Lindgren et al., 2011). The interviewed midwives all reported that women who are able to choose their own birthing position most often deliver in an upright kneeling position while leaning forward (Lindgren et al., 2011). The next preferred positions for delivery are crouching on all fours or standing up (Lindgren et al., 2011). This is in stark contrast to lying supine as women are all forced to do in a hospital during delivery. In fact, the midwives report never having encountered a mother who chose to lie on her back in a supine position during delivery (Lindgren et al., 2011). In her most comfortable position, a woman will feel more relaxed and her pelvic floor will reflect this (Lindgren et al., 2011). Crowning is not only the most likely moment for tears but is also said to be the most painful time for a woman during delivery (Lindgren et al., 2011). During this time, a woman is tempted to push as hard as possible to relieve her body of the baby (Lindgren et al., 2011). This action is known to cause perineal injuries and should be avoided. To help a mother avoid perineal

injuries in the critical moment, midwives talk calmly to the woman, supplying touch and encouragement that will ease her through the process and allow the woman to maintain awareness of her body and heed its signals (Lindgren et al., 2011). The special midwifery tools that are utilized to reduce perineal injuries are warm cloths and a policy of not touching the perineum (Lindgren et al., 2011). Warm cloths are used to brace the perineum by sustaining blood circulation and subsequently reduce pain throughout the labour process (Lindgren et al., 2011). The midwives also reported that warm cloths allowed them to attain an understanding of the woman's perineum and its elasticity (Lindgren et al., 2011). This places a soothing barrier between the sensitive perineum and the midwife's fingers, which follows the midwifery policy of not touching the perineum (Lindgren et al., 2011). Some midwives avoid touching the perineum at all costs, unless specifically asked to do so by the woman or being required to for safety reasons (Lindgren et al., 2011). Most midwives encourage the mother to use her own hands to guide and feel the process herself (Lindgren et al., 2011). This allows the mother to gauge what actions are painful for her and how far along in the delivery she is. Feeling the process with her own hands, the mother is able to push her baby out the exact amount that is necessary to avoid perineal injury (Lindgren et al., 2011). Focusing on these five key areas mentioned above reduce fear in the women and consequently reduce perineal injuries. If midwifery were to become prevalent enough, expectant mothers would be made more aware of the risk for perineal injuries. They would utilize midwives and other protective measures, such as home births or other comfortable birth settings, to reduce their risks for perineal injuries. With greater application of such fear-reducing techniques, perineal injuries will become far less prevalent across the nation.

## Limitations

There are various limitations and obstacles that may occur when designing this website or examining its projected outcomes based upon its future success. I will discuss these limitations and how they are related to the intentions of my website.

## Geography

There is not a completely equal dispersion of midwives throughout the United States. This is most likely due to the variability in regulation and certification laws in every state. Another factor that may contribute is the locations of midwifery education and training facilities. If there are more education centers for midwifery in the Western region, there are likely to be more midwives settling in this area after completing school and obtaining a certification.

Figure 1.

### Midwife births by state

*Nurse midwives and other midwives oversee a greater percentage of births in New Mexico than any other state, with Wisconsin about equal to the national average.*

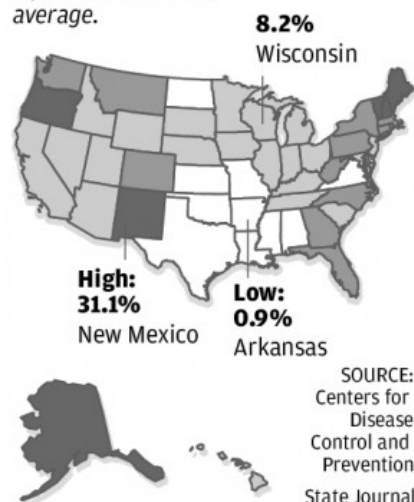


Figure 1 exhibits how the prevalence of midwives is distributed across the nation. New Mexico has 31.1% of births attended by midwife, which is the highest percentage among all states. The lowest percentage of midwife-attended births is 0.9% in Arkansas. The distribution of midwifery is fairly erratic; however, the pocket of states in and around the West South Central region of the United States and also the pocket of states in and around the Rocky Mountain region has midwifery rates of 4.9% and less. Mothers in these states are unlikely to desire a CPM or CNM and will thus be unlikely to stumble upon or hear about my website. I predict that my website will have delayed or less overall success among these states. It is a possibility that extensive success of my website will cause midwifery to increase across the nation and will relieve the nation of such midwife-less pockets. There could become a more even and overall higher distribution of midwives in every state.

### **Access to Internet**

Having access to midwives within distance is equally important to national and ample use of my website as having access to the internet. Low-income families or those that live in rural areas with fewer satellite towers are less likely to have feasible internet available to them at all times. Kathryn Zickuhr and Aaron Smith (2012) report that 1 in 5 American adults do not use the internet. The inclusive groups that make up this 20% and could possibly have some use for my website are adults who hold less than a high school education and those living in households that receive less than \$30,000 per year (Zickuhr & Smith, 2012). While expectant mothers in these two groups are the most likely to have zero internet access, it is not unheard of nor uncommon. As of August 2011, 62% of adults earning less than \$30,000 per year and 43% of adults with no high

school diploma still utilized the internet (Zickuhr & Smith, 2012). Citizens without access to the internet have far less exposure to information and opportunity to learn about midwifery and its benefits. Lacking awareness and education about midwifery, they will most likely consider the hospital to be their first option for child delivery and prenatal care. I suspect that the effects of my website will not extend deeply into the portions of the population that do not use internet, which is a minority of American adults.

### **Statistical Significance**

The projected societal and medical effects that widespread success of my website will induce are strictly educated hypotheses. Due to the minimal popularity and awareness of midwifery in the United States, there is a small range of existing primary data. Most midwifery topics in my paper are only scratched on the surface by research and experimental studies. With such small amounts of studies and small sample sizes, it is unsure how much external validity the results may have. Smaller sample sizes due to less availability of midwife data increase the chance that there is not statistical significance. This may create inaccurate results because statistical significance may be found using a larger sample size. The best solution to this hindrance in my data collection is to promote my website to a point where midwives become a popular profession and is studied in far greater depth.

### **Postpartum Depression**

One topic in relation to midwifery is especially lacking in research, and this is postpartum depression. After discussing the various physical afflictions that may arise for mothers in the postpartum period, it is important to acknowledge the possible psychological afflictions that may also arise. Postpartum depression is a serious

condition that affects approximately 13% of mothers in the United States (Jayasekara, 2010). If left untreated, postpartum depression can severely affect the mother's ability to care for her infant and her relationship with her spouse and infant. There are various predictive factors for postpartum depression that have been identified. These are antenatal depression and anxiety, personal and family history of depression, extreme life stressors, and a lack of social support (Jayasekara, 2010). There is currently no single treatment or preventive intervention that is proven to be majorly successful.

There are some who feel midwives can help to prevent postpartum depression through the antenatal relationship they build with the mother and continue on through the postpartum period. A secure and trusting relationship with one's midwife can relieve antenatal depression and anxiety and provide a social support system that will remain even after the child is delivered. A 2004 study by Dennis and Creedy found that one intervention in the postpartum period seems to have a small significant effect on reducing postpartum depression in some women. This intervention is intensive postpartum support from a public health nurse or a midwife (Dennis & Creedy, 2004). The study also found, however, that postnatal interventions alone are more beneficial than postnatal and antenatal interventions combined (Dennis & Creedy, 2004).

Furthermore, intensive postpartum support interventions were more effective when conducted on an individual level rather than in a group setting (Dennis & Creedy, 2004). Though there was no difference between postpartum depression in women whom had multiple intensive support sessions and women whom had a single session (Dennis & Creedy, 2004). Most studies on the topic resemble this ambiguous data and can not provide a firm conclusion of effective treatment or preventive interventions for

postpartum depression. Midwife support and attention to the risk of postpartum depression is currently a possible intervention but has yet to be proven due to insufficient data. It is thus unclear whether the success of my website would make any significant difference on the national postpartum depression rate, but it is a possibility that should be made known.

### **Conclusion**

I have dedicated much research to construct my website in a manner that is user-friendly and structured for optimal success. The website would be monitored by a large number of staff so that any concerns or questions from users are addressed immediately. A large staff number would also ensure that the website's functionality is continually evaluated and improvements can be made consistently. There is no guarantee that my website will attain national, extensive popularity or that this popularity will result in the societal and medical effects predicted; however, it is a passion of mine to promote compatible mother-midwife partnerships and their various associated benefits. While less sure of the medical and societal benefits midwifery provides, I am a firm supporter of the data-based increase in satisfactory birth experiences when using a midwife. My strongest motivation toward promoting midwifery is to alter most women's current perspectives on birth so that it is widely considered a positive, relaxed period of time that is natural and should not instill fear of pain and time constraints. I desire to give every expectant mother personal control, an active voice, self-efficacy, and a secure trust in her healthcare provider and in the process. These are essential components to a woman's empowerment and satisfaction after the birth experience, both of which should be natural feelings that accompany the miracle of child birth.



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