INCREASING POSITIVE BIRTHING EXPERIENCES THROUGH INTERIOR DESIGN: AN EXPLORATION OF PERSONAL CONTROL

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Abstract

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May 2009

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This thesis examines the current state of maternity care in the United States and translates it through the lens of interior design. The US has very poor birth outcomes in comparison with the rest of the industrialized countries in the world. No one has been able to determine one concrete cause for this, but some speculate it is due, in part, to negative birth experiences, sterile and impersonal environments and over use of medical interventions.

The research questions posed are, “Can the physical environment decrease negative reactions to the birth process? If so, how?” And, “Is there a relationship between the use of medical interventions and birth spaces that allow more control, real or perceived? If so, how?” These questions are explored through the theoretical framework of personal control over the physical environment.

A survey was given to women who had given birth in the past two years on a social networking website called cafemom.com. Based on the findings of
the literature review, the survey, and programming research this study suggests several design guidelines and proposes a design project for a birth center.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>2</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>3</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>7</td>
</tr>
<tr>
<td>LIST OF PHOTOGRAPHS</td>
<td>8</td>
</tr>
<tr>
<td><strong>CHAPTER</strong></td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>9</td>
</tr>
<tr>
<td>Purpose</td>
<td>10</td>
</tr>
<tr>
<td>Background</td>
<td>13</td>
</tr>
<tr>
<td>2. LITERATURE REVIEW</td>
<td>19</td>
</tr>
<tr>
<td>3. METHODOLOGY</td>
<td>24</td>
</tr>
<tr>
<td>4. ANALYSIS</td>
<td>28</td>
</tr>
<tr>
<td>Design Strategies</td>
<td>34</td>
</tr>
<tr>
<td>Discussion</td>
<td>36</td>
</tr>
<tr>
<td>4. PROJECT</td>
<td></td>
</tr>
<tr>
<td>Site</td>
<td>38</td>
</tr>
<tr>
<td>Project Goals</td>
<td>40</td>
</tr>
<tr>
<td>Project Description</td>
<td>41</td>
</tr>
<tr>
<td>Project Analysis</td>
<td>44</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>46</td>
</tr>
<tr>
<td><strong>APPENDIX</strong></td>
<td></td>
</tr>
<tr>
<td>A. SURVEY</td>
<td>50</td>
</tr>
</tbody>
</table>
B. PROGRAMMING DOCUMENT.......................................................58

C. DESIGN DRAWINGS.................................................................84

END NOTES.....................................................................................88
LIST OF TABLES

1. Age Of Respondents
2. Education
3. Age
4. Annual Household Income
5. Birth Place
6. Results by Birth Place
7. Risk Factor
8. Medical Results by Birth Place
9. Birth Experience
10. Personal Territory and Medical Interventions
11. Personal Territory and Experience
LIST OF PHOTOGRAPHS

1. Eastside Birth Center View of Bed
2. Eastside Birth Center View of Bath
INTRODUCTION

There is a desire and a need for improved birth experiences. Despite the fact that the United States has some of the best technology in the world, it has one of the worst infant mortality and maternal morbidity rates. According to Wagner (2006) the United States has the “Cadillac” of maternity care yet there are twenty-eight countries that have lower maternal mortality rates, and forty-one countries that have lower infant mortality rates than the United States. Some research suggests this is due to the over medicalization of maternity care. For example, more than half of women who give birth in the United States use an epidural to ease pain in labor and the almost thirty percent of women have a cesarean section. According to the World Health Organization mortality rates increase when the caesarean rate goes over twelve percent (Wagner, 2006).

In addition to the poor outcomes, women themselves have a high rate of dissatisfaction with the birth experience itself. Most US women give birth in hospitals and negative reactions to hospital-based birth stem from increased use of technology and obstetrical interventions, impersonal environments, and lack of personal control (Annandale, 1987; Klee 1986; Shin, Maxwell, & Eshelman 2004). As a result a reform movement against the medical model of hospital birth began in the Untied States in the mid 1970s in response to this dissatisfaction. Women are asking for control over the birth process. The Reformists believe that birth should be treated like a natural function of the body rather than an illness requiring hospitalization.
Many Americans, including doctors, midwives and women, are concerned with the current state of the maternity care system. Interior design at its core provides people with experiences and research indicates that the physical environment can have a significant affect on patients. Poor design has been linked to negative patient consequences such as increased anxiety, delirium, increased blood pressure and an increased intake of pain medication (Ulrich, 1991). In her book, *Notes on Nursing*, Florence Nightingale, wrote that “…we are affected by form, color, and light, we do know this: they have an actual physical effect.” According to Ulrich, “poor design works against the well-being of patients, and that, in certain instances, it can have a negative effect on the physiological indicators of wellness (McKahan, 1993).”

**PURPOSE**

The purpose of this study to ascertain if there is a meaningful relationship between the interior environment and the birth experience. It is the intent of the author that the knowledge gained from this study will help interior designers better understand how the built environment can affect the birth process. The two main research questions are:

- Can the physical environment decrease negative reactions to the birth process? If so, how?
- Is there a relationship between the use of medical interventions and birth spaces that allows more control, real or perceived? If so, how?
JUSTIFICATION

There have been several books and main stream documentaries produced regarding the current state of the maternity care system. Many of these suggest a shift from the current model of maternity care is necessary in order to reduce infant and maternal morbidity rates. There are a number of research studies that examine the design of healthcare facilities in general and its affect on people. Many of these studies suggest that giving patients control over their surrounding environment and family support are crucial in the design of these facilities can improve medical outcomes (Shin et al. 2004, Shumaker, S.A., & Reizenstein, J.,1982, Zimring, C., Weitzer W., & Knight, R.C. 1982). However there are few studies that examine control over the birth experience specifically. Therefore, in order for designers to aid in improving the current state of maternity care and experiences, more studies that relate directly to the design of birth spaces are needed.

KEY DEFINITIONS

The following terms defined in this study are significant in understanding the process of research.

- **Midwife**: autonomous practitioners who are specialists in normal pregnancy, childbirth and the postpartum. They attend and facilitate birth and advocate for natural child birth.
- **Personal Territory**: A boundary control process that enables privacy.
- **Visual Access**: The ability to see something from where you are.
- **Privacy**: The mechanism by which people regulate their contact with the environment and others (Altman, 1976).
- **Social Support**: Emotional and tangible assistance that a person receives from others (Ulrich, 2001).
- **Control**: The ability to either alter the physical environment or regulate exposure to one’s surroundings (Evans & McCoy, 1998).
- **Alternative Birth Center**: (ABC) A healthcare facility staffed by midwives to assist in childbirth for low risk pregnancies. The ABC focuses on natural childbirth and does not offer and type of medical interventions. They are usually freestanding, not attached to a hospital, and provide a more home-like design.
- **Hospital Birth Center**: A birth center that is located in the hospital setting. They usually provide a setting that is more home-like, where labor, delivery and recovery are all in the same room. All of the modern medical equipment is still used along with medical interventions such as epidurals, inductions and caesarean sections.
- **Episiotomy**: A surgical incision through the perineum made to enlarge the vaginal opening.
BACKGROUND

History

To better understand the current state of childbirth in the United States we must recognize its origins, history and politics. When the English settled in America in the 17th century they brought with them long traditions of child bearing practices. Women gave birth at home and were attended by skilled midwives, and looked to close family and friends for aid and comfort. Women supported each other during birth and recovery. Midwives were usually older women of the community who had been trained by apprenticeship. Men did not typically attend births because it was considered indecent and socially unacceptable.

In the mid-seventeen hundreds, men trained abroad came home to America to practice medicine. This marked the beginning of a transformation from previous birthing traditions using midwives to the current medical model.

In the early 1900s doctors were trying to define their professions, establish boundaries and standardize medical education. This included a struggle between traditional midwives and the medical profession. Doctors designed an education campaign aimed at convincing women that it would be better for them and babies to allow trained physicians to attend their births instead of midwives (Durain, 2002). Middle and upper class women who could afford to have birth in the hospital began to do so, while the poor continued to use midwives.

Birth in the 20th century was marked by a great concern for pain during childbirth. A method called “twilight sleep,” developed in Germany, became
widely used in American hospitals. At the beginning of labor physicians would give the mother a dose of scopolamine, a drug that would make her forget what was happening, then as soon as the baby entered the birth canal, she was given a dose of chloroform to relieve the pain (Wertz et al, 1977). This new technique drew many women to the hospital and by 1938 was used in all hospital deliveries. This completely eliminated women’s control of the birthing experience, due to the fact that she was unconscious.

By the early 1930s, sixty to seventy-five percent of births took place in hospitals (Wertz et al., 1977). In the early 1940s doctors became concerned with safety of twilight sleep anesthesia, due in part, to the fact that women had no recollection of giving birth, and began using what seemed to be a safer drug. This was the epidural which is a spinal anesthesia that numbs the patient from the waist down.

In the 1960s hospitals were opened to most castes of women. This caused large volumes of work for urban hospitals. Staff began to precondition women during their prenatal visits to follow procedures, be obedient and trust the physician’s word in order to control the workload. According to Wertz the structure of these large institutions became more focused on the best interests of the service providers as opposed to the patients. Hospitals were compartmentalized to deal with large numbers of people. This reduced control over privacy and social interaction. For example, a woman was likely to begin labor in one room with several nurses attending to her, and then be moved to a second room to give birth with different staff members, all of whom she may have
never met before. This type of hospital design made birth more difficult (Wertz et al., 1977). According to Wertz, “its impersonality and complexity created fear and anxiety in the patient, emotional conditions that made delivery more intense and painful.”

In the 1970s there was a social and political push towards natural childbirth. The movement was small, but influential (Klee, 1986). Groups of women organized to educate one another and to change or avoid the medical model of birth that had come to dominate America. They began to demand more participation and control in their births including drug-free labors, improved decision making power and midwife attended home-births (Durain, 2002).

**Alternative Birth Centers**

In response to the reform movement of the 1970s the alternative birth center (ABCs) evolved as a more family centered model of birth. ABCs offer hospital-type care, but with a more home-like design (Klee, 1986). This specifically addressed the negative reaction to sterile hospital environments. Typically labor and delivery take place in the same room. The rooms are designed to look more like a bedroom than a hospital room. For example, they have a queen size bed without stirrups or restraints. They are decorated with draperies, rocking chairs, carpeting, pictures on the wall and plants. In addition there is a focus on the presence of the father, close relatives and friends and
paying special attention to the needs of the guests, for example providing ample seating in the birth suite (Klee, 1986).

Eastside Birth Center: Photograph 1  Eastside Birth Center: Photograph 2

One of the major differences between a hospital and an ABC is that in the hospital the obstetrician is in control, where as in the ABC the patient is in control. For example, major decision making in the hospital is usually left to the obstetrician while decisions are left up to the women in labor ABCs. ABCs are typically staffed by midwives who have completed training as nurses and then go on to specialty training as midwives. Typically an obstetrician is on-call or a hospital is close by. Emphasis is put on the individuals' wishes, education, and informed choice (Wagner, 2006). Women are preconditioned that in a hospital the doctor knows best and to always follow their orders. Where as in a birth center the midwife is a helper and a guide, but the mother has the ultimate say in what happens to her.

When a woman chooses a midwife the two get to know and trust each other throughout the pregnancy. Midwives plan for longer prenatal visits than obstetricians. In addition some ABCs offer and encourage prenatal visits, massage, acupuncture and yoga. These types of activities allow women to
become very familiar with the facility and the staff and stimulate a sense of community. This familiarity between the family, staff and midwife tends to increase control over privacy and decrease stress. In addition, in many hospitals babies are placed in nurseries for things like newborn exams, and sleeping, but in ABCs babies are never taken from their mothers. Babies remain in the room with the mothers for the entire time.

**Politics**

In the United States less than ten percent of births are attended by certified nurse midwives. This is in contrast with other industrialized countries such as Europe where midwives attend seventy-five percent of the childbirths (Durain, 2002). Some believe the reason for this is due to the politics of childbirth in the United States.

Many obstetricians do not think that midwives should be used as the sole birth attendant and do not feel ABCs should be allowed. In several states obstetricians have fought to require that midwives be supervised by an obstetrician because they believe it is not safe. The American College of Obstetricians and Gynecologists (ACOG) made an official statement regarding birth: “labor and delivery, while a physiological process, clearly presents potential hazards to both mother and fetus before and after birth. These hazards require standards of safety which are provided in the hospital setting” (Wagner, 2006). In fact, ABCs are outlawed in the state of Illinois. According to Wagner, there is no scientific evidence to suggest that ABCs are unsafe.
Research suggests that ABCs are perfectly safe for low risk pregnancies. The outcomes of the ABC births are just as good as or better than the outcomes of low-risk hospital births. These studies also found that ninety-nine percent of women said they would recommend birth at an ABC to their friends and ninety-four percent said they would return to an ABC for future births (Wagner, 2006).

In addition, in one study reported the following. Ninety-nine percent of births were spontaneous compared to fifty-five percent of hospital births, meaning that medication to induce labor was not used. Anesthesia was used in thirteen percent of births in ABCs compared to forty-two percent in hospitals. Forceps and vacuum extractors were used in less than one percent of ABC births as opposed to ten percent in hospital births (Wagner, 2006).

This evidence suggests that it is possible to have positive health outcomes with less medical intervention. Furthermore, the research indicates that the women who used the ABCs had very high rates of satisfaction.

Hospital births have become routine. Women have been conditioned that the safest option for birth process is the medical model in a hospital. Yet research suggests that there are other birthing models that are just as or more effective than the status quo.
LITERATURE REVIEW

Control

Although the ABCs have addressed some of the concerns that women have, such as replacing the sterile space with a homier one (using furniture, fixtures and finishes that resemble a residential space) and reducing medical interventions, the issue of personal control has not been fully addressed.

Ulrich posits that “a sense control can also be seriously eroded by poorly designed facilities that are noisy, lack understandable way finding cues, invade privacy and prevent personal control over things like the television or DVD player, cause patients to look at glaring ceiling lights or have rooms that are arranged so patients cannot see out windows” (Ulrich, 1992). As previously discussed in the introduction, a lack of control can cause patients increased anxiety, delirium, elevated blood pressure and an increased intake of pain medication (Ulrich, 1991). The opposite is true for patients that have a sense of control. There is evidence that actual or perceived control decreases pain (Baker, 2005). For women in labor this is vital considering pain reduction has been a primary concern for the last one hundred and twenty years.

In order to address the research questions of this study it is important to examine the most recent study regarding design and the birth experience, Hospital Birthing Room Design: A Study of Mothers’ Perception of Hominess by Shin, Maxwell and Eshelman. In this study researchers examined how interior design elements were able to influence the degree of hominess, the likeliness of using the setting as their birthing place, and the perception of personal control.
Subjects were asked to rate line drawings of a birth room based on hominess, preference and control. Researchers found that “an increase in personal control aids both perception of hominess and preference by enabling user influence over personal territory and individual privacy” (Shin J. et al., 2004,). In addition, “personal control leads to feelings of hominess and its associated effects. These include feelings of security, safety, warmth, comfort, and privacy.”

Based on their findings Shin, Maxwell and Eshelman created design guidelines to assist in the interior design of hospital birthing rooms. Included in the design guidelines were issues of control over visual access, social interaction, privacy and personal territory. Given that this is one of the only research studies that explores the connection between interior design and the birth environment, this paper will use the design guidelines established by this research as a foundation to build upon.

One of the main concerns with Shin’s research study is the sample size. According to Shin it was small and lacked randomness. Only 35 participants volunteered from the local area. Many volunteered because they were unable to recruit people for their own research studies in the past and felt a duty to facilitate Shin’s research. This could account for a study that is somewhat biased in several areas including education levels and ethnicity.

In order to enhance comprehension of these four design guidelines it is necessary to look at the literature that surrounds them.
Visual Access

There is strong evidence that suggests that windowless environments in healthcare can have detrimental effects on patients. Patients in rooms without windows have noted elevated rates of anxiety, depression and even delirium. In addition the lack of windows may even worsen health outcomes due to lack of positive stimulation and the effects of sensory deprivation (Ulrich, 1991).

Windows allow a view of what lies beyond. Views of nature can provide relief from what is going on and allow moments of micro restorative experiences (Kaplan, 2001). Research suggests that a view of nature can decrease stress in as little as five minutes and that prolonged exposure to nature views can calm patients (Ulrich, 2001). In a study performed by Dr. Ulrich in a Pennsylvania hospital in 1983, patients with views of nature took less pain medication and had shorter hospital stays than patients who had a view of a brick wall.

Not only do windows allow a view they also allow daylight into the space. Research suggests that a lack of daylight can lead to increased intake of medication and can disturb circadian rhythms (McKahan, 1993). In a study performed by Walch in 2005, patients underwent surgery and were placed in rooms on either the bright or dim side of the hospital. Patients admitted on the bright side of the hospital had approximately forty-six percent higher intensity sunlight than patients on the dim side. The study found that patients in brightly sunlit rooms experienced less stress, and took twenty-two percent less pain medication (Walch, 2005 in Joseph, 2006). This is an important consideration in the birth environment especially since pain is such a concern for pregnant
women. This study also suggests that daylight may be beneficial to women who are recovering from a caesarean section, a major surgery.

In addition, research studies suggest that cool light such as fluorescent light can cause irritability and increase fatigue (Ott, Feller & Burnes in Mckahan, 1993). Exposure to this type of light increases the stress hormones, ACTH (Adrenocorticotropic hormone) and cortisol, in the body. This study found that full spectrum lighting, which simulates daylight, did not increase irritability or fatigue (McKahan, 1992).

Another factor of visual access that is important to consider is the ability to control it. For example, it is important to be able to control the amount of view, daylight or ventilation that comes from the window. Design considerations should include blinds or draperies and operable windows. Control can be mitigated through these types of design elements.

**Social Interaction**

Although there is little literature available on the birth environment specifically, healthcare literature, in general, emphasizes the importance of social support of patients. Family is the most important kind of social support, and according to Ulrich, patients can also benefit from the support of friends and helpful and caring healthcare personnel. Research in the fields of behavioral medicine and psychology largely suggests that high social support leads to less stress and increased levels of wellness (Ulrich, 1992). It is also interesting to
note that studies show that women respond better to social support than men, so it would seem additionally important for a birth experience.

As such, it is important to allow family members to serve a function when working with the staff (Ulrich, 2001). Ulrich also suggests the need for design that promotes social support, for example encouraging the presence of family and friends by designing comfortable waiting areas with moveable seating and convenient overnight accommodations. This enables patients and guests to have more control over the spaces they occupy.

Ulrich also urges designers to be aware that too much social interaction may impede privacy which can increase stress and contradict wellness. Each person has a different need for social interaction, therefore it is important for the patient to be able to control the amount, and with whom they interact during the birth experience. This idea is related to privacy and personal territory and will be discussed further in the next section.

**Privacy & Personal Territory**

Giving birth is a very personal event. Women must completely let go of all inhibitions and allow nature to take its course. In order to feel secure in doing so, privacy is essential. Loss of privacy can occur when others obtain information about an individual, pay attention to her or gain access to her without knowledge or consent. Lack of privacy has been shown to create antisocial behaviors as well as aggression (Pedersen, 1997). Privacy is not necessarily the desire to be alone, yet it is the ability to control the amount of contact with others.
Privacy can be thought of as a boundary control process. “The individual regulates with whom contact will occur and how much and what type of interaction it will be” (Pedersen, 1997). Research suggests that control over privacy and personal territory can be achieved by allowing women to personalize space and secure boundaries. When patients have the ability to personalize their own space it can create the perception of increased control over these boundaries. Thus, they feel increased amounts of comfort and may be able to engage in a wider range of conduct, including decision making (Shin et al., 2004).

Control over the immediate social environment can enable more privacy. One of the problems in many hospitals concerning privacy is that nurses usually work on twelve-hour shifts. If the patient is there longer than twelve hours, which is likely, they may have a whole new set of staff that will be looking after them during the course of labor. This change of staff can reduce a sense of privacy and cause increased levels of stress and anxiety. Therefore, having one or two people who attend to a woman during the entire length of the labor could be more desirable to increase the sense of privacy.

**METHODOLOGY**

This study explores control over the birth environment. It examines the following questions. Can the physical environment decrease negative reactions to the birth environment and improve the birth process? If so, how? And, is
there a relationship between the use of medical interventions and birth environments that allows more personal control? If so, how?

A survey (see appendix A) was developed based on the design guidelines from the Shin, Maxwell and Eshelman study discussed earlier in this paper to answer these research queries. The survey questions were divided into eight categories and investigated control over windows and views, social interaction, privacy and personal territory, overall birth experience, birth specifics and demographics.

The survey was placed on a social networking website for mothers called cafémom.com. The reason this website was chosen was to facilitate randomization. The website is one of the largest social networking websites in the US with over 6 million visits per month. It is less likely to be limited by class, income or race than other methods of gathering information. For example the survey was posted on several forums with topics ranging from pregnancy and childbirth, breastfeeding and children born in 2007. The survey was posted on the website for 10 days and received 120 completed responses.

Demographics

All of the women who responded gave birth within the past two years. The highest percentage of participants were 22-25 years of age, but ages ranged from 18-50.
Table 1. Age of respondents

Eighty-seven percent of the respondents were Caucasian while the remainder included Asian, Hispanic, African American and Native American. The majority of women (forty-six percent) had completed some college while thirty-one percent had completed a bachelors degree or higher. Most of the women had a household income of $30,000 to $49,999.

Table 2. Education
Table 3. Ethnicity

Table 4. Annual household income

Seventy-three percent of women gave birth in the hospital, with only three percent of women giving birth at home.
Table 5. Birth Place

**ANALYSIS**

The overall results show that one hundred percent of the women who gave birth at home or in an ABC rated their birth experience as excellent, sixty-five percent who gave birth in a hospital birth center and thirty-four percent who gave birth in a hospital rated their birth experience as excellent. Most of the birth rooms had exterior windows, but nature views were at or below thirty-three percent in all except for home, which was sixty-six percent. High amounts of daylight were the greatest in the hospital birth center which was fifty-nine percent with ABCs attaining the second highest percentage at fifty-percent. Most of the birth places gave the patient control over family and friends entering the birth room, yet hospitals had the most uncomfortable guest seating with only twenty-seven percent of patients reporting that the seating was excellent or very comfortable. ABCs and home births conveyed that they had secure storage for personal items and ample display space for gifts and personal mementos, while
hospitals and hospital birth centers were at fifty-two percent respectively. In addition home had the most privacy. Sixty-seven percent of women who gave birth at an ABC rated the privacy as excellent, where as sixty percent of women who gave birth in a hospital birth centers and forty-six percent at hospitals.

<table>
<thead>
<tr>
<th>Birthplace</th>
<th>Excellent experience</th>
<th>Exterior windows</th>
<th>Nature views</th>
<th>High amounts of daylight</th>
<th>Control over guests</th>
<th>Excellent/very good seating for guests</th>
<th>Secure storage</th>
<th>Enough display space</th>
<th>Excellent privacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>34% (27)</td>
<td>72%</td>
<td>3%</td>
<td>23%</td>
<td>88%</td>
<td>27%</td>
<td>58%</td>
<td>52%</td>
<td>46%</td>
</tr>
<tr>
<td>Hospital Birth Center</td>
<td>65% (13)</td>
<td>80%</td>
<td>11.8%</td>
<td>59%</td>
<td>100%</td>
<td>55%</td>
<td>58%</td>
<td>52%</td>
<td>60%</td>
</tr>
<tr>
<td>ABC</td>
<td>100% (6)</td>
<td>100%</td>
<td>33%</td>
<td>50%</td>
<td>100%</td>
<td>83%</td>
<td>100%</td>
<td>100%</td>
<td>67%</td>
</tr>
<tr>
<td>Home</td>
<td>100% (3)</td>
<td>100%</td>
<td>66%</td>
<td>0%</td>
<td>100%</td>
<td>66%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 6. Results by birth place

**Birth Specifics**

Some of the overall responses concur with current literature that suggests over medicalization of the mother is occurring. For example, seventy-five percent of the women were considered to be low risk, yet fifty percent of them received medication to induce labor, sixty percent of women received epidurals for pain, and twenty-three percent received a caesarean section. As discussed earlier in the paper, the World Health organization states that Caesarean rates over twelve percent begin to have detrimental effects on the infant and maternal health.
mortality rates and according to Wagner, only ten percent of births medically require induction (Wagner, 2006).

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Total number</th>
<th>Induction</th>
<th>Pain Medication</th>
<th>Caesarean Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Risk</td>
<td>28 (26%)</td>
<td>15 (54%)</td>
<td>19 (68%)</td>
<td>9 (33%)</td>
</tr>
<tr>
<td>Low Risk</td>
<td>81 (25.7%)</td>
<td>40 (50%)</td>
<td>46 (58%)</td>
<td>16 (20%)</td>
</tr>
</tbody>
</table>

Table 7. Risk Factor

In ABC and home births there were no inductions, pain medication, caesareans or other procedures used during labor. Hospitals had the highest Caesarean rates at twenty-nine percent with hospital birth centers at fifteen percent. Both hospitals and hospital birth centers had induction and pain medication rates over fifty percent.

<table>
<thead>
<tr>
<th></th>
<th>Induction</th>
<th>Pain Medication</th>
<th>Episiotomy</th>
<th>Forceps</th>
<th>Caesareans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>56%</td>
<td>68%</td>
<td>20%</td>
<td>1%</td>
<td>29%</td>
</tr>
<tr>
<td>Hospital Birth Center</td>
<td>58%</td>
<td>65%</td>
<td>11%</td>
<td>11%</td>
<td>15%</td>
</tr>
<tr>
<td>ABC</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Home</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Table 8. Medical results by birth place

**Windows, Views, Daylight**

In the windows and views section women who had exterior windows, high amounts of natural light and views of nature together rated their birth experience
as excellent. Women who just had one or two of these features had very mixed outcomes, but women who had unacceptable or poor experiences had few instances of the three.

<table>
<thead>
<tr>
<th>Birth experience</th>
<th>Exterior windows</th>
<th>Nature views</th>
<th>High daylight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>43 (88%)</td>
<td>7 (17%)</td>
<td>17 (41%)</td>
</tr>
<tr>
<td>Unacceptable/Poor</td>
<td>4 (40%)</td>
<td>0 (0%)</td>
<td>1 (17%)</td>
</tr>
</tbody>
</table>

Table 9. Birth Experience

Birth Experience

All of the women who rated their birth experience as unacceptable had no windows toward the exterior, meaning there was neither a view nor natural light. They all gave birth in a hospital or a hospital birth center and none used a midwife. They were all considered low risk; however, one hundred percent of them received medication to induce labor and epidurals for pain. In addition, one of the women underwent an unplanned caesarean section.

Those who rated their birth experience as being unacceptable, poor or fair stated their experiences might have been improved if:

- “Not feeling like a whole in the ground. There were no windows and no option to adjust the lighting, so I was under fluorescent lights the whole time.”
- “Being at home, bed was awful, no privacy from staff.”
- “Not being in a hospital”
- “Paintings, non-white walls, more natural light.”
- “More homey.”
“More sitting room for guests, larger bed for hubby.”

**Alternative Birth Center**

One hundred percent of the women who gave birth in an ABC rated their birth experience as excellent. All of them had exterior windows, with views and half of them had natural light that filled the entire room. All of the women replied that there was seating for guests and the majority said the comfort level of the seating was very good. In addition, they all had a sleeping area for guests rated as good or better. A secure place to store personal items was provided to all of the women and the space was rated as enough or more than enough. Sixty-six percent of the patients rated privacy as excellent with thirty-three percent rating it good. None of the women received medication for induction, pain, or had procedures like episiotomies, forceps, vacuums or caesareans.

**Personal Territory**

Women who reported that they had a secure place to store their personal items and more than enough space to display personal mementos and gifts all rated privacy excellent (86.4%) or good (13.6%). This finding is interesting considering that thirty-one percent of patients did not have a transition space upon entering the room and nine percent of women could actually be seen from the hallway. In addition, only thirteen percent of them had a caesarean section. This may suggest a link between privacy, personal territory and decision making.

<table>
<thead>
<tr>
<th>Secure Storage</th>
<th>More than enough display</th>
<th>Transition Space</th>
<th>All three combined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

32
Eighty-eight percent of the respondents that had an excellent overall birth experience conveyed that they had both display space for gifts and personal items and a secure place to store personal belongings. This is in contrast with those who reported to have had a poor or unacceptable experience of which fifty-six percent said they had display space while only thirty-eight percent said they had a secure place for their belongings.

<table>
<thead>
<tr>
<th></th>
<th>Excellent Experience</th>
<th>Good Experience</th>
<th>Fair Experience</th>
<th>Poor/Unacceptable Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Space</td>
<td>88%</td>
<td>72%</td>
<td>78%</td>
<td>56%</td>
</tr>
<tr>
<td>Secure Storage</td>
<td>88%</td>
<td>36%</td>
<td>43%</td>
<td>38%</td>
</tr>
<tr>
<td>Transition Space</td>
<td>64%</td>
<td>50%</td>
<td>50%</td>
<td>40%</td>
</tr>
</tbody>
</table>

Table 11. Personal territory and birth experience

Acoustics

Acoustics is another important issue that was not in the scope of the survey, but was mentioned often in the open ended responses. A large concern
was acoustical privacy, not being able to hear people in the next room. Additionally having access to CD players for music, DVD players, and better television programs were all highly desirable. Some also stated that the room had these items, but that they were not working properly at the time of their birth.

**DESIGN STRATEGIES**

Based on the findings from the literature that surrounds healthcare design and the survey conducted by this author, this study suggests important design considerations that may improve the birth experience. These design guidelines address issues of sterile and impersonal spaces and lack of personal control. In addition there are some suggestions that have been made based on specific feedback from open ended questions in the survey.

**Issues of Control**

- Provide a secure place in the room for patients to store personal items.
- Provide ample display space for gifts and personal items.
- Provide a combination of exterior windows with views of nature.
  Research suggests that the more nature in the views the better the outcomes. In addition high amounts of natural light are indispensable. It is important to note that all three together are necessary to deliver the best outcomes.
- Supply personal controls for the window, such as blinds or draperies to control the amount of light or views that are coming
into the room. In addition, provide operable windows to allow patients to control natural ventilation.

- Place the bed so that people from the hall do not have visual access.

- Supply a seating area in the birth room that is ample and comfortable for guests. In addition it is necessary to provide a place for at least one guest to sleep comfortably. This may be a queen size bed shared by the couple, a daybed, a high quality pull-out sofa or chair.

- Allow the patient control over lighting. Install a dimmer to allow control over light levels. Place switches in areas easily accessible to patients and staff.

- Provide television, DVD and CD players that are in good working order and easy to operate by patients and staff.

- A transition space into the birth room is necessary. A curtain in front of the door is sufficient, but material with higher sound absorption can be used to increase acoustical privacy.

Other Important Issues Derived From The Survey

- Create a non-sterile aesthetic with a homelike environment. This may include furnishings such as a queen size bed, rocking chairs,
and a dresser. In addition decorative items such as plants, draperies and art may help create a more home-like atmosphere.

- Provide high sound barrier quotient to allow elevated level of acoustic privacy.

**DISCUSSION**

This study suggests that design of the physical environment can play a role in decreasing negative reactions to the overall birth experience. This is demonstrated in part by the fact that one hundred percent of women in this study who gave birth in alternative birth centers rated their birth experience as excellent. This is in overwhelming contrast to hospital births which was at thirty-four percent. ABC births had the highest percentages in almost all of the design related categories (visual access, social interaction, and privacy and personal territory) with the lowest intervention rates. This would suggest that the ABC model is heading in the right direction for improved birth experiences, while perhaps decreasing medical intervention rates.

This study suggests that there is a relationship between environments that allow more control and medical interventions. There may be a link between privacy, personal territory and caesareans: Women who had high level of privacy and personal territory had half as many caesarean sections as women who did not. In fact thirteen percent of women in this situation had caesareans, which approaches the optimum number suggested by the World Health Organization. Although additional investigation is needed to determine if the
design guidelines proposed in this study, if implemented, actually have an effect on the maternal and infant mortality rates in the United States the survey results show strong suggestion.

There are limitations to the questions asked in the survey. Although the study suggested that high levels of comfort and ample space for guest seating, personal storage and display space are important to the birth experience. Specific questions were not asked in regards to the actual size of these spaces. Therefore size is based on the individual’s perception of these areas and not the actual size. Perception is effective in determining the importance of these spaces, but is limiting in knowing exactly how much space is required for their design.

A question that resulted from this study that merits further research is, why do women chose hospitals over Alternative Birth Centers? Additional study in this area may help designers to address these issues and improve birth places.

Based on the information gathered from this study I propose a new model of practice (see Figure 1). Although the outcomes of this study suggest a much better overall birth experience in an ABC far fewer women actually choose alternative birth centers. Therefore I propose a model of collaboration between obstetricians and midwives is necessary. The new birth center prototype would be a free standing birth center for low risk births. The birth center would provide the design strategies listed above in addition to the choice of having a midwife or an obstetrician attend the birth. Additional choice also provides addition personal control. In conclusion there is still much more research that needs to be done in
the area of the birth place design, yet this study suggests several possibilities for improving the experience for women through interior design.

![Proposed model of practice](image)

Figure 1. Proposed model of practice

SITE

Choosing a site is the first important step in designing this freestanding birth center since it won’t be located in a hospital. There are several guidelines that must be met in order to perpetuate a successful location. The first being safety, therefore the site must be near a hospital. The general rule being that the birth center must be within one-half hour of the hospital in the event that an
emergency caesarean section is needed. The second guideline is that there must be an abundance of nature views, or the ability to create them. As learned from the survey women who had ample views reported a better birth experience than those who did not. The third guideline is a residential scale site. This is important because it aids in the creation of a more personal perception of the space. Approaching a very large building with multiple parking lots, entrances, and departments, like most hospitals, can be very impersonal and intimidating. People can feel more in control if they are not intimidated or overwhelmed.

Therefore, the site chosen for this birth center is located at 1923 S. Grand Avenue in Spokane, Washington. The site is on Spokane’s south hill, which is located just south of downtown. There is also easy access from the main freeway that runs through Spokane, which provides easy access from other parts of town and the county. It is one mile from one of Spokane’s largest hospitals, Sacred Heart, which houses a Woman’s Health Center and Neonatal intensive care unit. The property is also located across from one of Spokane’s most famous parks, Manito Park. The park is alive with tall pine trees and steep grassy hills. The neighborhood is mostly residential; therefore the site is surrounded by some of Spokane most historic homes. Although the surrounding buildings are mostly residential this particular site is zoned medical.

There are two buildings located on the site that are connected by a breezeway. The combined square footage of the buildings is approximately 9,800 square feet. This includes a main floor with a basement for storage.
Parking is located behind the building and has easy access for vehicles to park as well as for emergency vehicles if needed.

In summary the site is easily accessible to the surrounding areas including the hospital; it is in a residential neighborhood and is similar in scale to the surrounding homes and promotes a sense of intimacy and familiarity. The park across the street provides an important connection with nature and the architecture blends in to that of its surroundings to give it a personal feel.

PROJECT GOALS

There are several project goals that were derived directly from the research as well as through the design process itself. The overarching goal of the project is to decrease negative reactions to the birth process. The specific goals are listed below.

1. To improve the overall birth experience through the physical environment by maximizing women's.
2. To promote natural childbirth while using modern medicine responsibly.
3. To facilitate collaboration between obstetricians and midwives.
4. To create a home-like environment that is non-sterile, welcoming and stimulates a community based atmosphere.
PROJECT DESCRIPTION

The overall project is based on a holistic approach to child birth, meaning that it is not just a place to give birth, but a place that becomes familiar, comfortable, and integrated in a woman’s life while she is pregnant. It is meant to establish community with their caregiver, a midwife or obstetrician, and other pregnant women. In addition, making the family an integral part of the process is also a priority.

The space requirements for the building range from birth suites, and exam rooms, to office and meeting spaces. Other services are offered to aid in the pregnancy process, such as acupuncture, massage, and maternity yoga. In addition, parenting and birthing classes will be offered.

The family is held in high regard as the social support system for the pregnant women, thus there is a large family room complete with a kitchen, dining and sitting area for relaxation and kinship.

The staff makes a large time commitment to their work and must be considered just as important as the client. Therefore they require their own work, sleep and relaxation spaces to nurture their professional life.

The building is separated into specific zones. The center of the space is the semi-public zone, and where the lobby is located. As one moves out from the center the zones become increasingly more private. The birth suites are deemed the most private and thus are the furthest from the more public zones. The semi-public spaces act as buffers to the more private areas. The creation of
such zoning gives mothers a sense of security, retreat and personal territory that is a fundamental part of child birth.

The overall concept of the birth center is based on the flower bloom. The flower in bloom symbolizes femininity and is the reproductive structure of the flower. The day lily, in particular, signifies the emblem of the mother. Symmetrical balance of the bloom creates a restful and peaceful sensation in order to calm the birthing mother. The horizontal motion of flowers dancing in the wind corresponds to the side to side sway of a woman in labor. The relationship between the mother and the child displays harmony through texture, color and shape, as do the petals of the lily. Unity is created with the stamen as the focal point which adds vertical line and contrasting color, much like a newborn child becomes the focal point of the birth.

The overall style of the birth center is based on the architecture and furniture design of Charles Mackintosh. His architecture comes the early 1900s, which is the same era as the surrounding neighborhood in which the birth center is located. This follows the idea that the birth center should feel more residential in scale and strengthens the sense of familiarity. Mackintosh used clean simple lines with organic shapes to evoke a feeling of serenity and calm. His floral inspired motifs blend with the overall concept of the birth center being the flower bloom. White furniture and fabric mimic the simplicity of Mackintosh’s designs. Because of the use of bleach in medical establishments as one of the main cleaning agents, white becomes an important functionally element of the space as well. Pops of color here and there add interest to the space, while pale yellow
walls, natural granite and bamboo flooring had warmth to the space. Additionally, bamboo was chosen for a functional purpose because of its natural anti-bacterial and anti-fungal properties.

There are four birth suites, each equipped with a queen size bed, guest seating, dressers or armoires, a private bath and Jacuzzi tub. All of the rooms have televisions with DVD players and are wired with a sound system and in ceiling speakers. Operable windows are abundant in all of the rooms to allow control over ventilation. Views out the window include a park-like setting with tall pine trees and grassy hills. Top down-bottom up shades allow privacy while allowing sunlight to penetrate through the top of the windows. Radiant-heat floors help reduce air-born allergens and heating costs as well as improve thermal comfort for clients.

The family room is comprised of a full kitchen, with a refrigerator stocked full of juice, water, soda and snacks, a dining table and a seating area. The seating area has a fireplace, television and books for clients and guests to relax. The family space is essential because of the amount of time that is spent in the birth center. The average labor is 18-24 hours in length; therefore, families will call the birth center there home for at least a full day.

The staff space is quite large and takes up roughly a quarter of the main floor plan. Since the staff spends extended periods of time in the birth center, a large space was created for working, relaxing, sleeping and bathing. The staff office space is located at the west of the building to maximize views of the Manito Park. The space also has clearstory windows to allow an abundance of natural
light. The desks are arranged in a pod so that each obstetrician or midwife has their own space, but are able to easily collaborate with a centrally located table, if desired or necessary.

In summary, the design combines clean geometric lines with organic movement to emulate the organized structure of the flower bloom. In addition the color palette is refreshing and relaxing with a combination of natural materials. The design takes into careful consideration the needs all of its clients from the pregnant women, including their families, to the medical and office staff. The design creates an overall experience that is nurturing, comforting, and calming.

**PROJECT ANALYSIS**

Overall the project addresses many of the issues that exist today regarding the birth experience. It deals with specific issues of control, such as personal territory and privacy while taking into consideration the aesthetic value of the environment and how it affects women and their families. It also addresses the professional staff and how design can enhance collaboration among them and in turn improve experiences for women through shared knowledge. However the project makes the assumption that cultural norms can be swayed through a changed physical environment. This aspect was not researched fully and could be considered a limitation to the success of the project.

The program is broad and takes into consideration multiple “clients”, the pregnant woman, her family, the medical staff and the support staff. The
experience of all parties is an important and integral part of the design. If one of the parts is not working the others cannot function optimally.

The design guidelines procured from this research study are not limited to the category of free standing birth center. They can be applied to hospitals and hospital birth centers to aid in improving the birth experience for women. Additionally, the guidelines are not bound by locale. The research suggests that these design strategies would be useful in other parts of the country regardless of age, income or race.

Next steps in this research would include a survey to find out why woman choose hospitals over alternative birth centers. The findings of this study suggest that woman are having much better birth experiences at ABCs yet most women choose to give birth in the hospital. Anecdotal evidence suggests that this is because of the perception of safety; meaning that women perceive hospitals to be safer than free standing birth center. If this is proven true it would be interesting to find out where this fear stems from since research proves that alternative birth centers are just as safe as or safer than hospitals.


Nightingale, F. (1859). Note on Hospitals.


APPENDIX A

Survey
Increasing Positive Birthing Experiences through Interior Design:

1. Welcome!

This survey is part of a research study looking at how to better design the birth environment. The knowledge gained from this survey will help interior designers better understand how the built environment can affect the birth process. The overall goal is to help improve birth experiences for women. Your responses will be kept confidential and no names will be associated with this survey. By answering the questions you are agreeing to participate in the study.

1. Are you at least 18 years old?

- Yes
- No

2. Have you given birth within the past six months?

- Yes
- No

2. Windows and Views

1. Did your birthing room have a window?

- Yes
- No

2. Was the window an interior window, or an exterior window?

- Interior (view toward the corridor)
- Exterior (view toward the outdoors)

3. How big was the window?

- Small (From top of door to ceiling)
- Medium (counter height to just below the ceiling)
- Large (floor to ceiling)

4. Were you able to open and close the window for ventilation?

- Not sure
- Yes
- No

5. What was the view out the window?

- Buildings
- Nature
- Both
6. Which statement best describes your view?

- Park like setting
- Some trees or plants
- Very few trees or plants
- No trees or plants

3. Natural Light

1. How much natural light came in the room from the window?

- High (filled the whole room)
- Medium (filled half the room)
- Low (filled a quarter of the room)
- Very little (light entered the room just at the window)

2. Were you able to control the amount of light that came in the window with a shading device such as drapery or blinds?

- Yes
- No

4. Social Interaction

1. Were guests allowed in the birthing room?

- Yes
- No

2. Did you have control over family or friends entering the birthing room?

- Yes
- No

* 3. Please briefly describe the institutions policy on guests in the birth room. For example were there certain hours they were allowed? Was there a limit on the number of guests allowed during labor? Were certain people not allowed in the birthing room during labor? Ect.

4. Was there a Place for guests to sit in the room?

- Yes
- No
### Increasing Positive Birthing Experiences through Interior Design:

5. Was the seating area comfortable for guests?

- Excellent
- Very good
- Good
- Fair
- Poor

6. Was there a place for a guest to sleep in the room?

- Yes
- No

7. Was the sleeping area comfortable for guests?

- Excellent
- Very good
- Good
- Fair
- Poor

* 8. Describe the accommodations. For example what kind of furniture was it? How many people could sit?

9. Did you share a birthing room?

- Yes
- No

10. How many women did you share the birthing room with?

- One
- Two
- Three

### 5. Personal Territory

1. Did you have a secure place to store your personal items?

- Yes
- No
Increasing Positive Birthing Experiences through Interior Design:

2. Did you have a place to display your personal momentos and gifts?
   - Yes
   - No

3. Rate the ampleness of the display space.
   - More than enough
   - Enough
   - Not enough

6. Privacy

1. Rate the overall privacy of the room.
   - Excellent
   - Good
   - Fair
   - Poor
   - Unacceptable

2. When in your room were people in the hall able to see you?
   - Yes
   - No

3. Was there a transition space in your room that allowed you to hear people come in from the hall before you could see them enter the room?
   - Yes
   - No

4. How was the transition space separated from the rest of the room?
   - Full height wall
   - Half height wall
   - Translucent wall
   - Transparent wall
   - Other
   - Other (please specify)

7. Overall Experience
Increasing Positive Birthing Experiences through Interior Design:

1. How would you rate your overall birth experience?
   - Excellent
   - Good
   - Fair
   - Poor
   - Unacceptable

2. Thinking about the physical environment, is there anything that would have made your experience more positive?

8. Birth Experience Specifics

* 1. What state did you give birth in?

2. Did you have prenatal classes?
   - Yes
   - No

3. Where did you give birth?
   - Hospital
   - Hospital Birth Center
   - Alternative Birth Center
   - Home
   - Other
   Other (please specify)

4. Did you use a midwife?
   - Yes
   - No

5. What risk level was your pregnancy considered?
   - Low Risk (Normal)
   - High Risk
6. Did you receive medication to induce labor?
  - Yes
  - No

7. What drug was used for induction?
  - Pitocin
  - Cytotec
  - Both
  - Other
  - Other (please specify)

8. Did you receive an epidural for pain?
  - Yes
  - No

9. Did you have any of the following procedures?
  - Episiotomy
  - Vacuum
  - Forceps
  - Other
  - Other (please specify)

10. Did you have a cesarean section?
  - Yes
  - No

11. What type of c-section was it?
  - Scheduled
  - Unplanned

9. Demographics
### 1. Age
- 18-21
- 22-25
- 26-30
- 31-40
- 41-50
- over 51

### 2. Household Annual Income
- less than $10,000
- $10,000 to $29,999
- $30,000 to $49,999
- $50,000 to $79,999
- $80,000 to $100,000
- over $100k

### 3. Race
- Caucasian
- Hispanic
- African-American
- Asian-Pacific Islander
- Native American

### 4. Highest level of education
- less than High School
- High School Diploma
- Some College
- Bachelor's Degree
- Master's Degree
- Doctoral Degree

### 10. Thank you for your participation!
APPENDIX B

Programming Document

The birth center is located across the street from Manito park on the south hill of Spokane, WA, at 1923 S. Grand ave. The site is strategically located in a residential neighborhood and the architecture blends into the adjacent homes. Additionally the building is located 1 mile down Grand avenue from Sacred Heart medical center and is a three mile drive by vehicle. This is to ensure quick and easy access in emergency situations.

There are actually two buildings on the site that are separated by a small outdoor breezeway. The total square footage of the buildings is approximately 9,800 square feet. Each building has abundant natural light with some clearstory windows. Views out the west windows look across the street to one of city’s most well known parks.
Traffic is moderate, yet speed is limited to 20 miles/hour due to the park. There is a parking lot and two entrances at the back of the building to enable convenient access.
# Program Area Summary

## Public Space

| 1. Reception       | 100 S.F.  |
| 2. Lobby           | 300 S.F.  |
| 3. Resource Library| 300 S.F.  |
| 4. Atrium          | 1158 S.F. |

Subtotal: 1858 S.F.

## Semi-Public Space

| 1. Yoga Studio     | 600 S.F.  |
| 2. Kitchen         | 250 S.F.  |

Subtotal: 850 S.F.

## Semi-Private Space

| 1. Family Room     | 250 S.F.  |
| 2. Records Room    | 150 S.F.  |
| 3. Staff Break Room| 200 S.F.  |
| 4. Laundry Room*   | 500 S.F.  |
| 5. Storage Room*   | 1000 S.F. |
| 6. Utility Room*   | 100 S.F.  |
| 7. Waste Room *    | 100 S.F.  |

Subtotal: 2300 S.F.

## Private Space

| 1. Birth Suites (4 @300 s.f. ea.) | 1200 S.F. |
| a. Bathroom (one in each room @ 50 s.f.) | 200 S.F.  |
| 2. Exam Room                  | 250 S.F.  |
| 3. Massage/Acupuncture Room  | 144 S.F.  |
| 4. Staff Sleep Area           | 150 S.F.  |
| 5. Public Restroom (two unisex)| 150 S.F.  |
| 6. Staff Restroom             | 75 S.F.   |

Subtotal: 2169 S.F.

*In the basement*
Work Space

1. Shared office space for Midwifes and Obstetrician  600 S.F.
2. Client consultation room           200 S.F.
3. Office Manager’s Office            144 S.F.

Subtotal:  944 S.F.

Program Area Summary

Net Assigned Space Main Floor  6421 S.F.
Net Assigned Space Basement*   1700 S.F.
Maximum Square Feet           10946 S.F.
Differential for Corridors    900 S.F.
Activities:
  - Greet customers

Occupants/Users:
  - Customers
  - Staff

Spatial Relationships:
  - Primary access to main entrance
  - Primary access to lobby
  - Adjacent to resource library
  - Near yoga study
  - Near massage studio

Furniture/Equipment:
  - Reception desk
  - Staff seating
  - File cabinets
  - Telephone
  - Computer
  - Printer/Copier/Fax

Environmental conditions:
  - Task lighting
  - General illumination
  - Daylight desirable
  - View desirable

Code Considerations:
  - ADA guidelines
  - Chapter 246-329-160 WAC


LOBBY
300 SF

Activities:
- Customer waiting area

Occupants/Users:
- Customers
- Guests

Spatial Relationships:
- Primary access to reception
- Primary access to main entrance
- Adjacent to resource library
- Near massage studio
- Near yoga studio

Furniture/Equipment:
- Seating
- Side tables

Environmental conditions:
- General illumination

Code Considerations:
- ADA guidelines
- Chapter 246-329-160 WAC
Activities:
Customers can find books and magazines related to pregnancy and birth. It will also carry some baby merchandise for gifts and necessities.

Occupants/Users:
- Pregnant women
- Families
- Friends

Spatial Relationships:
- Adjacent to Lobby

Furniture/Equipment:
- Books shelves
- Display shelves
- Reading table
- Chairs

Environmental conditions:
- General illumination

Code Considerations:
- ADA guidelines
- Chapter 246-329-160 WAC
Activities:
This room will provide space to Practice yoga, hold prenatal classes, such as Lamaze, and educational seminars regarding pregnancy and parenting.

Occupants/Users:
- Customers
- Staff

Spatial Relationships:
- Near lobby
- Near reception
- Near public restroom

Furniture/Equipment:
- Stereo system
- Large storage closet
- Bench

Environmental conditions:
- General illumination on a dimmer switch
- Natural light
- Views of nature

Code Considerations:
- ADA guidelines
- Chapter 246-329-160 WAC
Activities:
A space for customers to eat and prepare food will in labor or have family members in labor. Staff can also use this space to prepare special treats such as cookies and cakes for customers. The refrigerator will be stocked with sodas and juice as well as fresh fruit that will be provided complimentary to customers in labor.

Occupants/Users:
- Customer’s
- Family members
- Staff

Spatial Relationships:
- Adjacent to family room

Furniture/Equipment:
- Cabinetry
- Refrigerator
- Oven
- Stove
- Dish washer
- Counter seating

Environmental conditions:
- General illumination
- Task lighting

Code Considerations:
- ADA guidelines
- Chapter 246-329-160 WAC
Activities:
A space for families and guests of women in labor to come, relax and read a book or watch television.

Occupants/Users:
- Family members and guests of customers

Spatial Relationships:
- Adjacent to kitchen

Furniture/Equipment:
- Sofa seating
- Chair seating
- Fireplace
- Television
- Television cabinet
- Telephone

Environmental conditions:
- General illumination
- Task lighting

Code Considerations:
- ADA guidelines
- WA-246-329-130
- Chapter 246-329-160 WAC
Activities:
A place for staff to rest, eat and converse with peers.

Occupants/Users:
- Staff
- Midwives
- Doctors

Spatial Relationships:
- Near Staff offices
- Adjacent to staff sleeping area

Furniture/Equipment:
- Small kitchenette (lavatory, dishwasher, microwave, refrigerator)
- Dining table
- Dining chair
- Two side chairs
- Television
- Telephone

Environmental conditions:
- General illumination
- Task lighting

Code Considerations:
- ADA guidelines
- Chapter 246-329-140 WAC
- Chapter 246-329-160 WAC
LAUNDRY ROOM
500 SF

Activities:
Clean and sanitize linens.

Occupants/Users:
• Staff
• Midwives
• Doctors

Spatial Relationships:

Furniture/Equipment:
• Two commercial washers
• Two commercial dryers
• Shelving
• Storage cabinets
• Hand wash lavatory
• Mop lavatory
• Appropriate flat surface for work space
• Autoclave for sterilization

Environmental conditions:
• General illumination

Code Considerations:
• ADA guidelines
• Chapter 246-329-140 WAC
• Chapter 246-329-160 WAC
Activities:
Store extra furniture, equipment, linens, and supplies.

Occupants/Users:
• Staff
• Midwives
• Doctors

Spatial Relationships:

Furniture/Equipment:
• Storage cabinets
• Linear surface space

Environmental conditions:
• General illumination

Code Considerations:
• ADA guidelines
• Chapter 246-329-140 WAC
• Chapter 246-329-160 WAC
Activities:
A space to house the buildings utilities.

Occupants/Users:
• Staff

Spatial Relationships:
• Near laundry

Furniture/Equipment:
• Commercial water heater, radiant heat boiler

Environmental conditions:
• General illumination

Code Considerations:
• ADA guidelines
• Chapter 246-329-140 WAC
• Chapter 246-329-160 WAC
Activities:

Assure all sewage, garbage, refuse, biomedical waste, human tissue, needles and sharps and liquid waste are collected and disposed of in a manner to prevent the creation of an unsafe or unsanitary condition.

Occupants/Users:
- Staff
- Midwives
- Doctors

Spatial Relationships:
- Basement

Furniture/Equipment:
- Biomedical waste containers
- Liquid waste containers
- Recycle bins
- Trash bins
- Large freezer for bio-hazards

Environmental conditions:
- General illumination

Code Considerations:
- ADA guidelines
- Chapter 246-329-140 WAC
- Chapter 246-329-160 WAC
Activities:
A space for women to have prenatal visits, labor, deliver, and recover from pregnancy.

Occupants/Users:
- Pregnant women
- Staff
- Midwives
- Doctors
- Family
- Guests

Spatial Relationships:
- Primary access to in-suite bathroom

Furniture/Equipment:
- Queen size bed
- Guest seating
- Side tables
- Large jetted tub
- Baby lavatory
- Telephone
- Clock
- Oxygen
- Five square feet of flat work space
- Clothes closet
- Television-DVD combo
- Built-in Stereo system
- Appropriate storage for oxygen
- Ten linear feet of storage for medical supplies

Environmental conditions:
- General illumination with three way switch with controls near bed on a dimmer
- Task lighting
• Ambient lighting
• Natural daylight
• Views of Nature
• Acoustical privacy
• Air filtration system

Code Considerations:
• ADA guidelines
• Chapter 246-329-140 WAC
• Chapter 246-329-160 WAC
Activities: Attend to personal hygiene

Occupants/Users:
• Pregnant woman

Spatial Relationships:
• Primary access to birth suite

Furniture/Equipment:
• Toilet
• Shower
• Lavatory
• Heat lamp
• Fan

Environmental conditions:
• General illumination

Code Considerations:
• ADA guidelines
• Chapter 246-329-140 WAC
• Chapter 246-329-160 WAC
Activities:
A space for doctors and midwives to perform medical exams.

Occupants/Users:
- Doctors
- Midwives
- Pregnant women

Spatial Relationships:
- Near birth suites

Furniture/Equipment:
- Exam table
- Storage cabinetry
- Lavatory
- Exam stool
- Side chair
- Fetal monitor (mobile)
- Paper towel dispenser
- Hand sanitizer dispenser

Environmental conditions:
- General illumination
- Task lighting
- Ambient lighting
- Natural daylight
- Views of Nature
- Acoustical privacy

Code Considerations:
- ADA guidelines
- Chapter 246-329-140 WAC
- Chapter 246-329-160 WAC
Activities:
Provide massage and acupuncture services to clients.

Occupants/Users:
- Pregnant women

Spatial Relationships:
- Near public restroom

Furniture/Equipment:
- Massage table
- Massage therapist stool
- Storage Cabinetry

Environmental conditions:
- General illumination on a dimmer switch
- Ambient lighting

Code Considerations:
- ADA guidelines
- Chapter 246-329-140 WAC
- Chapter 246-329-160 WAC
Activities:
A space for doctors and midwives to rest, sleep and change clothes.

Occupants/Users:
- Midwives
- Doctors

Spatial Relationships:
- Adjacent to staff restroom
- Near staff offices
- Near staff break room

Furniture/Equipment:
- Bunk bed
- Night stand
- Lamp
- Lounge chair

Environmental conditions:
- General illumination on a dimmer switch
- Task lighting

Code Considerations:
- ADA guidelines
- Chapter 246-329-140 WAC
- Chapter 246-329-160 WAC
Activities:
A space for hygiene, changing and getting ready for yoga/prenatal classes.

Occupants/Users:
- Clients

Spatial Relationships:
- Near yoga studio
- Near massage/acupuncture room
- Near family waiting room

Furniture/Equipment:
- Toilet
- Shower
- Lavatory
- Bench seating
- Full length mirror
- Robe hooks

Environmental conditions:
- General illumination
- Task lighting
- Fan

Code Considerations:
- ADA guidelines
- Chapter 246-329-140 WAC
- Chapter 246-329-160 WAC
Activities:
A space used for hygiene, applying makeup and dressing.

Occupants/Users:
- Midwives
- Doctors
- Staff

Spatial Relationships:
- Adjacent to staff sleep area
- Near staff offices
- Near staff break room

Furniture/Equipment:
- Shower
- Toilet
- Lavatory
- Lockers
- Bench
- Robe hooks
- Full length mirror

Environmental conditions:
- General illumination
- Task lighting

Code Considerations:
- ADA guidelines
- Chapter 246-329-140 WAC
- Chapter 246-329-160 WAC
Activities:
A space for doctors and midwives to work and have client meetings.

Occupants/Users:
• Doctors
• Midwives

Spatial Relationships:
• Near staff sleeping area
• Near staff restrooms
• Near staff break room

Furniture/Equipment:
• Four desks
• Four task chairs
• Storage cabinets
• Four telephones
• Four computers
• Printer/Copier/Fax
• Shared desk

Environmental conditions:
• General illumination
• Task lighting
• Natural light desirable
• Views of nature desirable

Code Considerations:
• ADA guidelines
• Chapter 246-329-140 WAC
• Chapter 246-329-160 WAC
CLIENT CONSULTATION ROOM
200 SF

Activities:
A space for doctors and midwives to have private client meetings.

Occupants/Users:
- Doctors
- Midwives
- Clients

Spatial Relationships:
- Near lobby

Furniture/Equipment:
- Four arm chairs
- Coffee table

Environmental conditions:
- General illumination
- Natural light desirable
- Views of nature desirable

Code Considerations:
- ADA guidelines
- Chapter 246-329-140 WAC
- Chapter 246-329-160 WAC
OFFICE MANAGER’S OFFICE

Activities:
A space for the office manager to work.

Occupants/Users:
• Office Manager

Spatial Relationships:
• Near reception desk

Furniture/Equipment:
• Desk
• Task chair
• Side chair
• Storage shelves
• Telephone
• Computer
• Printer/Copier/Fax

Environmental conditions:
• General illumination
• Task lighting
• Natural light desirable
• Views of nature desirable

Code Considerations:
• ADA guidelines
• Chapter 246-329-140 WAC
• Chapter 246-329-160 WAC
Reception desk elevation
Lobby/Reception perspective

Family room perspective
Birth suite perspective

Birth suite perspective
In 2006, Americans spent $6714 per capita on health care, more than twice the average of other industrialized countries.