

PERKINS+WILL

# Research Journal



2014 / VOL 06.01



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**SPECIAL ISSUE: INNOVATION INCUBATOR RESEARCH**  
DESIGN INVESTIGATIONS IN PRACTICE

## 07.

### LABOR-DELIVERY-RECOVERY ROOM DESIGN THAT FACILITATES NON-PHARMACOLOGICAL REDUCTION OF LABOR PAIN:

*A Model LDR Room Plan and Recommended Best Practices*

**Shannon Gedey, AIA, EDAC, LEED AP BD+C,** *shannon.gedey@perkinswill.com*

#### ABSTRACT

Epidural analgesia is the most popular method of controlling pain in labor in the United States today, but it has serious side effects and risks for both mothers and babies. Though most laboring American women choose epidural analgesia, it is important not to confuse a hospital's failure to provide options with patient preference. Few large obstetrical units offer LDR rooms that facilitate non-pharmacological pain relief through comfort measures, and more women would choose these methods if they were readily available. Moreover, patients who have the opportunity to choose non-pharmacological pain relief techniques report higher satisfaction with the birth experience. The architectural design of an LDR room can greatly facilitate the use of non-pharmacological techniques for effective pain relief through two primary mechanisms: relaxation through a calm, supportive physical environment, and labor in water. LDR rooms should be designed to incorporate best practices to ensure that laboring women are able to be relaxed and comfortable, that their movement is not restricted, and that their privacy is guarded. This study applies best practices to develop a model LDR room that takes into account current American codes and standards and includes features that facilitate non-pharmacological pain relief techniques.

**KEYWORDS:** Evidence-based design, patient satisfaction, birthing pools/tubs, unmedicated birth, labor aids

#### 1.0 INTRODUCTION

The objective of this research was to produce a model patient room design and recommend best design practices for Labor-Delivery-Recovery room (LDR) design, which facilitates the use of safe and effective non-pharmacological pain relief methods during labor. The methodology for this research included a lengthy interview with an experienced birth educator and doula, a review of existing data from journal articles, books, and online publications, and a comparison of current typical LDR plans from domestic and foreign hospitals.

#### 1.1 Background

In many hospitals, epidural analgesia (pain relief delivered via epidural during labor) is routine and is provided to approximately two thirds of all women who are in labor. It has become the most popular and common labor pain management option for women in North

America. At some institutions, greater than 85 percent of all women in labor request and receive analgesia for labor and delivery<sup>1</sup>. However, epidural analgesia produces common untoward effects on labor (including a drop in blood pressure, decreased blood supply available to the baby, slowed labor, increased risk of needing a caesarean section, and neonate lethargy and difficulty in breastfeeding) and can cause serious or life-threatening complications (including difficulty breathing and permanent nerve damage)<sup>2</sup>. One in 4,000 women will experience a life-threatening side effect from her epidural analgesia, and one in 2,800 experience a serious side effect<sup>2</sup>. Safe and effective non-pharmacological alternatives to epidural analgesia exist and are frequently used by midwives and doulas. One example is the Bradley Method, which aims to reduce pain in labor through relaxation. Another technique is laboring in water. Studies have shown that non-pharmacological pain relief can be as nearly as effective as epidural an-

algnesia, but carry none of the health risks to mother or baby. However, contemporary LDR room architecture often does not facilitate the use of these methods<sup>3</sup>. For example, laboring in water has been clinically shown to significantly reduce pain, however, most LDR rooms do not include a labor pool<sup>4</sup>.

Epidural analgesia rates are highest in high-volume obstetric units. Designers have the opportunity to positively impact the rates of epidural analgesia through the design of LDR rooms. LDR rooms are already being designed to limit medical errors, and this article explores how we can design them to reduce medication risks by facilitating non-pharmacological pain relief strategies.

### 1.2 Patient Satisfaction

Many doctors and nurses believe that pain is the foremost concern of laboring women and that pharmacological pain relief will ensure a positive birth experience and improve patient satisfaction. It is important not to confuse institutional standards with women's preference; in fact, there is evidence that the opposite may be true<sup>3</sup>. Several studies have shown that women who use no labor medication are the most satisfied with their birth, both initially and over time. In a British survey of 1,000 women, those who had used epidurals reported the highest levels of pain relief, but the lowest levels of satisfaction with the birth, probably because of the higher rates of intervention<sup>2</sup>. Another study that compared women who labor in water to those who do not, showed that women who labor in water have a significantly higher level of satisfaction with the birth experience<sup>4</sup>. Competition for maternity patients among hospitals is intense and hospitals are looking for ways to improve their patient satisfaction scores. Offering non-pharmacological options for pain relief is a good business strategy.

### 1.3 Scope

This study focused on the Labor-Delivery-Recovery (LDR) model in large American hospitals. LDR rooms accommodate the birth process from labor through delivery and recovery of mother and baby. They are equipped to handle most complications, with the exception of cesarean sections. This architectural model was selected because it is the contemporary standard in large hospitals.

Outside of the scope of this study are the traditional obstetrical model with separate labor, delivery, recovery, and postpartum rooms (this model is widely consid-

ered to be obsolete), birthing centers, labor & delivery C-section rooms and C-section operating rooms, and Labor-Delivery-Recovery-Postpartum rooms (LDRP's). Although the LDRP model is similar to the LDR model, it includes special provisions for postpartum care - this study is focused only on the labor and delivery phases of childbirth. However, many of the design ideas from this study can be applied to the LDRP model.

### 1.4 Minimum LDR Code Requirements

LDR rooms must have a minimum clear floor area of 340 square feet with a minimum clear dimension of 13 feet (15 feet minimum is preferred to accommodate the equipment and staff needed for complex deliveries). This includes an infant stabilization and resuscitation space with a minimum "clear floor area" of at least 40 square feet. The dimension and arrangement of room must be such that there is a minimum clear dimension of three feet between the sides and foot of the bed and any wall or any other fixed obstruction<sup>5</sup>.

"Clear floor area" is defined as the floor area of a defined space, which is available for functional use exclusive of toilet rooms, closets, lockers, wardrobes, alcoves, vestibules, anterooms, general circulation, and auxiliary work areas. Floor space below sinks, counters, cabinets, modular units, and other wall-hung equipment mounted to provide usable floor space counts toward "clear floor area." An alternate definition is provided by the Illinois Department of Public Health: clear area shall include only useable space within the patient room and shall not include entry or vestibule areas, space required for door swings, or space for fixed, immovable furniture. The bathroom shall not be included in calculating the clear area of the patient room<sup>5</sup>.

### 1.5 The Physiology of Labor, Hormones, and Perception of Pain

During natural labor, the human body produces three main hormones that regulate the progress of labor and birth and influence the perception of pain: oxytocin, beta-endorphin, and adrenaline. Too little or too much of any of these hormones can create a slow, painful labor (Figure 1). Production of all three of these hormones is strongly influenced by the emotional state of the laboring woman, therefore, relaxation is critical to controlling labor pain.

Darkness spurs the body to produce melatonin, which in turn increases the production of oxytocin. This is why so many women go into labor at night and why labor so

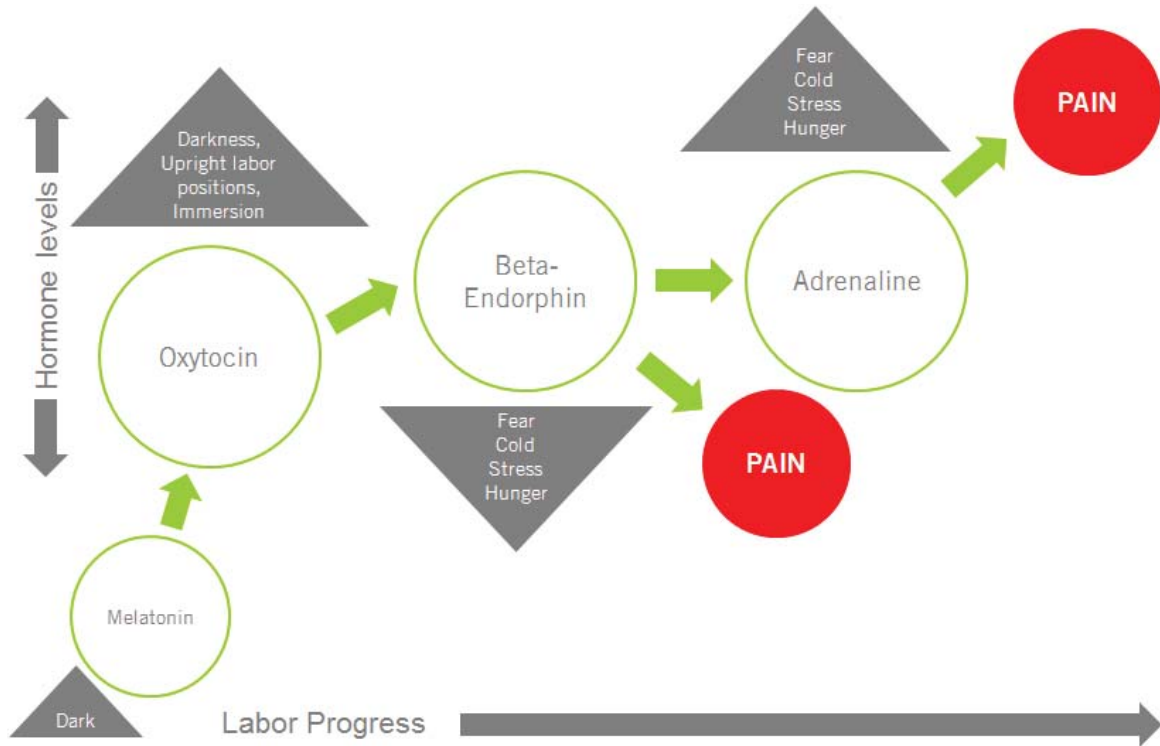


Figure 1: Physiology of labor, hormones and pain.

often stalls in a brightly lit clinical setting<sup>6</sup>. Oxytocin is the hormone that causes the uterus to contract during labor. Levels of oxytocin gradually increase throughout labor and are highest around the time of birth, when it contributes to the euphoria and receptiveness to her baby that a mother usually feels after an unmedicated birth. To promote oxytocin levels, it is important for the mother to stay calm, comfortable, confident, and to avoid upsetting disturbances. Upright labor positions increase the pressure on the pelvis, which increases oxytocin production. Dim lighting is also linked to oxytocin production. The presence of oxytocin influences the production of endorphins.

Beta-endorphin is the stress hormone that builds up in a natural labor to help the laboring woman transcend pain. Low levels of endorphins can cause labor to slow and become excessively and intolerably painful. A laboring woman can enhance her production of endorphins by staying calm and comfortable and avoiding upsetting disturbances.

Adrenaline is released under stressful conditions and levels naturally increase during an unmedicated labor. At the end of an undisturbed labor, a natural surge in these hormones gives the mother the energy to push her baby out and makes her excited and fully alert at first meeting with her baby. However, excessive levels of adrenaline caused by hunger, fear, cold, or a perception of danger actually inhibit labor and exacerbate the perception of pain<sup>2</sup>. In North America, mortality rates for both mothers and babies demonstrate that it has never been safer to have a baby<sup>7</sup>. However, it appears that many women have never been more frightened of the process<sup>3</sup>. Adrenaline levels can be kept in check by staying well-nourished, warm, calm, comfortable, and relaxed; by being in a peaceful environment; and by being supported by people who can suggest comfort measures and offer positive encouragement. A review of 51 studies including 3,663 subjects found that music reduces pain and reduced the need for pain medication, though the magnitude of the benefit is small<sup>8</sup>.



### 1.6 Effect of Laboring in Water on Pain

While immersion in any depth of warm water (such as in a bath tub) is associated with comfort and relaxation, only deep immersion (such as in a laboring pool) produces significant pain relief through the physiological response of a redistribution of blood volume which stimulates the release of oxytocin and vasopressin, a hormone that regulates pain. Amazingly, this physiological response can produce pain relief that is as nearly effective as an epidural analgesia<sup>9</sup>. The reduction in pain is so similar to the effects of an epidural that some doulas refer to immersion as an “aquadural.” A 2004 British study showed, for women with dystocia (slowed labor), laboring in water for up to four hours reduced the need for epidural analgesia from 66 percent to 47 percent<sup>10</sup>. In a 2009 survey of 12 trials including 3,243 women, the Cochrane Database of Systematic Reviews found that “water immersion during the first stage of labour significantly reduced epidural/spinal analgesia requirements, without adversely affecting labour duration, operative delivery rates, or neonatal wellbeing”<sup>4</sup>.

Laboring under the pressure of a warm shower is also correlated with pain relief. According to the Gate Control Theory, put forth by Ron Melzack and Patrick Wall in 1962, pain can be reduced by “closing the gate,” blocking a painful stimulus. This theory draws from the presence of two different types of nerve fibers. Fast-responding long nerve fibers transmit signals of pressure and warmth. Slow-responding small nerve fibers transmit signals of pain. The Gate Control Theory proposes that pain can be reduced by activating the long nerve

fibers and preventing the smaller nerves from sending pain signals. The continuous pressure stimulation of skin by the warm water of a shower blocks the pain transmissions of the small nerve fibers. Anecdotal evidence by doulas indicates that the pain level of laboring women is reduced by a warm shower<sup>11</sup>. The drawback to this techniques is that the nerves habituate (get used to) the sensation in about 15 to 20 minutes. Therefore, a shower alone is not adequate for continuous pain relief.

### 1.7 The Needs of Laboring Women

Women in labor have specific physical, emotional, and mental needs in order to master the ability to relax completely as a pain relief tool. In his 1965 book, *Husband-Coached Childbirth*, Dr. Robert A. Bradley originally categorized these needs including deep and complete relaxation, quiet, darkness and solitude, physical comfort, closed eyes/the appearance of sleep, and the assistance of a birth partner<sup>12</sup>. A British survey in 2005 further itemized the environmental needs that women rated as important<sup>13</sup>. The three things that women wanted most commonly during labor were: having a clean room, being able to stay in the same room throughout labor, and being able to walk around. Most women also wanted the use of an ensuite toilet, space to move, and a comfortable chair for their birth partner. More than 50 percent of women said that having a birth pool available was at least moderately important, and 30 percent said that it was of high importance<sup>13</sup>. Many of these needs have architectural implications, itemized in Table 1.

# Labor-Delivery-Recovery Room Design

Table 1: Needs of laboring women, comfort measures, and associated architectural implications.

NEEDS OF LABORING WOMEN	Comfort Measures	Architectural Implication
Relaxation	Massage (hand or back)	Provide a comfortable chair, and a shelf for massage/aromatherapy oils
	Clean room	Non-staining, scrubbable interior finishes
	Attractive room and views of nature	Attractive, coordinated finishes and furnishings; abundant windows with views of refuge and prospect nature imagery
Quiet	Control over music	Wire room for digital sound dock
	Reduce noise coming from corridors, and nurse work areas	Excellent Sound Transmission Class (STC) of corridor walls
	Reduce noise coming from other patient rooms (feeling that one isn't being overheard by other patients)	Excellent STC of walls between patient rooms
Darkness & Solitude	Control over visual access to their room	Provide blinds at corridor windows, curtains at doors
	Privacy when people enter the room	Provide curtains at doors
	Control over lighting (on/off/brightness)	Provide dimmable lighting in patient room and toilet room; provide darkening shades at exterior windows
Physical Comfort	Walking/stair climbing during labor	Provide space for walking in room (furniture including bed should be moveable) and in patient corridors; provide therapy stair in patient room
	Hydrotherapy (shower)	Provide ensuite shower with provision to keep birth partner dry
	Hydrotherapy (labor pool)	Provide space in room for labor pool; provide slip-resistant flooring; provide self-serve access to warm dry towels
	Labor aids (birth stools, birth balls, mats, pillows)	Provide ensuite storage space for equipment in a variety of sizes
	Labor aids (rebozo, a traditional Mexican shawl)	Provide grab bar with blocking behind wall for looping a rebozo
	Easy access to a toilet	Provide ensuite toilet
	Access to nourishing food and drink	In-room mini-refrigerator
Birth Partner	Comfortable chair for partner	Provide space for a reclining chair for a support person
	Access to nourishing food and drink	In-room mini-refrigerator

2.0 CURRENT LDR ROOM DESIGN

2.1 Current LDR room design in America

Two typical examples of contemporary American LDR

room plans are illustrated below in Figure 2. These rooms are designed to accommodate the laboring woman and her medical attendants as well as the equipment. They do not provide adequate space or provisions for non-pharmacological pain relief techniques.

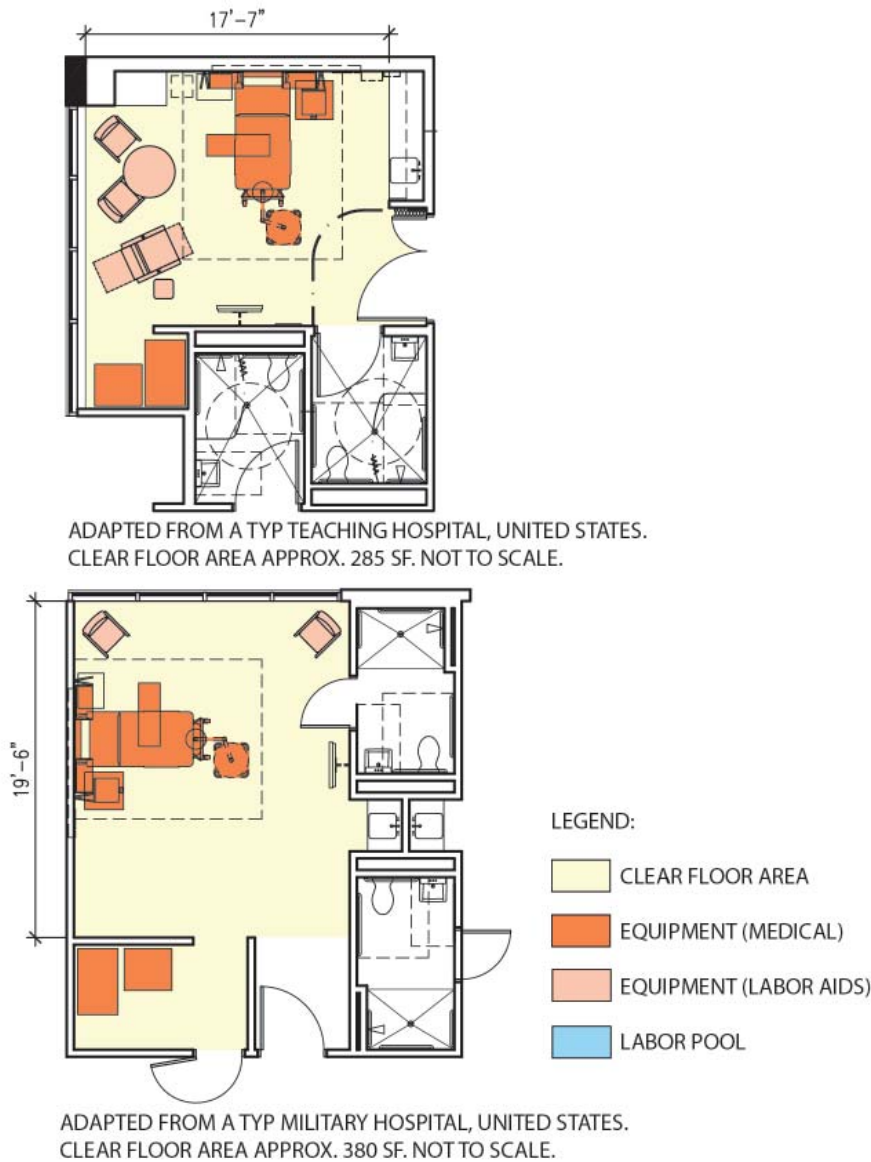


Figure 2: Plans of typical LDR rooms in the United States.

The typical LDR room provides storage space for medical equipment, but frequently not for labor aids. If labor aids are available, they are often stored remotely, in corridor closets that may not be accessible to the laboring woman. The equipment is usually shared between rooms, so labor aids in the correct size or quantity may not be available to each woman<sup>14</sup>. When labor aids are present in the birth room, they may take up so much of the available space that they become a problem. One woman remarked, "...my birth room...made me nervous because it was so full of people and equipment"<sup>15</sup>.

Most LDR rooms do not include a labor or birth pool. Some ensuite toilet rooms include a shallow bathing tub, but this is meant for bathing only and does not provide the same physiological pain relief as a deep laboring pool. Some LDR rooms allow floor space for a portable laboring pool, but the requirements of a mobile pool (remote drains, tangled pump cords, slippery floors) create dangerous conditions for patients and staff, causing staff to limit their use. When a permanent laboring pool is provided it is typically accessible on only one side. This prevents it from being used as a birthing pool which is required to be accessible on a minimum of three sides<sup>14</sup>.

Ensuite toilet rooms are standard in new construction, but are not yet required for older facilities<sup>5</sup>. The toilet rooms typically include a shower, but do not include provisions to keep birth support partners dry<sup>14</sup>. Night lights in toilet rooms are not currently required by code so they are typically not provided<sup>5</sup>. The toilet room offers space for several comfort measures such as a warm shower or privacy, but without a nightlight, these activities must either be conducted in darkness with the door closed, in the bright light of the toilet room, or in semi-darkness with the door ajar, lacking privacy.

LDR rooms are designed to be as compact as possible to maximize patient capacity while reducing nurse travel distances. However, these rooms do not provide adequate space for laboring women to move. As a result many women walk in institutional-style corridors that do not allow privacy and relaxation. Almost 85 percent of women surveyed said that "being out of sight of others" while walking was important. One woman commented, "...there was nowhere in the busy wards to walk. I felt in the way, but my room was so small, I could only do three paces back and forth"<sup>15</sup>.

Since the 1980's, there has been a trend toward attractive, hospitality-type finishes in LDR rooms, so most LDR rooms today are designed with a home-like feel<sup>16</sup>. This contributes to a feeling of comfort and familiarity and is excellent for relaxation during labor. There has been a recent trend toward making food and drink available to laboring women, but in-room refrigerators are not typically provided. Refreshments for birth partners are typically located in a remote lounge or cafeteria.

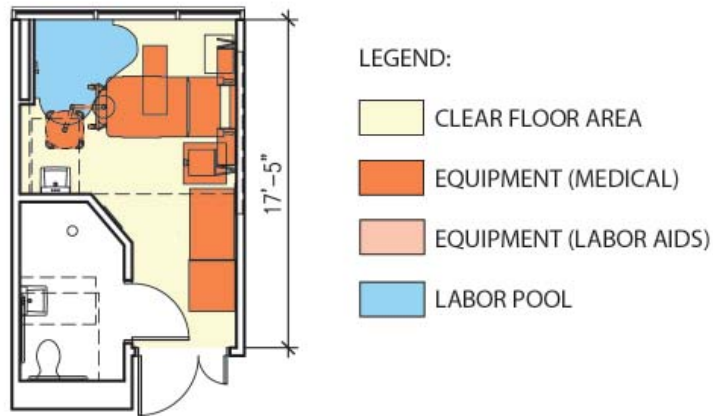
## 2.2 Current LDR Design in England

Two typical examples of contemporary British LDR room plans are illustrated in Figure 3. LDR rooms in England, even in large institutional teaching hospitals, often include a permanent birth pool that is accessible from three sides. These rooms tend to be smaller than their American counterparts and do not generally meet American code requirements for size. British maternity units are commonly staffed with midwives and doulas that are trained in non-pharmacological pain relief techniques. The LDR rooms usually provide in-room storage for both medical equipment and labor aids and have access to an ensuite toilet room. Due to the small size of the patient room, the patient bed is sometimes stored outside the room when the birth pool is in use.





ADAPTED FROM COSSHAM HOSPITAL, ENGLAND.  
CLEAR FLOOR AREA APPROX. 285 SF. NOT TO SCALE.



ADAPTED FROM NORFOLK AND NORWICH HOSPITAL, ENGLAND.  
CLEAR FLOOR AREA APPROX. 125 SF. NOT TO SCALE.

Figure 3: Plans of typical LDR rooms in British hospitals.

## 3.0 BEST PRACTICES & MODEL LDR DESIGN

### 3.1 Best Practices

LDR rooms should be designed to meet standards that incorporate best practices to ensure that laboring women are able to be relaxed and comfortable, that their movement is not restricted, and that their privacy is guarded. Women should have every opportunity to ease the pain of contractions without using an epidural analgesia as a first resort because pharmacological methods of pain relief carry additional risks and adverse effects for the baby and mother<sup>15</sup>. Specifically, an LDR room should include:

- An ensuite toilet and shower with dimmable lighting
- Access to a permanently-installed labor/birthing pool
- Sufficient space to accommodate medical equipment, a variety of labor aids, and staff, while leaving room for the woman to walk and try various labor positions

- Attractive, home-like finishes, artwork in a soothing palette, and adjustable lighting
- Privacy features including curtained doors and windows and walls that do not transmit sound
- Access to positive distractions including food, drink, television, and items from home
- Access to comfort items such as warm towels, clean linens, and aromatherapy/massage oils
- Support for birth partners including food and drink, comfortable seating, and dry space in toilet rooms
- Abundant windows with refuge and prospect nature imagery, and room darkening shades.

### 3.2 Model LDR Patient Room

By applying the best practices categorized above to the plan of a typical LDR room, a model LDR room was developed that takes into account current American codes and standards and includes features that facilitate non-pharmacological pain relief techniques.

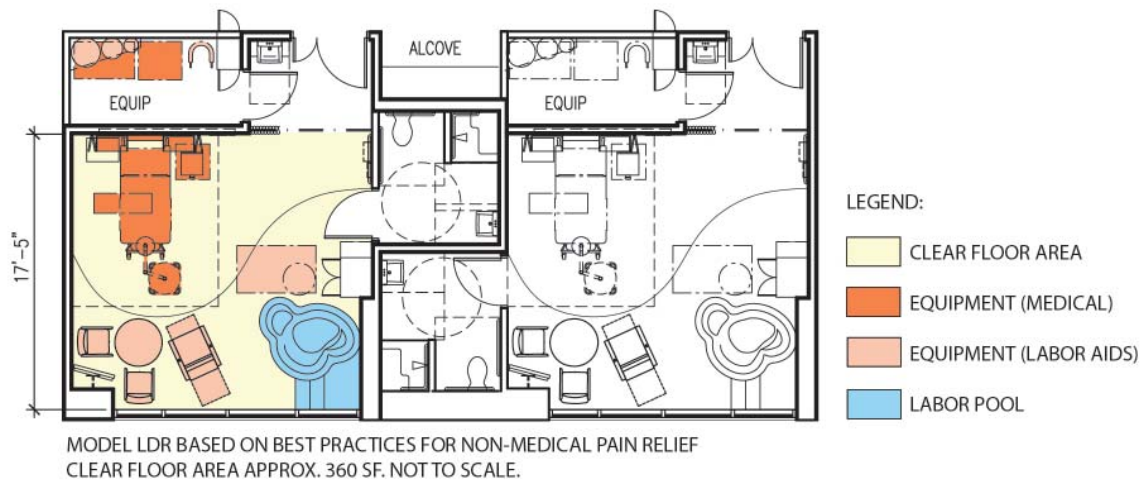
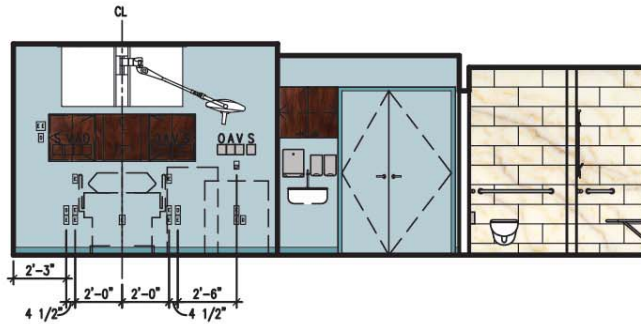


Figure 4: Plan of a pair of model LDR rooms.



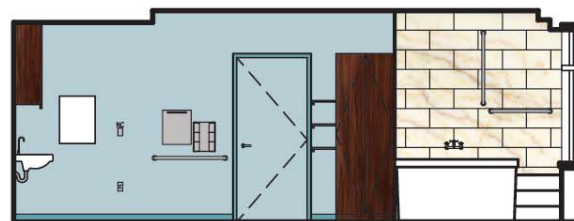
**1** NORTH ELEVATION  
NTS



**2** WEST ELEVATION  
NTS



**3** SOUTH ELEVATION  
NTS



**4** EAST ELEVATION  
NTS

Figure 5: Elevations of a model LDR room and ensuite toilet room.

The model LDR includes a permanently installed, deep labor/birth pool that is accessible on three sides and has permanent plumbing connections. A wardrobe fitted with a blanket warmer is located adjacent to the labor pool for storage of warm, dry towels. A variety of stock and custom labor pools are available and this model includes a built-in access stair alongside the pool. The stair doubles as a therapy stair and can be used as a labor aid to reduce pain.

The finishes in the model LDR room have been selected for attractiveness and safety. The pool and toilet “wet area” is demarcated with attractive, slip-resistant flooring for safety, while the patient area at the bed is defined by durable and attractive wood-look product. At the headwall, the medical gasses and equipment are readily available, but concealed behind an attractive cabinet. Furnishings, artwork, and curtains have a home-like feel to create a welcoming space. A safe and attractive room reduces the stress response in laboring women and reduces the perception of pain.

The model LDR room has plenty of space for staff, medical equipment, labor aids, and space for the woman to move about. Rhythmic movement and upright postures help women cope with the pain of contractions, so there is space to walk around<sup>17</sup>. A grab bar mounted on one wall can be used for tethering a rebozo (a traditional Mexican woven shawl). Gentle movement with a rebozo can be used to ease severe back pain during labor and provide comfort during natural birth<sup>18</sup>. The presence of a birth partner is critical to many comfort measures during an unmedicated birth so variety of comfortable seating options have been provided<sup>12</sup>. The recliner and chairs provide space for relaxation, massage, and rest for a birth partner.

The exterior wall has plenty of windows. If an attractive view of nature can be created outside, this too can reduce pain. Studies have shown that nature images that combine a mix of refuge (imagery that communicates a place to hide in a potentially dangerous situation) and prospect (imagery that offers a view into the distance) yielded the lowest pain response among surgery patients<sup>19</sup>. Room-darkening shades and dimmable lighting are provided to allow the laboring woman to choose darkness to increase her body’s production of melatonin and oxytocin and as a comfort measure to reduce pain.

Storage has been provided inside an ensuite storage room for both traditional medical equipment as well as a variety of labor aids. Storage space dedicated to each

LDR room ensures that clean labor aids in the correct size and quantity will be immediately available to the patient. The portable labor aids depicted in the storage room include a floor mat, therapy balls on a wall-mounted ball rack, and a birth stool. A pass-through linen/supply nurse server has been located along the corridor wall to allow self-service from inside the room and easy restocking for hospital staff. Access to clean, dry linens preserves a woman’s comfort and dignity and allows her to relax. The storage room also has space to accommodate a small dorm-style refrigerator for snacks and drinks. Familiar foods serve as a comfort and a positive distraction that reduces the perception of pain. Further, having on-demand access to foods prevents a laboring woman from becoming overly hungry and triggering an overproduction of adrenaline that increases pain.

Other positive distractions that have been provided in the room include a wall-mounted television and space in the wardrobe to store familiar items from home. There is a small shelf for aromatherapy/massage oils or other comfort items. The room is wired for sound from a portable music player, allowing the patient to control the selection and volume of music.

The patient room includes an ensuite private toilet with a hand-wash sink, toilet, and stand-up shower. Laboring women often need to void their bowels frequently, and it can be difficult to distinguish between pressure in the bowel and pressure from the baby’s head as delivery approaches. Immediate access to an ensuite toilet enables a woman to remain relaxed without fear of soiling herself or her room. One study showed that 70 percent of women rated the presence of an ensuite toilet as “highly important”<sup>15</sup>. The design complies with the standards of the American Disabilities Act (ADA). Although not all LDR toilet rooms are required to be accessible, the standards are intended to accommodate a patient and a support person, which is how even able-bodied patients frequently use this room. Further, many women find the toilet to be a comfortable place to labor, and the accessible grab bars can be helpful with positioning. Therefore, it is good practice to comply with the ADA requirements in the typical LDR toilet. The shower design incorporates a linear drain at the threshold and a shower curtain, allowing a support person outside the shower to keep dry. The toilet room is equipped with dimmable lighting to create a private, safe, and nurturing environment.

Auditory and visual privacy are critical to non-pharmacological pain relief during labor. Relaxation during labor is difficult to achieve if the woman feels her vocal-

izations are being overheard in the corridor or adjacent rooms. To create privacy, the walls between the patient room and surrounding areas are designed with double layers of gypsum board, metal studs located 24" on center, and sound absorptive material on both sides. This assembly provides the highest Sound Transmission Class that can be achieved with gypsum board construction<sup>20</sup>. For relaxation, a laboring woman also requires direct control over visual access to her room and privacy when people enter the room<sup>14</sup>. To meet these needs, a vestibule with cubicle curtain is provided at the entry. This allows the visitor to enter without exposing the laboring woman.

### 3.3 Architectural Trade-offs

As with any design decision, there are architectural trade-offs associated with the best practices recommended above. Larger LDR rooms create longer travel distances for staff and reduced floor plate efficiency. The model room plan above occupies only approximately 20 square feet more clear floor area than codes require. Permanent birth tubs occupy costly floor space and may not be used by all patients. However, by providing a labor pool in the LDR room, a bathing tub can be eliminated from the patient toilet, reducing the floor space required by the toilet room by about three square feet. Ensuite storage rooms require additional area in LDR rooms. However, because an equipment storage room has been provided ensuite, a separate unit equipment storage room can be eliminated or reduced.

### 4.0 CONCLUSION

Epidural analgesia is the most popular method of controlling pain in labor in the United States today, but it has serious side effects and risks for both mothers and babies. Yet, greater than two-thirds of women who labor in hospitals choose this option while a mere 10 percent choose a natural birth with non-pharmacological pain relief. However, it is important not to confuse a hospital's failure to provide options with patient preference. Few large obstetrical units offer LDR rooms that facilitate non-pharmacological pain relief through comfort measures, and surveys show that more women would choose these methods if they were readily available<sup>12</sup>. Moreover, patients who have the opportunity to choose non-pharmacological pain relief techniques report higher satisfaction with the birth experience. The architectural design of an LDR room can greatly facilitate the use of non-pharmacological techniques for effective pain relief through two primary mechanisms: relaxation through a calm, supportive physical environment, and labor in water.

This approach is an example of evidence-based design (EBD), a burgeoning trend in healthcare design. Hospitals are increasingly demanding that architects think about physical environments in the same way that doctors think about medicine and base design decisions on sound evidence.

While trade-offs exist, particularly with regard to the increased size of the model LDR room, the benefits are enormous. The model patient room and recommended best practices require a modest increase in floor area. In return, they can reduce medical risk for patients, improve patient satisfaction, and create unique and valuable marketing opportunities for hospitals and the architects who design them. In the competitive environment of healthcare, obstetrical units would do well to incorporate these best practices into their LDR rooms.

### Acknowledgments

The author wishes to recognize the significant contributions of Juli Billings Walter, AAHCC, IBCLC, CD (DONA), who inspired this research and provided insight into the patient, care-giver, and support-provider experience of hospital birth. The author is also grateful for the support and guidance from Brent Hussong at Perkins+Will for his assistance on this article.

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