PART TWO:

CASE STUDY ANALYSIS
CONVERSION TO LDRP SYSTEM AT ST. FRANCIS HOSPITAL - EVANSTON, ILLINOIS

ARCHITECTS

Matthei and Colin Assoc.- Chicago, Ill.

DESCRIPTION

The hospital administration decided to remodel the existing obstetric unit to become a single room maternity care (LDRP) unit. The footprint, square footage, windows and vertical shafts were given as restrictions to the architects.

The unit consist of 16 LDRP units, including 2 high risk LDRP units, 1 for antipartum and labor for planned c-sections, a small well baby nursery, intensive care nursery, and c-section delivery/recovery suite.

The are 1575 births per year. There are times when the unit is filled to capacity and patients must by moved to other floors to make room for women in labor. Length of stay is from 24 to 48 hours.

POSITIVE FEATURES

Patient response to the new facility has been overwhelmingly positive.

The philosophical approach to birth at this facility is very flexible and individualized. Midwives, physicians and nursing staff work together offering women personalized options and the LDRP system of care helps accommodate this philosophy.

Every LDRP unit has one or two windows, its own bathroom with shower and comfortable furnishings and comforting finishing materials. The halls are pleasantly lit and carpeted, encouraging women to use the space to be mobile
during labor. The nurses' station and family lounge are centrally located. Equipment is decentrallized in equipment rooms shared by LDRP units all over the floor.

The single room maternity care system requires the cross-training of nursing staff, which is resistent to this change in responsibilities. It has been resolved by giving nurses the option to cross-train in one additional area of their choice.

From the architect's point of view, the space restrictions forced many LDRP units to have a long, narrow configuration, which can result in a bottleneck around the end of the birthing bed. The limited square footage resulted in a very small and inadequate nurses' lounge. A small conference room doubles as a physician's lounge and is inadequate as a relaxing retreat.
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ST. FRANCIS HOSPITAL
STAFF RETREATS AND WORK SPACES
1. The doctor's lounge/conference room is a place for physicians and midwives to rest and socialize, but still be centrally located to the LDRP units.
2. The central hub of the three wings of LDRP units contains the nurses' work areas and nurse and doctor offices.

SPATIAL ORGANIZATION FOR MAXIMUM EFFICIENCY
1. Equipment storage rooms are scattered throughout the floor, located between every two LDRP units for immediate access.
2. The nurse's station is centrally located at the hub of the three double loaded corridors, allowing for shorter distances for the nurses to travel to each room.

HOME BASE WITH A HOME-LIKE SETTING
1. The LDRP units provide single room maternity care so women stay in the same hospital room from the time they are admitted until they leave the hospital.

PHYSICAL CONTACT BETWEEN PARENTS AND INFANT IMMEDIATELY FOLLOWING BIRTH:
1. The LDRP units are spacious enough and equipped for newborns to stay in the room with parents immediately following birth.

ENCOURAGE MOBILITY DURING LABOR
1. The corridors are wide, carpeted and pleasantly lit, for women who choose to be active during their labor.
2. The waiting room in the center of the floor is used by laboring women to take a rest from walks and to socialize.

SPACE FOR FAMILY OR OTHER SUPPORT PERSON
1. The LDRP units are spacious enough to accommodate additional support people and comfortable furnishings for their use.
2. The centrally located waiting room is available for family members and guest.
The LDRP units at St. Francis Hospital provide space and comfortable furnishings for a support person. Infant warmers and bassinets are used so newborns stay in the room for recovery and postpartum.
ST. FRANCIS HOSPITAL

The lounge/conference room at St. Francis provides doctors and midwives with a retreat space to relax and socialize.
FLOOR ADDITION FOR LDR SYSTEM AT PRENTICE WOMEN'S HOSPITAL - CHICAGO, ILLINOIS

ARCHITECT
Hansen, Lind, Meyer - Chicago, Illinois

DESCRIPTION
The hospital added this department as the fifth floor of the base of the high rise cloverleaf shaped building. The square footage, perimeter and core vertical shaft spaces were given restrictions on the plan.

The department consists of 19 LDR units, 4 operating rooms, a 4 bed recovery room for c-section recovery, 2 bed triage room, which is also used for overflow if the LDR units are full, and one room for non-stress tests. One of the LDR units is for high risk women and opens directly to a c-section operating room.

Average length of stay is 2 days after delivery in a postpartum room on another floor.

POSITIVE FEATURES
The LDR units each have a screened alcove that houses all the equipment needed for labor, birth and recovery. Access is quick, yet concealed when not needed. Each LDR unit has a bathroom with a shower and high quality finishing materials. Most of the LDR units are very spacious.

The main corridor of the LDR department is wide and well lit by a long continuous skylight. All along the hall there are open alcoves to store medical supplies and equipment. One alcove serves as an admissions office. The result is a corridor that is free from obstructions and offers a pleasant place for a woman
in labor or her support person to walk. Each end of the hall has a small lounge which offers an intimate place to relax and/or socialize.

In addition to nurses' and physicians' lounges, there are two staff rooms adjacent to the main nurses' station, where interns, residents, physicians, midwives and nurses can interact regarding their patients and socialize over refreshments.

Although this is a very high-tech hospital (rated level 3, the highest level of care) equipped for the most high risk cases, the philosophy of the administration and nurses is very individually oriented. About 25 births per month are handled by midwives. Although all sophisticated equipment and pain medications are available, they are not pushed on women. Each person is given the choice to be involved in the birth process and make their own decision.

Two of the LDR units have no windows. They do have skylights but the attempt to compensate for outside light is not successful.

The nurses lounge and bathroom are sufficient but very remote from the center of activity, so they are not used as frequently or as long as the nurses would like.

Nurses remarked that some items fixed to the head wall in the LDR units (such as the thermometers and outlets for fetal monitors) are poorly placed, causing some inefficiencies.
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PRENTICE WOMEN'S HOSPITAL
SPATIAL ORGANIZATION FOR MAXIMUM EFFICIENCY
1. The LDR units are clustered close to the nurses' station to minimize footsteps.
2. Every LDR has a nurse charting and preparation area at the room entrance.

HOME BASE WITH A HOME-LIKE SETTING
1. The LDR units offer a large, furnished living space, with luxurious finishing materials, and one space for labor, delivery and recovery.
2. Each LDR has a flexible labor/birthing bed and bathroom with shower.

VARYING DEGREES OF PRIVATE AND SOCIAL SPACE
1. The family waiting room and two lounges at the ends of the hall offer a variety of spaces for semi-privacy and socializing.

ENCOURAGE MOBILITY DURING LABOR
1. The main hall of the LDR unit is very pleasant, and uncluttered by equipment. Lit by skylights in the high ceiling, the women are encouraged to walk, with the end lounges used as resting points.

PHYSICAL CONTACT BETWEEN PARENTS AND INFANT IMMEDIATELY FOLLOWING BIRTH
1. The LDR units are equipped with infant warmers and enough space to accommodate the baby to stay with parents from the time of the birth through recovery. They leave together for the postpartum floor.

OPPORTUNITY FOR THE HIGH RISK MOTHER
1. One high risk LDR unit is adjacent to and opens up to a c-section room, offering the high risk mother the same comforts as other women receive in the LDR units. The recovery room is spacious enough to accommodate newborns. Every effort is made to keep well babies together with high risk mothers.
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PRENITCE WOMEN'S HOSPITAL

The central corridor at Prentice is carpeted and lit by skylights, making it a pleasant place for women to walk.

The lounges at the two ends of the main corridor provide a window lit semi-private space for a rest stop for women trying to walk during labor, or a retreat space for family or support people.
The LDR units at Prentice have beautiful oak finishing materials as well as a fully equipped alcove for storing all medical equipment necessary during the birth process.

The entrance to every LDR unit at Prentice has a charting and preparation area for nurses, which helps them work more efficiently.
NEW LDRP SYSTEM AT ST. MARGARET HOSPITAL - HAMMOND, INDIANA

ARCHITECT
O'Donnell, Wicklund, Pigozzi and Peterson, Architects Inc. - Deerfield, Illinois

DESCRIPTION
The Maternal Care Unit was planned as part of the new building added to St. Margaret Hospital. The unit consists of 17 LDRP units, 6 antipartum/labor rooms for planned c-sections, 2 operating rooms for c-sections, a 2 bed recovery room, an intensive care nursery and a holding nursery for well babies.

There are 1550 births per year. The average length of stay is 2 days. The hospital administration planned this new facilities with the goal of becoming a regional center for maternal care services and is trying to capture a larger portion of the market share.

POSITIVE FEATURES
The architects conducted several meetings with physician and nursing groups to market the single room maternity care concept and to involve the user groups in planning decisions.

The doctor's lounge is very spacious, and well appointed with comfortable furnishings and kitchen area.

The nurse's lounge is large and comfortable, with many windows, a kitchen and eating area.

The LDRP units are the most spacious and well appointed of all the hospitals observed in this project. They are well lit, include mahogany cabinetry to
conceal the head wall, have individual music systems, and a small refrigerator.

There are four pairs of LDRP units in which a sitting room is located between the two LDRP units. This sitting room can function as a place for the support person to rest or retreat for privacy during labor, or is a place to entertain guests during the postpartum stay.

There are four nurse module sub-stations spaced throughout the maternal care floor. Nurses have a home base within close range of their patients that are clustered around that module.

The family waiting room is small and windowless. This poorly designed space was originally designated as the nurses' lounge and the large well lit lounge was for family waiting. The administration decided the better quality space was under utilized by family members (who have open access to the LDRP units and sitting rooms) and was much needed by the nursing staff.

Although the suite/sitting room concept is very successful, it serves only 8 of the 17 LDRP units and causes an inequality of service.

The holding nursery was intended only for times when mothers couldn't care for their own babies and is insufficient at times.

Equipment is stored in alcoves and along the halls all over the floor. There is insufficient space in equipment rooms. The nursing staff complains that they are required to do a great deal of walking down halls to retrieve needed equipment. The beautiful decor of the corridors is spoiled by groups of medical equipment stored out in the open. There could be storage alcoves in each LDRP unit or more storage rooms planned all over the floor.
PHYSICAL CONTACT BETWEEN PARENTS AND INFANT AFTER BIRTH
1. A portable infant warmer and infant head wall in every LDRP unit allows for the infant to remain with the parents immediately following birth.

HOME BASE WITH A HOME-LIKE SETTING
1. Each room is a single room maternity care room. The mother has a room that is her home base for her entire hospital stay.
2. Beautiful mahogany cabinetry disguises the headwall and provides closet space for the patient.

RELAXATION AND COMFORT
1. Views to the outside are provided in every room.
2. Every LDRP unit has a private bathroom with a shower.
3. A music system is provided in the built-in cabinetry in every room.

VARYING DEGREES OF PRIVATE AND SOCIAL SPACE
1. The sitting room in the LDRP suites offers a place to socialize or retreat during labor, as well as a place for a support person while a private exam is going on in the LDRP unit.
2. A curtain slides on a ceiling track at the entry to each LDRP unit providing temporary privacy from the hall.

SPACE FOR FAMILY AND OTHER SUPPORT PERSON
1. Sitting room is provided for retreat.
2. There is enough square footage in the LDRP units so it isn't overcrowded with additional support people.
3. There is a comfortable area in which to relax, with a refrigerator in every room for food supplies.
ENCOURAGE MOBILITY DURING LABOR
1. The circulation path provides a pleasant walking route with short cuts for the laboring woman. The halls are carpeted, well lit and provide a warm inviting atmosphere.

SPATIAL ORGANIZATION FOR MAXIMUM EFFICIENCY
1. Small nurse station modules at four places around the unit decentralize the nurses place of business and keep her located in the area where her assigned patients are located.

IMAGE AND MEANING
1. The control point, an expanse of open counter space, is the major guidepost when patients enter the unit. People can be put at ease by its non-intimidating but professional character and easy access. Triage is adjacent to the entry for immediate access for a determination if a patient will be admitted.

RELAXATION AND COMFORT
1. Because of a high percentage of perimeter space, all LDRP units and large lounges have views to the outside. Most storage and support spaces are located in the core.

CHILDBIRTH EDUCATION CENTER
1. A classroom for pre-natal childbirth classes is located on the premises just as one enters the maternity unit.

STAFF RETREATS AND WORK SPACES
1. A large comfortable lounge is provided for physicians and a separate large lounge is provided for the nursing staff. Accommodations for rest, food preparation and dining as well as socialization is available in both lounges.
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ST. MARGARET HOSPITAL

The LDRP units at St. Margaret have mahogany cabinetry hiding the medical head wall and housing the equipment on rolling carts.

The newborn is intended to stay with the parents immediately after birth and is accommodated by an infant warmer at the time of birth and a bassinet during the postpartum stay.
At St. Margaret Hospital, the nurses' lounge, above, and the physicians' lounge, below, are designed to be spacious, well lit by many windows on two exposures and offer places to relax, prepare foods and dine.
FREE STANDING BIRTH CENTER AT BOULDER WOMEN'S CENTER - BOULDER, COLORADO

ARCHITECTS
Marasco Associates - Colorado Springs, Colorado

DESCRIPTION
The Boulder Women's Center was founded by the Macsalkas: an OB/GYN husband and wife team with a large, established practice in Boulder, Colorado. The two physicians with the help of nurse practitioners attend their client's births.

The Boulder Birth Center occupies the first floor with three birthing rooms, exam room, family room, and kitchen. The obstetrical/gynecological practice occupies the second floor.

There are approximately 250 births per year at this facility. There is the option of transferring women to the community hospital a block away if it becomes medically necessary or if the three birthing rooms are full. So far, since the facility opened in 1987, no one has been turned away. The minimum length of stay after birth is four hours, and the maximum is twelve hours.

The Macsalkas' practice has expanded since the birth center opened and they are investigating some remodelling or expansion plans for their facility.

POSITIVE FEATURES
The feedback about the Center is extremely positive. All prenatal care, childbirth education, birth and postnatal care take place at one convenient building.

The Center was designed with sensitivity to the needs of pregnant and birthing
women. There is parking provided within a few steps of the entrance to the facility. The prenatal care and childbirth education takes place on the second level, accessible by stairs or elevator. A spacious waiting room and playroom is provided.

Women coming to the facility to give birth need only move a few steps from their car to the birthing rooms. This is an important feature for someone in great pain. The birthing rooms are like beautiful bedrooms, with a whirlpool in each bathroom, making the women feel as relaxed and comfortable as possible.

Family members who are present at the birth have access to a large family room and kitchen right outside the birthing rooms. Nursing staff is provided with a sleeping room and large private bathroom.

**NEGATIVE FEATURES**

The nursing staff is responsible to do all the laundry to keep the facility supplied with clean linens. The utility area for the washer and dryer is insufficient for the amounts of laundry needed to be done. Two sets of machines would allow the staff to work more efficiently.

The very limited length of stay after birth is a cause for dissatisfaction. Women can stay overnight if they give birth during the day, only if there is no one waiting for the use of a birthing room. Perhaps, if the facility could be expanded there could be a greater length of stay.

The three birthing rooms are very different in terms of size, shape, and window exposures. There is a definite preference for one of the rooms which is large and well lit. There is a dislike of the least desirable room, which is smaller and dimly lit.
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BOULDER WOMEN'S CENTER

UPPER LEVEL FLOOR PLAN

LOWER LEVEL FLOOR PLAN
CHILDBIRTH EDUCATION CENTER
1. The large waiting room is used for childbirth classes because it offers seating as well as open floor space for exercise.
2. The staff conference room is used during classes for refreshments.

STAFF RETREATS AND WORK SPACES
1. On the upper level the staff conference room offers staff a place to rest, interact with each other, and get refreshments.
2. Nurses and physicians have private offices for their own work and to consult with clients.
3. Reception, business office and manager's office are clustered but separated for a well organized work center.

HOME BASE WITH A HOME LIKE SETTING
1. The birthing rooms provide an atmosphere that is one-step away from a home birth. Labor, birth, recovery and postpartum occur in the same room.

ENCOURAGE MOBILITY DURING LABOR
1. The family room and kitchen offer space for the woman in labor to move around in a casual and natural atmosphere.

RELAXATION AND COMFORT
1. The birthing rooms provide comfortable furnishings, views to private gardens, and bathrooms with whirlpool tubs.

VARYING DEGREES OF PRIVATE AND SOCIAL SPACE
1. The family room, kitchen and birthing room allow a woman to decide when she wants to socialize and when she wants to have privacy as the birth progresses.
BOULDER WOMEN'S CENTER

Boulder Women's Center offers one stop OB/GYN and birthing services. It's style is professional, but smaller in scale and less intimidating than a hospital.

The conference room offers staff a place to relax and get refreshments and provides a support space for childbirth classes at night.
These photos of the birthing rooms express the residential character of the Boulder Birth Center.
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BOULDER WOMEN'S CENTER

The Boulder Women's Center provides a comfortable and casual family room for laboring women and their families.

The kitchen at the Birth Center offers all the necessities for refreshments for laboring women, their families, nurses and physicians.