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BIRTH ENVIRONMENTS

Emerging Trends and Implications for Design

Alice Lerman, B.A., J.D., M.Arch.

A project supported by
an American Institute of Architects/
American Hospital Association Fellowship

BIRTH ENVIRONMENTS:
EMERGING TRENDS AND IMPLICATIONS FOR DESIGN

Alice Lerman

Abstract

Problem: In the last two decades remarkable changes have taken place in the American way of birth. A desire for a more humane approach to birthing with the woman rather than the medical team in control has given rise to new design solutions for birthing environments.

Objectives: This monograph describes and critically analyzes the range of birth environments in current use and identifies innovative and successful design features of new maternal care facilities. The monograph offers architects and hospital planners a set of design guidelines for renovating or planning new birth facilities. The recommended design concepts and features are based on users' needs and organizational goals in the birth environment context.

Methods: In additon to a literature review and analysis, on-site post-occupancy evaluations for three types of health care institutions were conducted. Using questionnaires and interviews of medical staff and facility users as well as direct facility examinations, the researcher has developed birthing environment design guidelines.

Pp. iv + 143; plans, illustrations

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INTERVIEWS

The following experts in many different facets of birthing have given their time for interviews and made significant contributions to this project:

Claire Schroeder, Head Nurse of Obstectrics at Rush North Shore Medical Center, Skokie, Il.; Rivka Willick, childbirth educator and birth attendant for the Bradley Method; Carol Siegal, Childbirth educator and birth attendant for the LaMaze Method; Dr. Leonard Fagan, OB/GYN; Chris Ryan, Director of Maternal Care Services at St. Margaret Hospital, Hammond, Ind.; Pam Wolfe, Director of Obstetrics at Prentice Women's Hopsital, Chicago, Il.; Jean Stenske, Director of Obstetrics at Evanston Hospital, Evanston, Il.; Helen Hoffman, Head Nurse at Boulder Birth Center, Boulder, Col.; Judy Duran, Director of Obstetrics at St. Francis Hospital, Evanston, Il.;Eileen Smucker, Certified Nurse Midwife; Claudette Roberts, Director of Child and Maternal Health at Illinois Masonic Medical Center, Chicago, Il.; Cathy Kuffner, Birth Facility Planning Consultant.

THESIS COMMITTEE

The Department of Architecture of the University of Wisconsin-Milwaukee has provided a program which offered the background knowledge and expertise essential to the development of this project.

Uriel Cohen, Gerald Weisman and Donald Moses comprised the Thesis Committee that provided the expert advice and support for the preparation and publication of *Birth Environments: Emerging Trends and Implications for Design.*

BIRTH FACILITIES AND DESIGNERS

The following institutions and the architects who designed them permitted the use of their birth facilities as part of the case study analysis for this project:

St. Francis Hospital, Evanston, Il., designed by Matthei and Colin Associates, Chicago, Il.

Prentice Women's Hospital, Chicago, Il., designed by Hansen, Lind, Meyer, Inc., Chicago, Il.

St. Margaret Hospital, Hammond, Ind., designed by O'Donnell, Wicklund, Pigozzi and Peterson, Architects, Inc., Deerfield, Il.

Boulder Women's Center, Boulder, Col., designed by Marasco Associates, Colorado Springs, Col.

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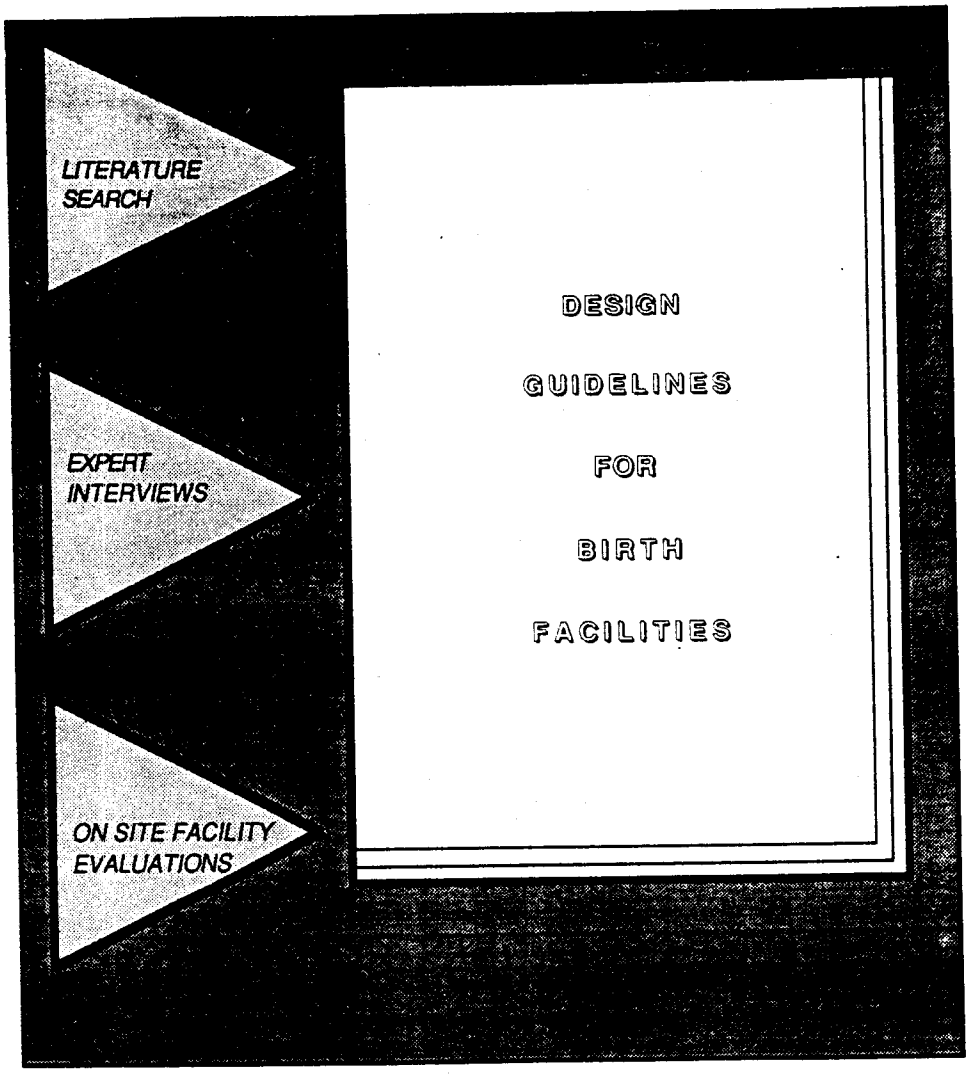
PART ONE:

DESIGN GUIDELINES

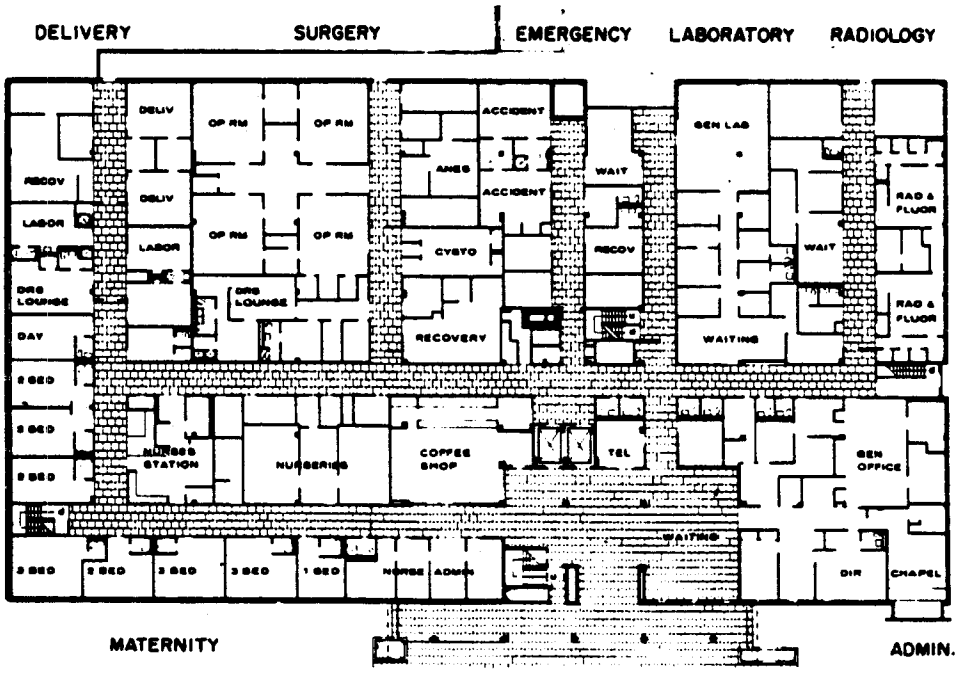


INTRODUCTION: THE CONTEXT I

THE PAST

The traditional mode of delivering obstetric services was established in the post WWII era. Hospital obstetric units built in the 1940's through 1970's consisted of a series of specialized rooms for each stage of the birthing process. Nursing staff was trained as specialists in each stage of birthing.

The labor/delivery nurse worked with the mother in the labor room or labor ward, monitoring her progress from the early and middle stages of labor until just before the birth was imminent. At that time the mother was quickly transferred to a rolling cart and transported to a delivery room, not unlike an operating room. The mother was then transferred to the delivery table.



A hospital obstetric unit designed in the 1970' has separate labor, delivery, recovery, postpartum rooms and large nurseries.(L.Redstone, ed, Hospitals and Health Care Facilities, McGraw Hill, N.Y., 1978, 93)

The trend for birthing went from the 1950's and 60's when most women were asleep and completely confined to bed for the labor and birth, to the 1970's, when pain medications varied from twilight sleep to intravenous pain killers to an epidural spinal injection where the body is numbed from the waist down. More often hospital policy allowed husbands to enter the delivery room and attend the birth. Portable mirrors were brought into the delivery room and the delivery table could incline to offer the woman more flexibility, involvement and awareness of the birth.

From the delivery room, standard procedure was to transfer the woman to a ward-like recovery room to be monitored for one or two hours and then again transferred to her postpartum room. Over this period of time hospital policies regarding baby care evolved from almost total nursing care, in the nursery, to more and more flexibility in allowing the mother (and father) to care for their baby day and/or night. Length of stay in the hospital for postpartum recovery has been shortened from ten days in the early 1950's to five days in the 1970's and down to forty eight hours in the late 1980's and early 1990's. This has been mandated by shrinking insurance coverage.

THE PRESENT

Major changes in birthing attitudes in the last two decades have impacted on the physical environment provided for women and newborns in the birthing process. A variety of designs have proliferated reflecting the range of philosophical approaches to birthing.

The feminist movement of the 60's and 70's resulted in an offshoot movement promoting the use of midwives and natural childbirth methods, taking place in a home environment. The home birth setting gave way to the introduction of non-

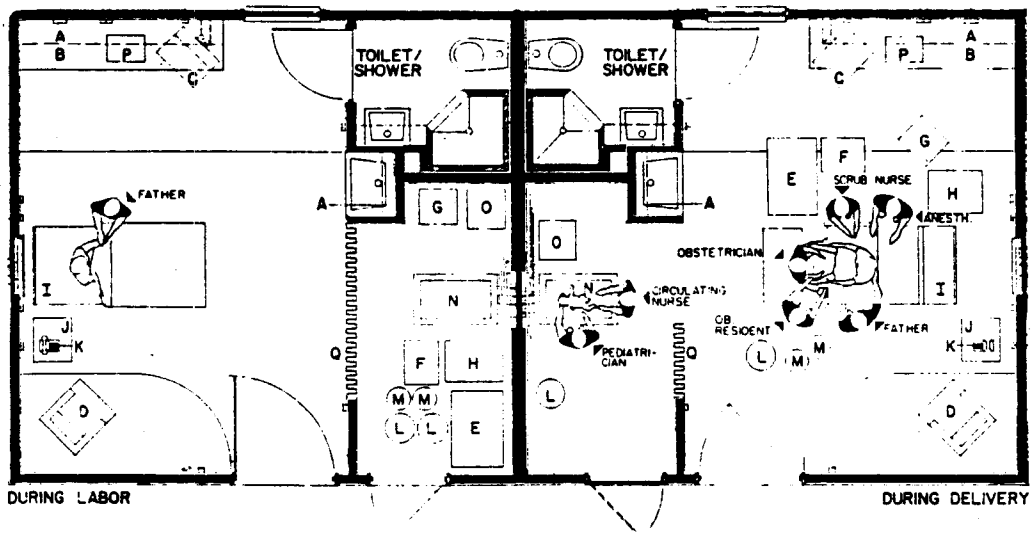
hospital birth centers. The birth centers foster the concept of birth as a family event with control centered on the woman giving birth, aided by her spouse and midwife.

The initial response of hospital planners to the growing natural birth movement was to remodel part of the obstetric unit in order to offer the community one or two birthing rooms. A birthing room was a labor room expanded to include room for equipment to be rolled into position so that birth and subsequent recovery could all take place in the same room. The room was equipped with a bed that could be used for labor and break apart for delivery to take place.

Women who chose to use the birthing room had to make sure the physicians they selected were willing to do deliveries in the innovative rooms. Many older obstetricians resisted change and still preferred to work in the traditional delivery room setting. As the birthing room concept in hospitals became more common and more well known, demand for them by expectant mothers rose dramatically. In order to compete for patients, hospitals increasingly adapted their facilities to offer birthing rooms as an alternative to the traditional setting. New doctors who trained in the 1970's and 80's were exposed to the birthing rooms in their early training and accepted them as an established state of the art delivery environment.

New obstetric units designed in the 1980's and 90's responded to the demand for a home-like environment and single room maternity care by developing the concept of labor/delivery/recovery room, and labor/delivery/recovery/postpartum room in established maternity departments within the hospital. Since women can now select which environment best meets their needs, hospitals have to compete in the

marketplace. Hospitals that provide these new facilities can and do boast that they offer the best of both worlds: the home-like warmth of the birthing room, with the latest technological provisions and medical expertise to ensure the best medical treatment for mother and newborn, should complications arise.



This example of an LDR (labor/delivery/recovery) illustrates how the room can convert to different modes for the different stages of the birth process.(Bajo, 1987)

Obstetrics, over the past decade, has achieved renewed status among hospital departments. The impetus for this development has been the advent of competition among hospitals as a result of changing health care economics and the acceptance of health care marketing as an ethical business activity.

Obstetrics is now considered to be the service leader in establishing patient loyalty to the institution. Innovative maternity programs can increase the

patient volume in other areas, through the women's influence. Since women tend to decide where the family will go for medical care (in 70% of families say some researchers), loyalty won through innovative obstetrics programs transfers to other patient areas. ("Innovations in Obstetric Design" Hospital Administration Currents, 1986, 30(3): 9-14.)

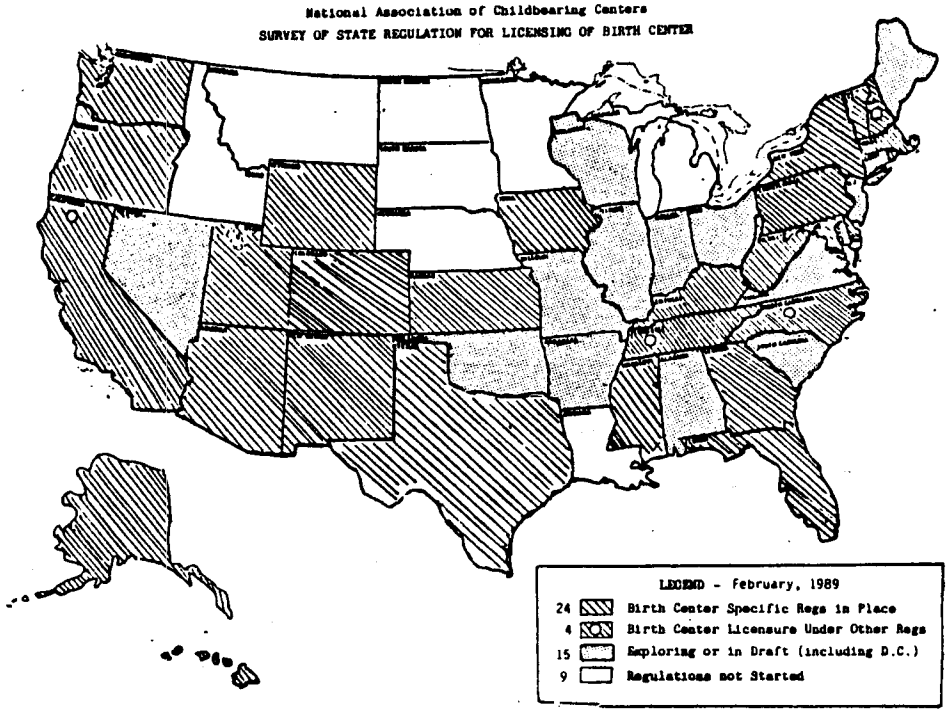
Single-room maternity care requires that hospitals not only make a major financial commitment to their facility but also plan to adopt a new method of care delivery by physicians and nursing staff.

THE FUTURE

Experts in health care facility planning, and specifically birth environments see the future as an unbundling of health care services. More and more procedures and treatments are conducted on an outpatient basis. Maternity care services of less than twenty-four hours is fast becoming a reality as standard insurance coverage continues to decrease. The future of health care services appears to be grouping of most women's health care needs in a separate ambulatory care center associated with a hospital, or a private woman's clinic with easy access to a hospital facility.

Twenty four states already have regulations in place that provide for licensing of freestanding birth centers. Four states license birth centers under other regulations and fifteen states are exploring such regulations from preliminary drafts. These freestanding birth centers, many of which also provide other women's health care services, provide a one stop, convenient, comfortable and economic alternative for women's health care. This is the forefront of women's health care and birthing facilities. Hospitals will adopt the best features of these outpatient clinics to develop satellite or

associated hospital sponsored facilities for obstetric units and women's health care.



SURVEY OF STATE REGULATION FOR LICENSING OF BIRTH CENTERS by the National Association of Childbearing Centers

A GUIDE FOR NEW BIRTH FACILITIES

A documentation of on-site case study evaluations of birthing facilities, together with the background research are integrated into a concise report of specific design guidelines for birthing facilities. This research and the resulting guidelines are intended to provide health planners and architects with research-based information to facilitate more informed design decisions regarding future birthing environments.

THE NATURE OF BIRTH II

PERSPECTIVES:

THE FAMILY

What are the feelings of a woman about to give birth?

For nine months the birth has been anticipated with a mixture of excitement and fear. Regardless of the prospective parents' attitude toward the new child as a welcome addition or a burden to cope with, the birth event itself is a major life experience for all women and most fathers as well.

The greatest fear is the fear of the unknown. Every birth is different and an apparently normal pregnancy can end up with unforseen complications and risk during labor and birth. The greatest concern and hope of all involved is a positive birth outcome. So, of course, the issues of health and safety are the top priority for everyone.

Beyond the requisite concern for safety are a myriad of factors and decisions that the expectant mother will face during the birth process. She will certainly have to cope with pain that intensifies as the birth becomes imminent, to the point of greatest frequency and intensity during the birth itself. The length of time and degree of pain for active labor, transition and birth varies so widely from one person to the next and one birth to the next for the same woman, that unpredictability adds to the anxiety of every birth experience.

A woman in childbirth must decide if she needs pain medications (with the possible risks and trade offs involved) to what extent she wishes to have her husband or other support person present during labor

and birth, and to what degree she will utilize the techniques learned in natural childbirth classes to cope with pain and help labor progress. She may be tied to an I.V. and a fetal monitor from the time she is admitted, or she may be walking around, sitting in a lounge or taking a shower or bath until the labor gets to the advanced stages. The expectant mother may think about these issues and make decisions in advance, but her plans are often modified to some degree because the circumstances of each birth are so unique.

The inherent uniqueness of each birth requires that the caregivers, as well as the physical environment be flexible and prepared for individual differences between women's attitudes and the different physical experiences of each birth.

The physical environment plays an important role in the woman's total birth experience. The ambiance can be intimidating and frightening, or it can be warm and comforting. The environment can accommodate her support person, making him/her feel like a welcome part of the birth process, or the environment can be an obstacle to thwart his/her involvement in the birth. The birth environment can offer every sophisticated medical technology available or it can be devoid of all but the very basic medical interventions and be the next step away from a home birth. Different facilities with a similar approach towards providing a birth environment that appears to be a home-like bedroom setting may be vastly different because of budget considerations. One may have the finishing materials of a luxury five star resort and the other may appear to be a basic roadside motel room version with all the same basic medical equipment just as accessible.

The hospital planner and architect who are responsible for designing birthing environments have a responsibility to the primary user group of the facility - the women who will be giving birth there. Although many crucial issues, such as a positive birth outcome and the degree of pain that will be suffered, are out of his control, the designer can make the birth experience more comfortable, more accommodating and relaxing, and less intimidating than obstetrical units were in the past. This contribution can have a significant positive impact on the total birth experience.

THE PHYSICIANS AND MIDWIVES

While the certified nurse midwife and the physician both have a positive birth outcome as their top priority in every case, they have other goals and interests that may be held in common or are divergent. Although some hospitals have no births attended by nurse midwives and therefore only need to accommodate the needs of physicians, other hospitals and alternative birthing centers have some or all births attended by midwives and must gear the environment to support the style and procedures of all the different kinds of birth attendants that utilize their facility.

All birth environments must provide for the physical needs of the birth attendants who service the facility in terms of call rooms, a lounge with accommodations for relaxation, socializing and refreshments, and a work area to write up reports and exchange information with other medical and support staff. These spaces must have adjacencies that are close enough to the labor/birthing rooms to allow for quick access to a patient in need of his or her attention.

The single room maternity care obstetrical system that is family oriented affords the physician and midwife the opportunity for greater involvement with the family, the time saving convenience of having his/her patients clustered in one area, and positive family feedback regarding the total birth experience.

Physicians' needs for sophisticated medical equipment can be accommodated so that the home-like setting of the birthing rooms converts to a delivery room mode without the necessity of moving the mother.

Certified nurse midwives generally serve fewer mothers and expect to spend a great deal of time with the laboring woman to help her through labor and birth. The design of the facility should keep in mind the midwife's need for a comfortable place to stay many hours in the mother's room, in addition to one or more family members. Midwives generally offer a great deal of encouragement to the woman to use natural means to relax herself and cope with pain. The physical environment should accommodate and encourage these activities.

Often women who choose an alternative birth center and/or a midwife for their birth, intend to involve a greater number of family members, including other children in the birth event. This correlates with a philosophy subscribed to by certain midwives - that birth is a family event that should bring in the whole family. The designer must accommodate the greater number of people and their expected activities.

THE NURSING STAFF

Labor and delivery nurses have a very exciting and rewarding, but highly stressful job. In a traditional hospital setting one nurse was a labor/delivery

nurse, one nurse performed newborn baby care, and a third nurse only worked in postpartum mother care. These highly specialized job slots allowed the nurse to develop a high degree of expertise in one area. However, the drawbacks are multiple transfers of patient and the related duplication of paperwork. This separation of duties necessitates a breakdown in continuous care of the mother over the short time she is in the hospital.

The LDR - labor/delivery/recovery, and LDRP - labor/delivery/recovery/postpartum systems both require cross training of nurses, so that one nurse can care for one mother from the beginning of the birth process through all or most of the time she is in the medical facility. Each nurse has less women to serve, but more time and responsibility for each one they do attend.

Nurses can work more efficiently if the facility is designed to economize on the steps she has to take to do her job. Running long distances between women's rooms, nurses station and storage and supply areas uses up a nurses valuable time and energy. Job satisfaction increases when the work place is designed to work in harmony with the style of service and policies under which the nursing staff operates.

The nursing staff must have relief from their highly stressful and physically demanding duties. The facility design should accommodate the nursing staffs' need for retreat to rest, take refreshments, take care of personal needs and to socialize.

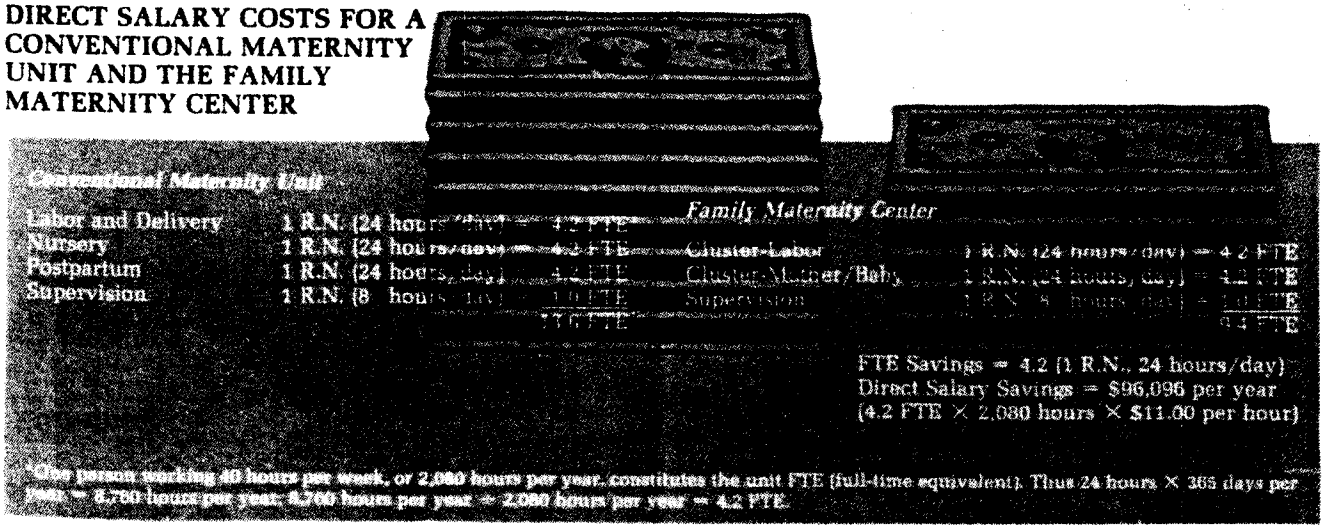
THE HOSPITAL

The hospital's goals for an obstetrical unit are dictated by the realities of hospital economics. A typical hospital administration is concerned with

increasing staff productivity and efficiencies. At the same time, the administration seeks to increase job satisfaction and thereby lower staff turnover.

Single room maternity care helps achieve these goals. By cross training the nursing staff in perinatal areas, hospitals can achieve a more flexible utilization of their staffs.

Marketing of its facility is very important to the hospital. A facility that is designed to be inviting, comforting and attractive, as well as offering all maternity services in one room, will increase consumer response and improve its image and visibility in the community. Studies show that a positive hospital experience for maternity care leads to continued usage of that medical facility by the family consumer group.



The economic effects for a hospital to convert to an LDRP system are shown here. (Bajo, 1987)

It is estimated by Ross Planning Association that 10% to 28% in operating costs can be saved with the LDRP system over the traditional design. The programs below show that LDRP units do not require more square footage than traditional programs. Initial equipment and construction costs can be offset by a decline in operating costs and an increase in revenues due to volume changes. (Hospital Adminstration Currents, vol. 30, no. 3, 1986)

Table1. Functional Program Model for Labor-Delivery-Recovery/Postpartum (LDR/P) Unit With 2,000 Births Annually

No. Units	LDR/P Room Elements	Recommended Sq Ft
1	Early Labor Lounge w/Toilet & Shower	330
20	LDR/P Rooms w/Toilet & Shower	6,000
4	High-Risk Labor/Antepartum Rooms w/ Toilet & Shower	800
1	Cesarean Birth Room	400
2	Triage Room w/Toilet	360
1	Recovery Room (2 beds)	240
1	Control Station	300
1	Medication Preparation	60
1	Physicians Charting & Dictation	60
2	Clean Supply	300
3	Equipment Storage	450
1	Soiled Utility	120
1	Anesthesia Workroom	100
1	Scrub & Gown	60
1	Infant Resuscitation Room	180
1	Female Lockers w/Toilet & Shower	400
1	Male Lockers w/Toilet & Shower	300
1	Lounge w/Toilet	[illegible]
2	On-Call Room(s) w/Toilet & Shower	240
1	Staff Toilet	40
1	Family Room w/Toilet	330
1	Office	100
1	Stretcher/Wheelchair Storage	60
1	Janitors' Closet	30
1	Conference Room (30 persons/classroom style)	450
1	Consultation Room	120
1	Nourishment	100
1	Solarium/Patient Dining Area	330
1	Nonstress Testing (2 beds)	240
1	Dressing Room w/Toilet	80
1	Holding Area for Infants (8 positions)	240
1	Special Care Nursery (6 positions)	600
	TOTAL NET SQUARE FEET	13,650

Assumes: 1.5 days ALOS* Vaginal Birth
4.0 days ALOS Cesarean Birth
(20% cesarean birthrate)

*ALOS = Average length of stay

Table 2. Traditional Program for 2,000 Births Annually*

No. Units	Labor and Delivery Room Elements	Recommended Sq Ft
1	Early Labor Lounge w/Toilet & Shower	330
8	Labor Room w/Toilet & Shower	1,600
3	Delivery/Cesarean Birth Rooms	1,200
1	Triage Room w/Toilet	180
1	Recovery Room (4 beds)	440
1	Control Station	200
1	Medication Preparation	60
1	Physicians Charting & Dictation	60
1	Clean Supply	150
1	Equipment Storage	250
1	Soiled Utility	120
1	Anesthesia Workroom	100
1	Scrub & Gown	60
1	Infant Resuscitation Room	180
1	Female Lockers w/Toilet & Shower	400
1	Male Lockers w/Toilet & Shower	300
1	Lounge	230
2	On-Call Room(s) w/Toilet & Shower	240
1	Staff Toilet	40
1	Family Room w/Toilet	330
1	Office	100
1	Stretcher/Wheelchair Storage	60
1	Janitors' Closet	30
1	Conference Room	450
1	Consultation Room	120
1	Nourishment	100
4	Antepartum Rooms w/Toilet & Shower	800
	Additional Room Elements	
1	Nonstress Testing (2 beds)	240
1	Dressing Room w/Toilet	80
	TOTAL NET SQUARE FOOTAGE	8,450

Assumes: 1.5 days ALOS* Vaginal Birth
4.0 days ALOS Cesarean Birth
(20% cesarean birthrate)

	Postpartum Room Elements	
15	Private Rooms w/Toilet & Shower @ 200 sq ft	3,000
1	Nursing Station	250
1	Physician Charting	40
1	Medicine Preparation	60
1	Clean Supply	200
1	Soiled Utility	80
1	Pantry	100
1	Wheelchair/Stretcher Storage	60
1	Janitors' Closet	30
1	Head Nurse's Office	100
1	Solarium/Dining Area	330
	TOTAL NET SQUARE FOOTAGE	4,310
	Nursery Room Elements	
3	Admission @ 30 sq ft	90
17†	Term Bassinets @ 30 sq ft	510
1	Suspect/Isolation @ 100 sq ft	100
1	Scrub	60
1	Control Center	200
1	Medicine Preparation	60
1	Physicians Charting/Dictation	60
1	Clean Supply	200
1	Soiled Cleanup & Holding	80
1	Procedures Room (Circ)	100
1	Breastfeeding/Demonstration	100
1	Special Care Nursery (6 positions)	600
	TOTAL NET SQUARE FOOTAGE	2,160
	TOTAL NET SQUARE FOOTAGE TRADITIONAL	14,920
	TOTAL NET SQUARE FOOTAGE LDR/P SYSTEM	13,650
	TOTAL NSF DIFFERENCE	1,270
	TOTAL GSF DIFFERENCE	2,032

*Maternity patient occupies four beds from admission to discharge and requires diagnostic testing.

†ALOS = Average length of stay.

‡Represents 110% of postpartum beds to account for multiple births.

III
DESIGN GUIDELINES FOR BIRTHING ENVIRONMENTS

ADMINISTRATIVE PLANNING DECISIONS

Hospital administrators and planners of every kind of birth environment must make a conscious decision regarding their approach to birth. This decision will be based on philosophical, social, and economic factors. Input for the decision making process can involve all user groups - physicians, midwives, nurses, administrators, and the consumers of the services. In that way the essential users can feel invested in this basic policy decision.

This section of the Design Guidelines identifies for planners the various philosophical approaches to birth and the ramifications for the delivery of services by the medical and nursing staff, and for facility design concepts.

Birth facility planners will find that once a general policy decision is reached, there must be a plan regarding what degree of flexibility and deviation from that basic policy will be tolerated under the system adopted by the institution. This flexibility or lack of flexibility will also have major ramifications for the staff and the design of the physical environment.

FLEXIBILITY FOR DIFFERING APPROACHES TO BIRTH

POLICY PLANNING

There are a wide variety of philosophical approaches to birthing. The birthing facility administrators need to decide on a basic philosophical approach and determine how much variation will be allowed for deviation from its policies on the birth process.

Many woman today are primarily concerned with having the "perfect" baby rather than the perfect birth experience. This means they are willing to forego elements of personal control of the birth and a non-intervention attitude, in favor of whatever high tech medical interventions are utilized by the obstetrician who orchestrates the labor and delivery (Wertz,1989).

Other women are very concerned with the concept of "owning the birth" and want to be responsible for the decision making during every stage of the birth. This natural approach to childbirth views the obstetrician or midwife as an "enabler", helping a woman give birth, rather than as a "deliverer" of a baby leaving the mother in a passive role. This approach encourages the use of many techniques for relaxation and mobility during labor, and alternative positions for giving birth, rather than lying horizontally on a bed.

The naturalist approach to birth includes an attitude that the most appropriate environment for birthing is the mother's home, since birth is a natural family event and not a sickness requiring hospitalization. The sterile environment

of the hospital is a negative factor for this group.

Most people fall somewhere in between these two philosophies. Most expectant mothers want to try the techniques they learned in childbirth classes to cope with pain, relax and help the labor progress. But since the pain medications that are now available have much lower risk factors to the baby and still allow the mother to remain alert during the birth, this option is often accepted. Since a positive birth outcome is the ultimate priority, most women will trust their physician or midwife regarding any medical procedures he or she recommends.

DESIGN CONCEPTS

If the birth facility has determined it is interested in adopting an LDR or LDRP system, or an alternative birth center approach, the following Design Guidelines will offer designers of birth facilities a variety of options to offer mothers and families experiencing the birth process.

SPACE FOR FAMILY OR OTHER SUPPORT PERSON

VARYING DEGREES OF SOCIAL AND PRIVATE SPACE

HOME BASE WITH A HOME-LIKE SETTING

RELAXATION AND COMFORT

ENCOURAGE MOBILITY DURING LABOR

PHYSICAL CONTACT BETWEEN PARENTS AND INFANT IMMEDIATELY FOLLOWING BIRTH

OPPORTUNITY FOR THE HIGH RISK MOTHER

BABY CARE BY MOTHER DURING POSTPARTUM STAY

PERSONAL CONTROL AND AWARENESS OF THE BIRTH

NEEDS AND GOALS

In choosing an alternative birth center most women are reacting against hospital care. One of the primary factors is a reaction against a lack of personal control in the hospital. (Annandale, 1987)

The data revealed that although many women chose a birth center because they wanted control of decision making in the birth process, the accounts of actual control were vague and unspecific. The author concludes that information exchanged by the midwives to the patients limited the patients actual control of the decisions during birth (Annandale, 1987) This research leads to the conclusion that the perception or feelings of personal control are more important to women than actual control. Ultimately, most women want to trust the judgment of their obstetrician or midwife. But resentment and dissatisfaction grow when there is disregard of the woman's ability to make decisions and help herself during the birth process.

The concept of "owning the birth", allows the mother to tell herself she worked hard and did a good job. These feelings have a positive psychological effect and start the mother off with confidence that she can manage her newborn(Interview of R. Willick).

Much of the success or failure in achieving a sense of personal control is dependant on the procedures at the

birthing facility as well as the style of care offered by nursing staff, doctors and midwives. Often, the laboring woman is hooked up to a fetal monitor shortly after arrival in her hospital room and the entire birth process is regulated by information from the machine.

The woman's body could provide much of the information necessary to make decisions concerning the birth. Once she is hooked up to the machine, she may give up thinking that her input is important and withdraw from active participation in the birthing process (Jordan, 1987).

It has been shown that the quality of a woman's birth experience not only is important for her own well being, but is increasingly recognized to be of importance for the marital relationship and parenting as well. One study has shown that the level of awareness has a direct and positive correlation in predicting the quality of the women's birth experience (Doering, 1980).

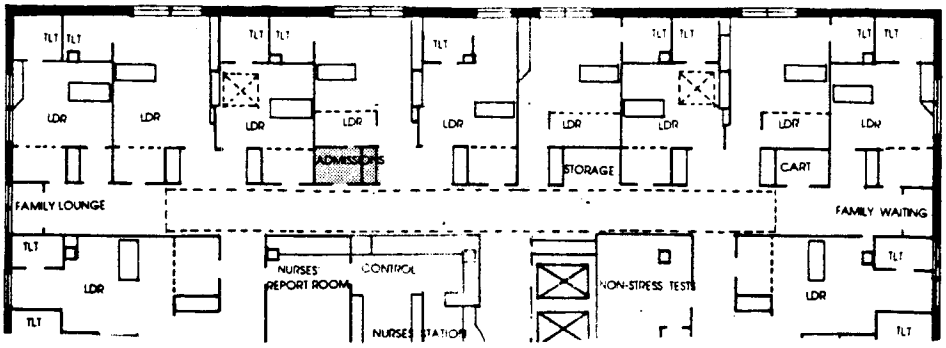
The environment can encourage active participation and awareness of the birth process. The design can reflect the idea that a mother's needs are natural, anticipated and important or that these needs are deviant and unimportant.

DESIGN CONCEPTS

Provide options for the woman to chose various techniques during labor and various positions for birth.

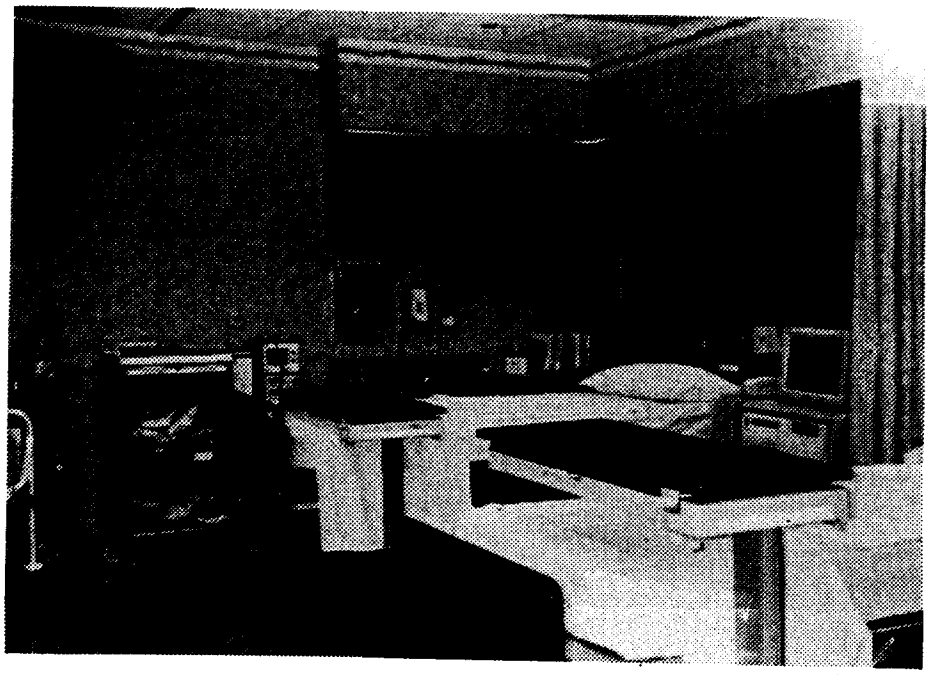
The modern birthing chair supports the mother in the upright position and could be offered to woman, recognizing individual choice and personal control as an important issue.(Dundes, 1987)

A separate room or alcove for admissions should be provided to indicate respect for the woman's right of privacy in disclosing personal information. The woman should not be expected to discuss financial or other personal information in the compromising and undignified hospital gown.



This portion of the plan for Prentice Women's Hospital, Chicago, Il. shows an alcove provided for admissions directly across from the nurse's station, offering a semi-private setting for admissions.

A triage room that is comfortable and private offers the woman a place to stay to determine if the time is right to be admitted into the hospital. Waiting to make the determination to stay in the hospital is a private decision between the woman and the medical staff and should not take place in a public setting.



The triage room at St. Margaret Hospital, Hammond, Ind., next to the entrance to the unit offers a comfortable, private space to determine if the woman is ready to be admitted and have her baby.

STAFF PLANNING DECISIONS

Administrators should recognize that their staff members' job satisfaction and productivity are related to a need for some periodic rest or break times so that professionals can retreat to behind the scenes relaxed behaviors. Some personal time for privacy or semi-privacy offers the professional a chance to become re-energized and refreshed.

In a hospital maternal care unit the professional staff consists of private physicians and sometimes midwives, residents, interns, and nursing staff. The administration should decide how much the hierarchy of status levels of these professionals will be emphasized or downplayed. Larger, more elaborate spaces just for physicians will tend to reenforce their higher status.

If the administration wants to encourage delivering maternal care services as a team effort, the environment can help to encourage communication between different professionals by providing spaces for their common use behind the scenes as well as in public view.

The same issue of professional hierarchy exists in an alternative birth center but on a small scale since these facilities have a much smaller birth and patient populations and a correspondingly reduced number of professional staff people.

Planners should analyze the patient and family flow, nurse flow, and flow of other professionals through the facility. Staff productivity and job satisfaction can be greatly effected by providing an efficient plan, from the macro level (room adjacencies) to the micro level (location of every medical tool, supplies, and equipment).

STAFF RETREATS AND WORK PLACES

NEEDS AND GOALS

Nurses in an obstetrics unit, as well as doctors and midwives, work in a very stressful environment. They need to perform quickly under pressure.

For nurses, the pace shifts from methodical and routine, to very intense as women progress through labor to birth. Often the work load changes dramatically if the beds fill up and women get close to giving birth at the same time. Sometimes the unit is understaffed because of the changing patient population and the nurse is taxed to the limit. She is in need of time to take rest breaks from her demanding duties.

Nurses need private time to rest, as well as some time to interact with her colleagues on a social and professional basis. Access to a source of refreshments and a comfortable place to eat is essential. Hospitals need to provide these amenities to their staffs to promote job satisfaction and minimize turnover.

Obstetricians and midwives often are on call for many hours straight through the night and the next day. Often the job includes great stress and pressure, since people are putting all their trust in the professional's ability to manage the birth process with a positive birth outcome. Doctors and midwives must be able to handle a schedule that shifts dramatically from a slow waiting game, periodically checking how labor progress, to periods of high intensity when the

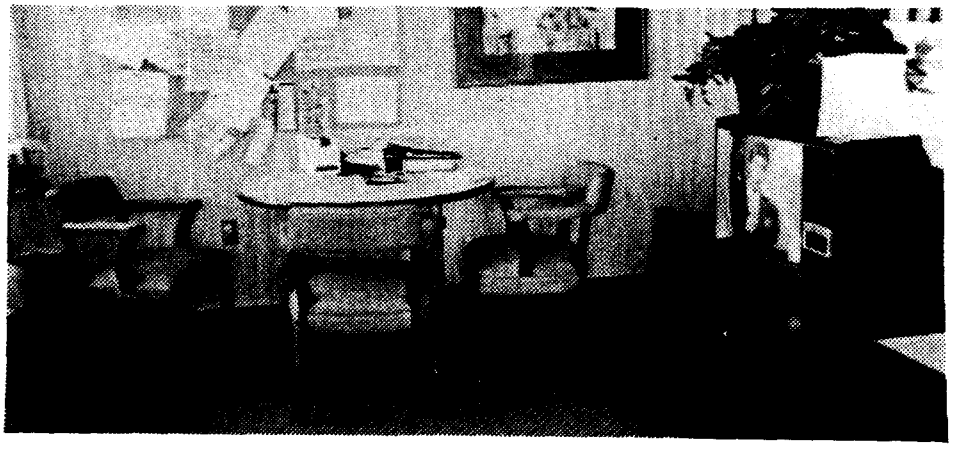
births of one or more babies are imminent.

During the break periods, doctors and midwives need easy access to call rooms where they can rest or sleep in privacy. Private bathrooms with showers for the different groups of medical staff is necessary because of the long hours on call. Doctors and midwives need to have meals and snacks to sustain themselves during their long hours at work.

Besides direct patient care, physicians and midwives have the responsibility to write up reports and communicate with other staff members regarding their patients.

DESIGN CONCEPTS

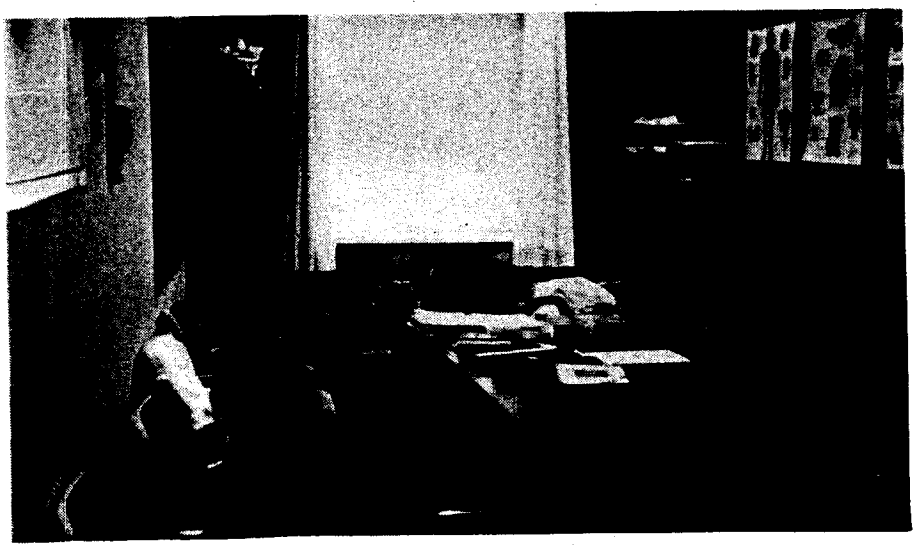
The nurses lounge needs to be a place that offers some privacy for resting as well as a common area for comfortable social interaction. A kitchen facility in the nurses lounge with an eating area will allow the nursing staff the opportunity to bring in food or make simple preparations for their own refreshments. Social time during eating offers another form of relaxation from job stresses .



At St. Margaret Hospital, the nurse's lounge offers a central monitor to keep in touch with patient's status, T.V., kitchenette, eating area, large windows, outdoor terrace, and comfortable furnishings.

At St. Margaret Hospital, Hammond, Ind., the nurses' lounge has a comfortable place to prepare snacks, dine and socialize.

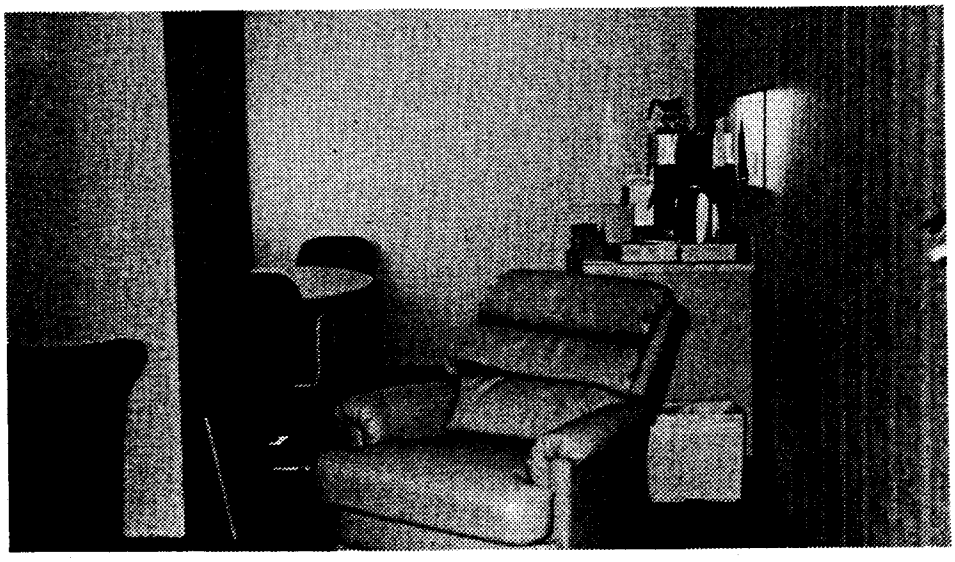
The doctor's and/or midwives lounge must be an area for doctors to socialize and relax in a quiet, non-medical atmosphere. Access to food and drinks is also essential.



At St. Francis Hospital in Evanston, Il., where space was limited, the physicians' social retreat space takes the form of an informal conference room.

Call rooms and doctors' bathrooms provided the medical staff with much needed privacy and secluded sleep. Male and female medical staff must be provided with separate facilities sized in proportion to their numbers.

Easy access from these retreat spaces to the patient rooms is very important. Lounges should be equipped with central monitoring and quick communication to the main nurse's station.



The physicians' lounge at St. Margaret Hospital, Hammond, Ind., provides a combination of elegance, comfort and refreshments for physicians to relax or socialize.

4

SPATIAL ORGANIZATION FOR MAXIMUM EFFICIENCY

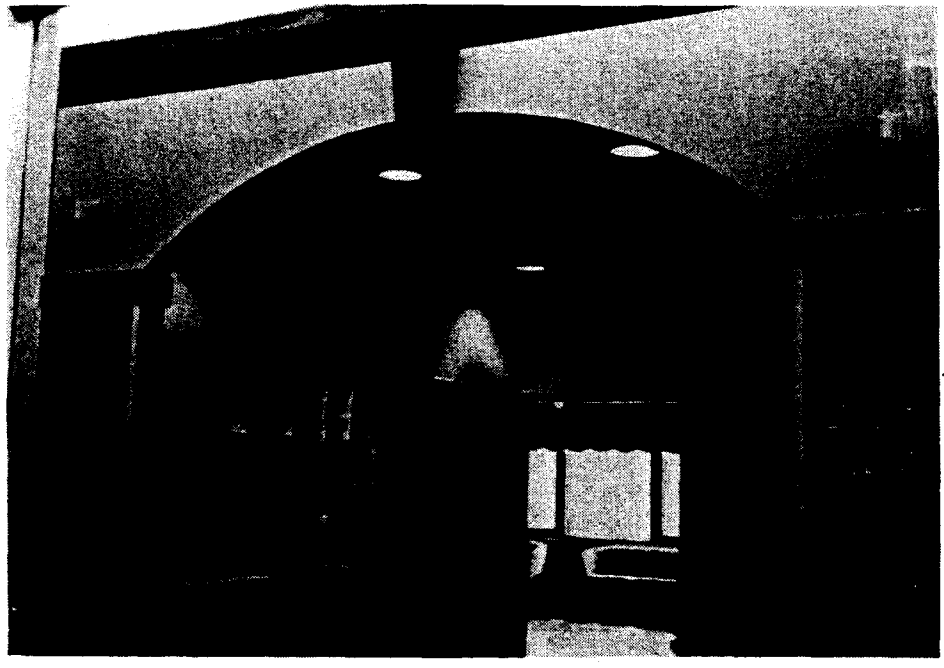
NEEDS AND GOALS

Nurses can work more efficiently, quickly and save energy if unnecessary steps are saved. If one nurse can be assigned to patients in the same cluster or group of rooms she can avoid running back and forth down a long hall to attend to two patients. Medical and patient care supplies sources are accessed frequently, and the extra time and energy it takes to get distant supplies can be spent more productively.

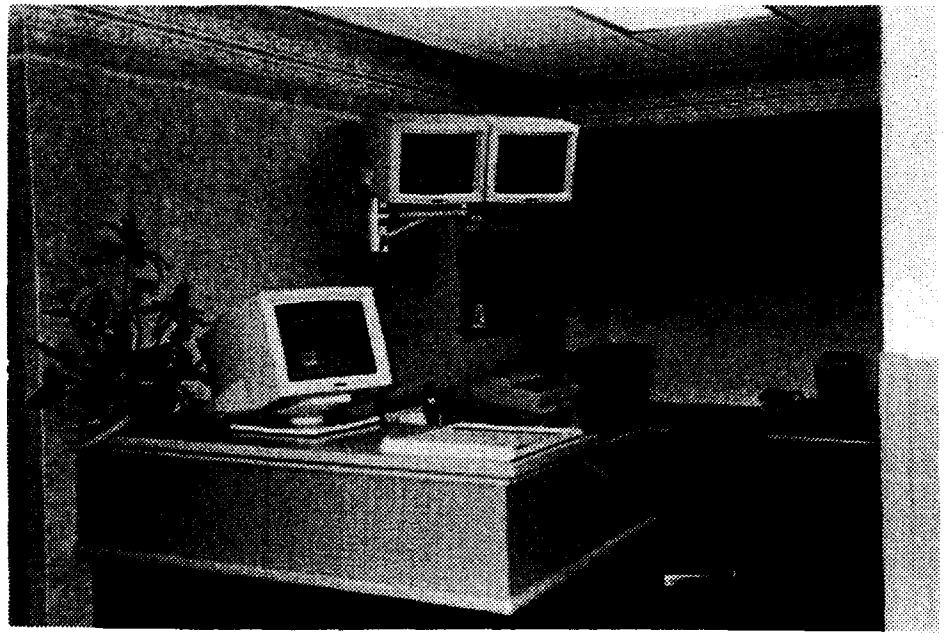
Nurses need to know where to find the medical supplies that are routinely kept in each patient room, to avoid wasting time searching for them. The staff needs to determine which supplies and what quantity of supplies should be maintained in each patient room or in a central supply location.

DESIGN CONCEPTS

Adjacencies: The designer must consider the configuration of the patient rooms and their relationship and distance to the nurse's station. One alternative is to provide nurse substations close to each group of patient rooms. A cluster arrangement can be very successful in saving steps for nurses.

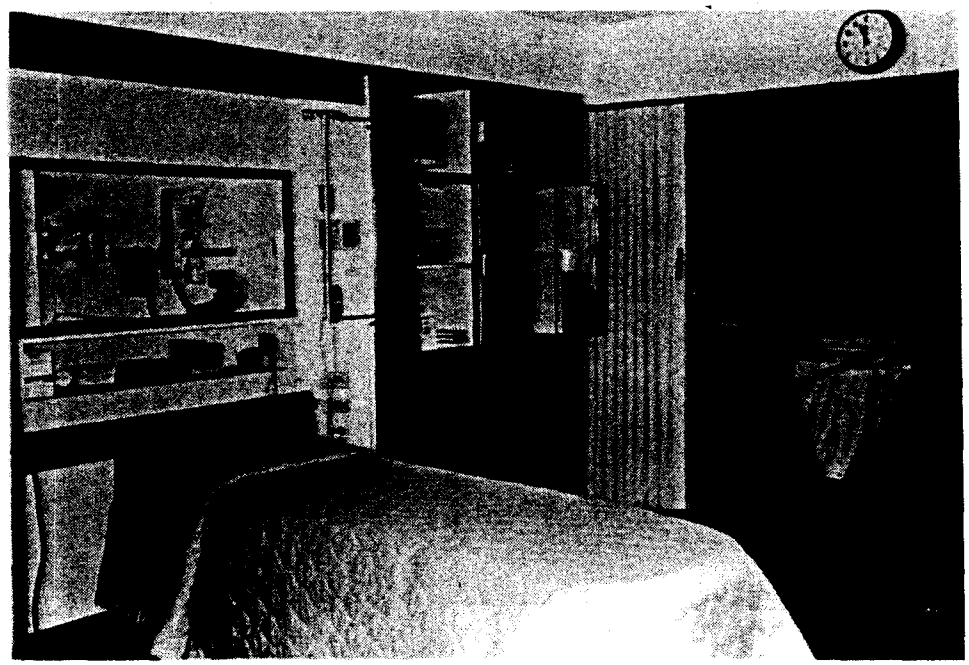


At Prentice Women's Hospital, Chicago, Il., the entry to each LDR unit has an alcove for a nurse charting and preparation center. LDR units are grouped in pairs where feasible.



At St. Margaret Hospital, Hammond, Ind., nurses' modules, or substations are scattered around the unit so that each room is just a few steps away from the nurses' station.

Medical Supplies: Each group of rooms needs easy access to medical supplies, so storage space could be broken down into several smaller rooms spaced out in the unit. Some LDR and LDRP systems have provided each unit with a large storage alcove, (hidden by folding partitions), that houses the rolling carts with the fetal monitor, delivery table, and newborn isolette which are needed at the time of birth. Other units store the rolling carts in central or decentralized storage areas that require the staff to retrieve them as they become necessary.



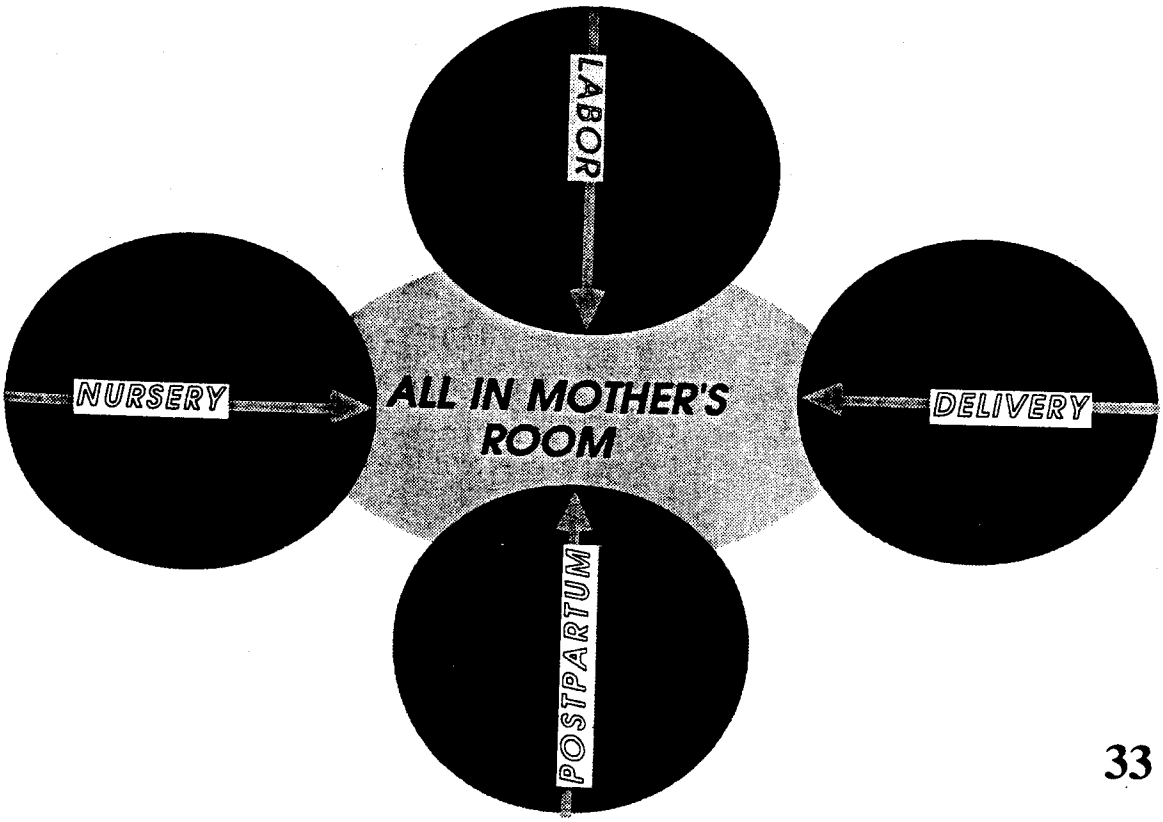
At Prentice Women's Hospital, Chicago, each LDR unit is fully equipped with the delivery table, lights, mirror, infant warmer and fetal monitor all located in an alcove in the unit, behind folding doors.

LDR and LDRP Units in all obstetric units need to be configured the exact same way if at all possible. Every cabinet and every drawer should be in the same place with the same supplies and equipment in each one. This greatly helps the nursing staff work efficiently, from one room to the next.

PLANNING FOR THE MOTHER AND FAMILY

As the primary users of the birthing facility, the mother and her family are the prime target of the facility planner and designer. From a humanitarian and an economic marketing viewpoint, the facility must provide a setting that allows the birth experience to flow as smoothly and enjoyably as possible. The birth event leaves a very lasting impression on those who experience it and influence future health care decisions.

The design guidelines that follow address general issues of setting an image and atmosphere for the facility and very practical issues of providing for the comfort and physical ease in accommodating the birth process. Issues of baby care and childbirth education are presented to provide the planner and designer with all relevant features that the birth facility should offer its users.



5

IMAGE AND MEANING - NONINSTITUTIONAL BUT PROFESSIONAL

NEEDS AND GOALS

The image that a building exterior and interior portrays has become increasingly important as the health care industry strives to market its services to the public.

Women in today's society are increasingly aware and sensitive to the fact that they compose a significant group of health care users. Medical facilities are competing for a greater market share of women consumers. There is evidence that once a woman has a positive experience in the hospital she chooses for maternity care, she and her family will usually return to the same hospital for future medical needs.

An image that portrays the hospital's commitment specifically to women's health care services offers the woman a feeling that she is being treated with honor and respect, and not just an afterthought.

A significant segment of women giving birth perceive the home as the most appropriate setting for birth to take place. They are reluctantly using the medical facility because of factors such as being in a high risk group or need the peace of mind of having medical equipment and staff available, just in case. It is important to dispel the image of a hospital as male dominated, institutional and threatening so that many women can feel comfortable, relaxed and confident that the services offered will be competent, professional and caring.

Building image can have a big impact on the consumer's perceptions.

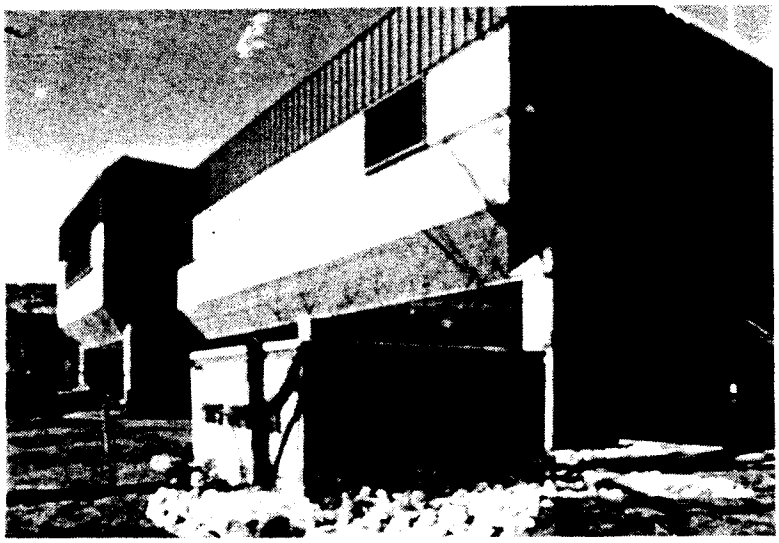
DESIGN CONCEPTS

The image expressed by the interior and exterior design should reflect the hospital's intent to offer the latest in professional medical services with warmth, respect and special sensitivity to women's needs.

The Martin County Women's Center, Stuart, Fla, presents an image that is residential in scale and style that invites women inside.

A separate women's health care facility is the optimal setting for obstetric care. This gives a woman a sense of importance and dignity as she faces the medical establishment. A distinct women's medical center could be connected to the main hospital by physical proximity and/or a sheltered bridge or tunnel for

easy access to centralized labs or common services.



Boulder Women's Center is a free standing birth center. The design is professional, but much smaller in scale than a large hospital, and is located a block away from the hospital it uses as an emergency backup.

A separate women's entrance should be designed as a direct approach to the obstetrics unit, even within a larger hospital setting.

Periodic updates should be planned into the initial design of a birth environment so that the facility always has a fresh, new updated look.

6

HOME BASE WITH A HOME-LIKE SETTING

NEEDS AND GOALS

One of the worst features of the traditional hospital obstetric unit is the need to transfer the mother from one room to the next as she advances from labor to delivery to recovery to postpartum.

At the time of greatest pain and emotional stress, the mother is required to move her body off the labor bed, onto a rolling cart, move through a public hall to the delivery room and then transfer her body to the delivery table. After delivery, her time of joy and release from emotional and physical stress are interrupted by a required move from the delivery room, through the public hall to the recovery room for an hour or two and then another transfer to her postpartum room.

Each time the mother has to come into a strange setting and get used to the new space. Knowing that she will be transferred around leaves the mother feeling that she is always a transient until she finally gets to her postpartum room.

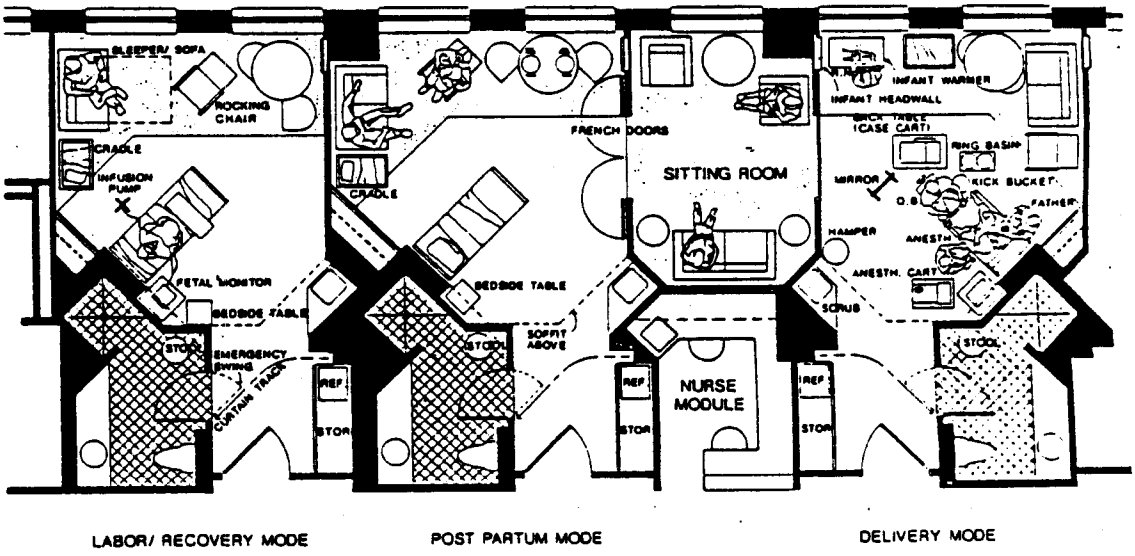
All this can be avoided if the obstetric unit is designed to keep the laboring mother in one place and convert that space as the need arises.

Most women come into the hospital in the beginning or middle stages of labor, when she primarily needs rest and to be observed or monitored on an intermittent

basis. At this stage the LDR or LDRP unit could enforce positive feelings of comfort and familiarity by resembling a home bedroom/sitting room without a sterile institutional atmosphere.

DESIGN CONCEPTS

One room should be provided that accommodates all the stages in the birthing process. This room could appear as a comfortable bedroom with a sitting area, then convert to a delivery mode, and later accommodate a newborn who will stay in the room with the mother until discharge.

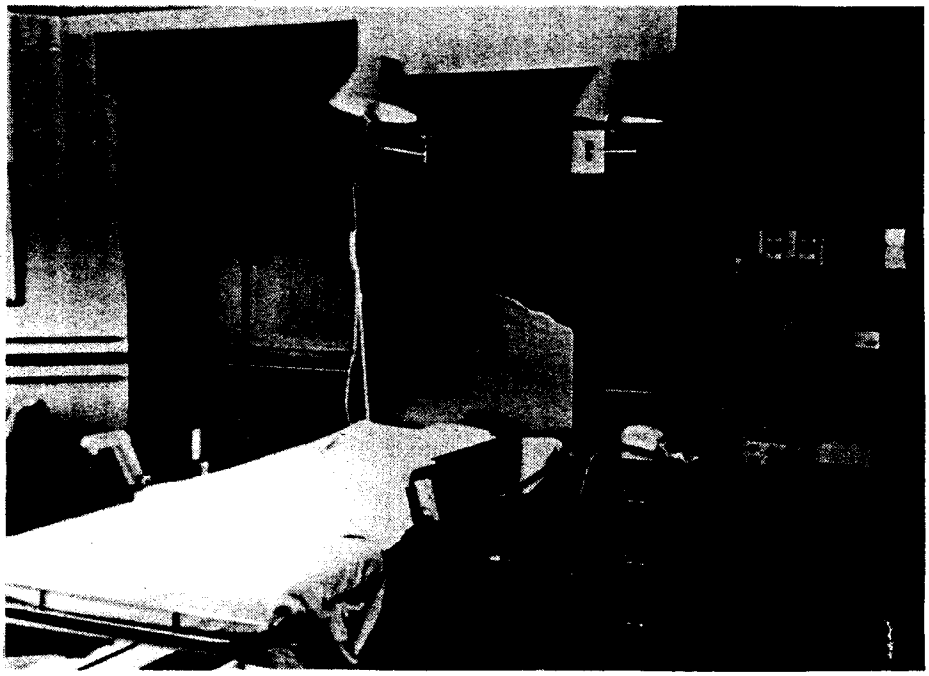


This plan shows how the LDRP units at St. Margaret Hospital, Hammond, Ind. changes for the three different modes of operation.

A home-like environment can be achieved through the use of finishing materials that appear residential, warm and comfortable. Each room can have a large alcove with folding doors or partitions to house all the high-tech medical equipment necessary at the time of birth. If this isn't feasible, rolling carts with the equipment can be moved into the room from holding points in the obstetrics unit.

The birthing room at the Boulder Women's Center is designed as a residential bedroom. This design compliments the low-tech natural birth philosophy to which this birth center ascribes.

The head wall, which is behind the bed, offers access to medical equipment. The head wall has a high-tech medical appearance, and can be kept hidden from view until its use is necessary. The use of cabinet doors which slide or swing open can be integrated with the cabinetry or woodwork in the whole room.



The LDRP units at St. Margaret Hospital, Hammond, Ind., have mahongany built-in cabinetry concealing a high tech medical head wall. After the birth these features are hidden by the sliding panels.

VARYING DEGREES OF PRIVATE AND SOCIAL SPACE

NEEDS AND GOALS

As labor progresses the woman who may have begun her hospital stay feeling sociable and trying to keep active, will gradually become more inward and center her attention on her own body. The facility should offer a continuum of public to private spaces so that the entire spectrum of social to private behaviors can occur comfortably in the environment.

The woman in the birthing process needs the emotional and physical support of her husband or other coach. There are times when she needs total privacy from even these people, such as when she is undergoing certain medical procedures. Women's attitudes toward modesty at these times vary widely, but the option of privacy should be available.

There are times when the support person also is in need of privacy to change clothes or take care of other personal needs.

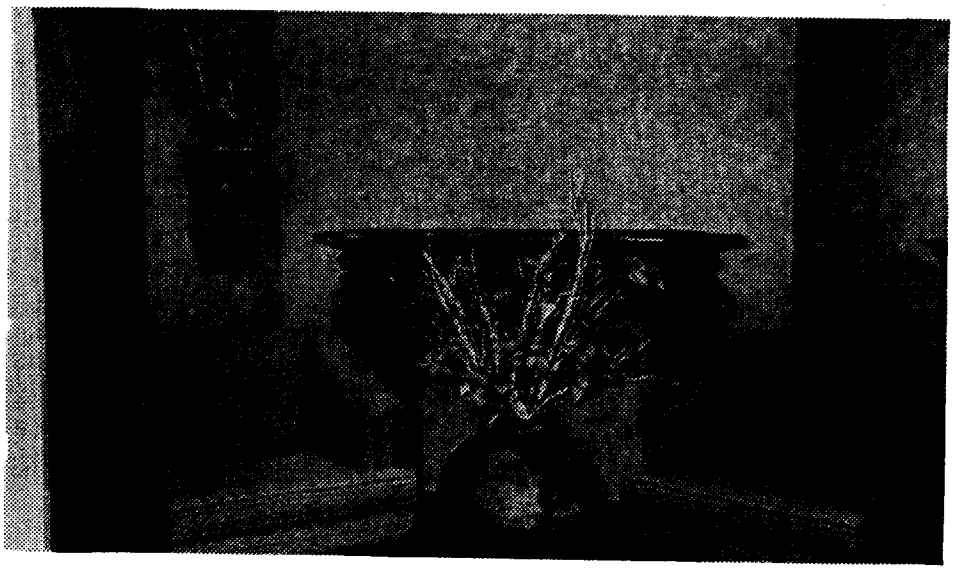
Postpartum is a time when a private room is greatly appreciated. The postpartum period is a time for the new mother to get rest, allow her body to start to recover from the birth and to get to know the new baby. Especially now that the length of stay in the hospital is only one to two days, the postpartum time must be spent achieving these goals, leaving little time to socialize with other mothers. If socializing is desired the mother may spend some time in a lounge area. In older obstetric facilities most postpartum rooms were shared; two mothers

in each room with a curtain on a track in between the beds. It is a matter of luck if the two roommates are compatible and under the best of circumstances the situation is less than optimal. Just sharing a bathroom at this time may be objectionable.

DESIGN CONCEPTS

Private rooms should be provided for all the stages of birth - labor, delivery, recovery and postpartum. The LDRP system, or single room maternity care concept, provides for one mother in each room during the entire hospital stay. The LDR system provides a private room equipped for labor, delivery and recovery, and then a transfer to a postpartum room. This room should also be a private room.

Privacy within the room would allow an exam to take place in privacy without forcing the husband or companion to have to leave the room or look away. This privacy could be achieved by designing an alcove for the support person away from the mother's bed, or shielding the bed from view with a movable curtain or partition.

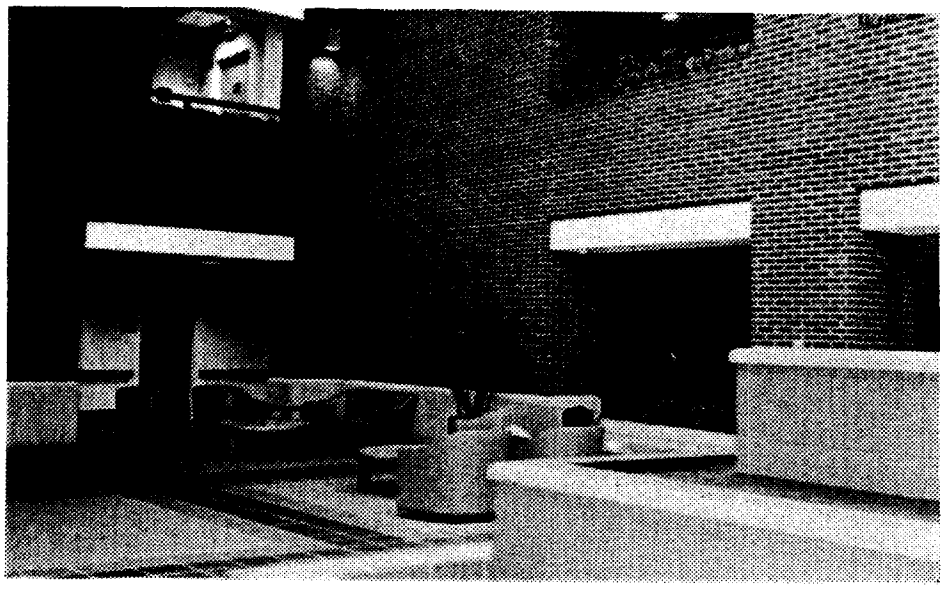


A semi-private sitting room accessed between two LDRP units provides a quick retreat for a support person to leave the mother's room when she needs privacy for an exam. (At St. Margaret Hospital, Hammond, Ind.)

Semi-privacy could be achieved in a lounge with a configuration that allows furnishings to offer a space which is away from general public view and socializing. The mother would seek this space if she desires passive involvement through observation of others or a quiet talk with one or two friends or family members. A very small lounge or nook could be provided that can function as a semi-private space for small groups or an individual.

At Prentice Women's Hospital, Chicago, at each end of the main corridor of LDR units, there is a small and intimate lounge, which provides semi-privacy for quiet conversation.

Public areas should be defined spaces that clearly invite anyone to socialize. Lounges should offer high levels of stimulation, views to the outside, and conversation groups of an appropriate scale to encourage interaction.



The large Atrium at Evanston Hospital, Evanston, Il., serves as an entry court to the women's hospital and obstetric unit. It also offers lounge areas in the corners of the atrium in a public but quiet setting.

SPACE FOR FAMILY OR OTHER SUPPORT PERSON

NEEDS AND GOALS

Not too long ago most fathers waited for the birth of their children in a father's lounge and didn't see mother or child until after the birth. Over the last 20 years the trend has been for the father to stay with his wife through labor and birth. Hospital policies have changed to meet the demands of families who want to be together and share this major event in their lives.

Studies have shown that a woman in labor is more emotionally and physically relaxed and able to cope with the intense pain when she has the support and companionship of her husband or a chosen support person. She is more likely to think of the birth as a positive experience, despite the pain, if she has the emotional support of a loved one or companion present.

At natural childbirth classes, there is an assumption that the mother will be accompanied at the labor and birth by a support person. The classes include training the support person, so that he/she will be prepared with techniques to help relax and comfort the laboring woman. A professional birth attendant, (often a childbirth educator), is available to join the husband and wife for the birthing process. She offers caring professional services to help the woman through labor and relieve the father for rest periods during a long and difficult labor.

Some women approach birth as a family event and want to have siblings and/or other family members participate in the

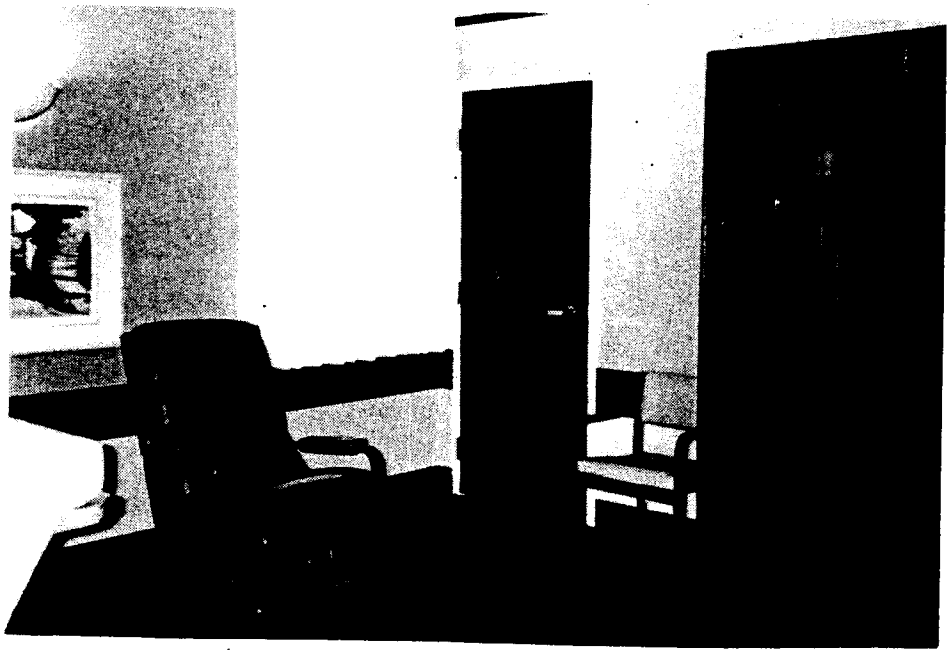
birth. Alternative birthing centers usually are family oriented and some hospitals have policies that allow for family involvement.

These additional participants in the birth need a supportive and welcoming physical environment to make them feel wanted and comfortable.

DESIGN CONCEPTS

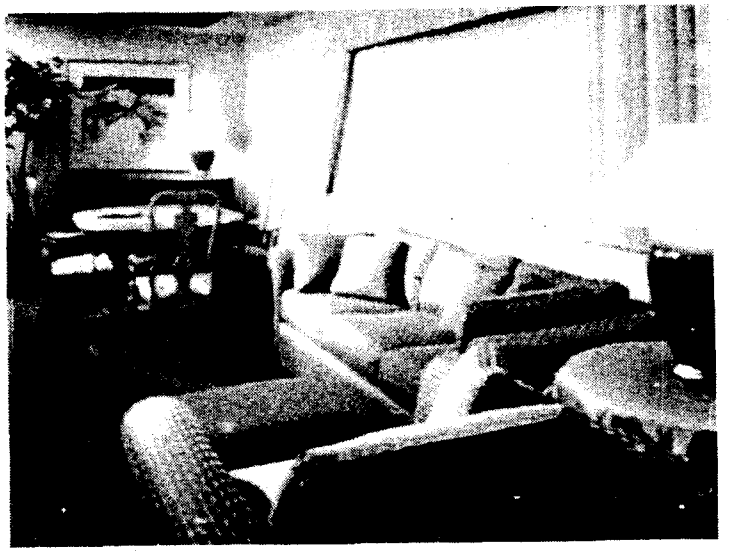
Space requirements in the LDR or LDRP unit must anticipate the growing number of people who may be present at the birth. As many as three medical and professional staff and often two or three personal support companions may be present in the room. Six people, in addition to the mother, can get in each other's way or feel pushed out of the main event if the room is too crowded to accommodate everyone. The average size of an LDRP unit should be 350 sq. ft. of useable space.

Resting spaces are needed by the support person, especially during a long and wearing labor.



In the LDRP units at St. Francis Hospital, Evanston, Il., the support person is provided with space for a comfortable reclining lounge chair in the mother's room.

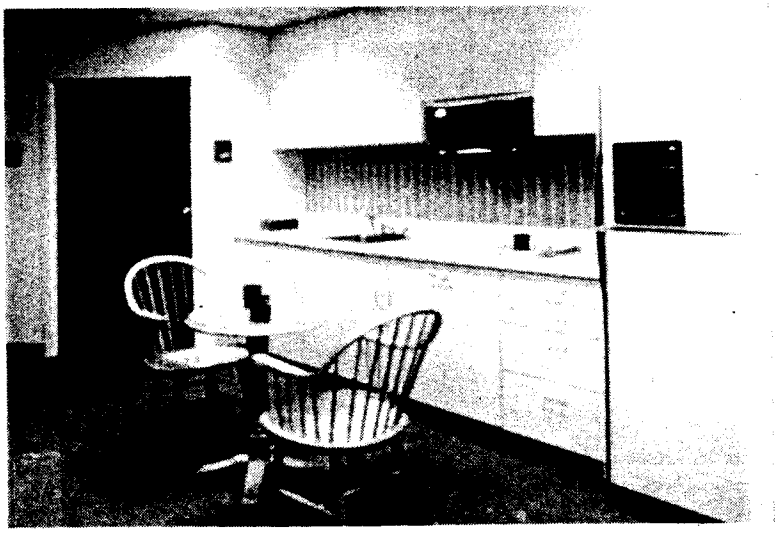
A family lounge with free and easy access to the mother's room should be provided for times that family members or other support people relieve each other on the job or wish to socialize.



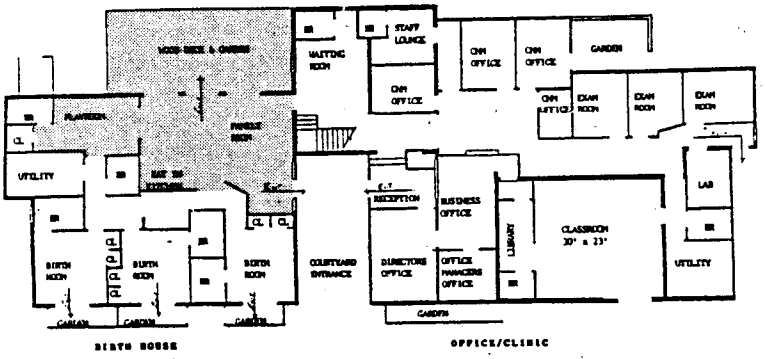
The Boulder Women's Center provides a comfortable and casual family room for laboring women and their families.

A Play Room for siblings could be planned into the design of a birth facility. Alternative birth centers that are geared to family involvement in the birth should provide for a play area for siblings of the newborn, since they may be present at the labor and birth. This play space should be within close range of the birthing rooms where parents and other supervisors will be near by.

A food preparation center should be designed with places to store, prepare and eat refreshments. Food and drinks are vital to the strength and positive attitude of the support person. The location of this food center should be in the obstetric unit with free access to the mother's room.



The kitchen at the Boulder Women's Center offers all the necessities for preparing, storing and serving resfreshments for families of the expectant mother.



The floor plan of the Birth House wing of the Martin County Women's Center, Stuart, Fla., demonstrates how the center is family oriented, with a family lounge, playroom, kitchen and gardens.

9

RELAXATION AND COMFORT

NEEDS AND GOALS

The ability to totally relax one's mind and body during labor and birth is a technique that not only enables the woman to cope with intensifying pain, but also helps the labor to advance more quickly.

Some women have the goal of not using any pain medications that may lessen her awareness of bodily sensations and the ability to relax is extremely important for her.

From an emotional point of view, the woman who is made as comfortable and relaxed as possible will generally enjoy the birth experience despite the pain involved. She may also be more willing to try out alternative methods of coping with pain and encouraging labor to progress, if her environment is comfortable and accommodating.

DESIGN CONCEPTS

Sensory stimulation can be used effectively to induce relaxation. The following are examples of relaxing forms of sensory stimulation:

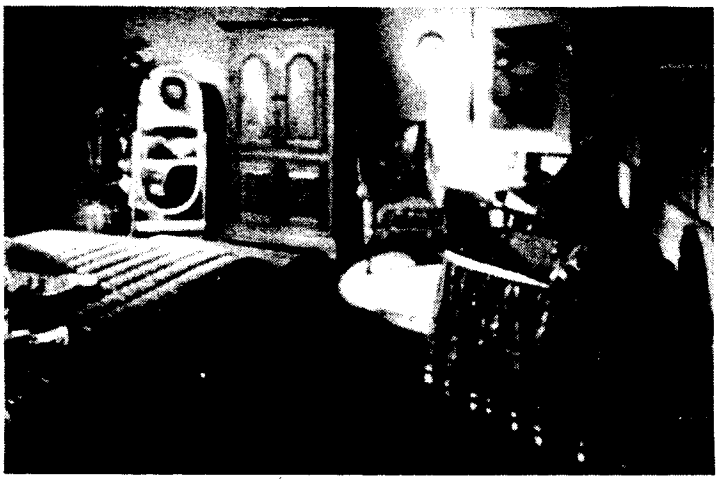
Soft music, or the music of her choice, will encourage relaxation. Acoustical control is important to keep out the unwanted sounds from the hall or the room next door.

Water therapy is often used to relax muscles. Labor/delivery nurses, midwives and birth attendants all promote the use

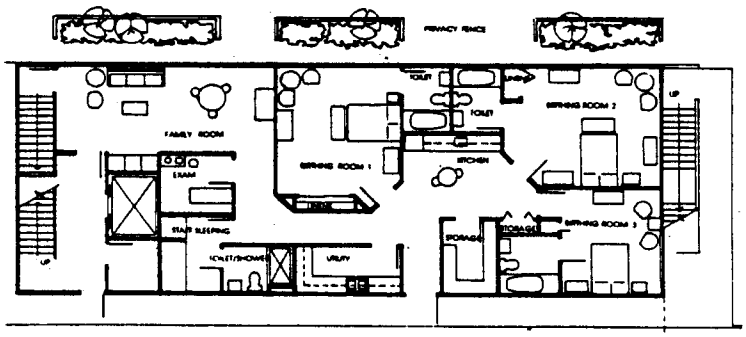
of water to relax and soothe painful muscle contractions and thereby speed up labor. Designs for birth environments should include a private shower and/or bath for each room. Whirlpool tubs have been very effective in LDRP units.

Views to the outside should be planned for each birthing room that offer privacy as well as views of either outdoor activities or natural pleasant surroundings.

Visual focal points strategically placed in the birthing room for the patient to focus on, such as a wall mural, T.V. or cabinetry, offer the patient a diversion on which to focus to cope with pain.



The birthing room at the Boulder Women's Center offers many forms of comfort and visual stimulation.



The lower level floor plan of the Birth Center at the Boulder Women's Center shows each birthing room has views and access to a private garden and bathrooms with soaking tubs, all meant to provide relaxing sensory stimulation.

10

ENCOURAGE MOBILITY DURING LABOR

NEEDS AND GOALS

Most childbirth professionals encourage mobility during the early stages of labor. There is no danger to the mother or baby, as long as the bag of water hasn't broken, and there can be several advantages.

Mobility, by walking with intermittent sitting and standing can help the labor to progress to a more active stage. There is no medical reason that a woman in early labor must remain in bed unless she has certain high risk factors or it has been shown with fetal monitoring that the baby is under stress.

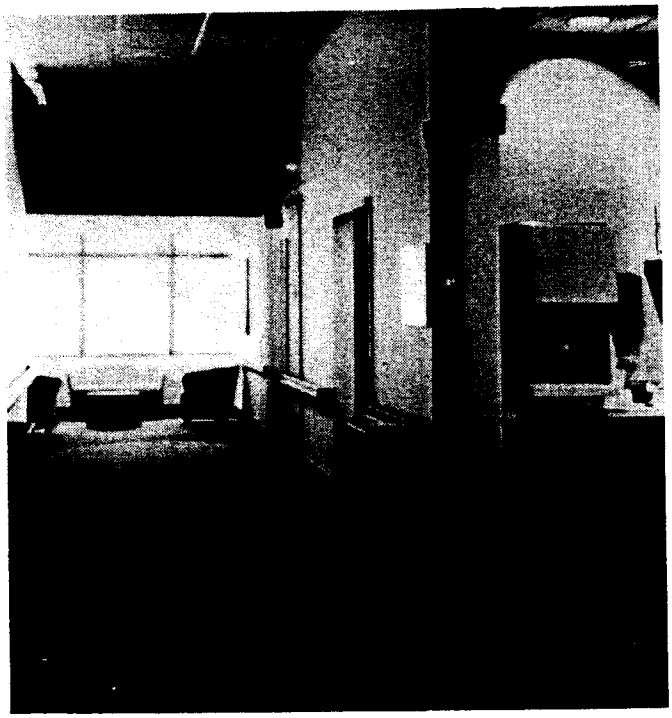
Some hospitals and birth attendants encourage or at least allow mobility even in the middle stages of labor, if the mother so desires. Anticipating that eventually the mother will have to stay in bed when the labor gets more intense, the advice to move around in the early stages will minimize the number of hours she will have to remain stationary.

While the patient is not required to be in bed, she may bathe or shower, stretch or do relaxation exercises. All these activities can help the woman cope with pain, relax and promote the advancement of the labor. The expectant mother may be comfortable walking the halls of the obstetric unit and socialize with her family and friends or other laboring women. She needs to be in an atmosphere that offers sensory stimulation without stress, and spaces that offer the options

of socialization or seclusion. A woman in labor will feel encouraged to be more mobile in a setting that is discreet and intimate rather than large and public. At the time of birth, there are a great variety of positions that can be chosen by the mother. The traditional delivery table, with the mother in a horizontal position with her legs up in stirrups has been shown to thwart and lengthen the birth process. The mother can be encouraged to try different positions and find the one that is most beneficial to her.

DESIGN CONCEPTS

A path or circuit around the obstetrics unit offers a mother a natural route to follow. If the unit design is a long race track or long halls, there should be cross halls to provide short cuts, so that the woman is never too far from her room.



At Prentice the main corridor of the obstetric unit is a wide path, lit by skylights and terminating at each end with a small lounge. Women can walk there during labor and use the lounge as a resting point.

Visual diversions along the way in the hospital halls will help make the activity more pleasant and interesting for the mother. Art work, photos, murals, and informative displays should be presented on the walls and in wall mounted showcases.

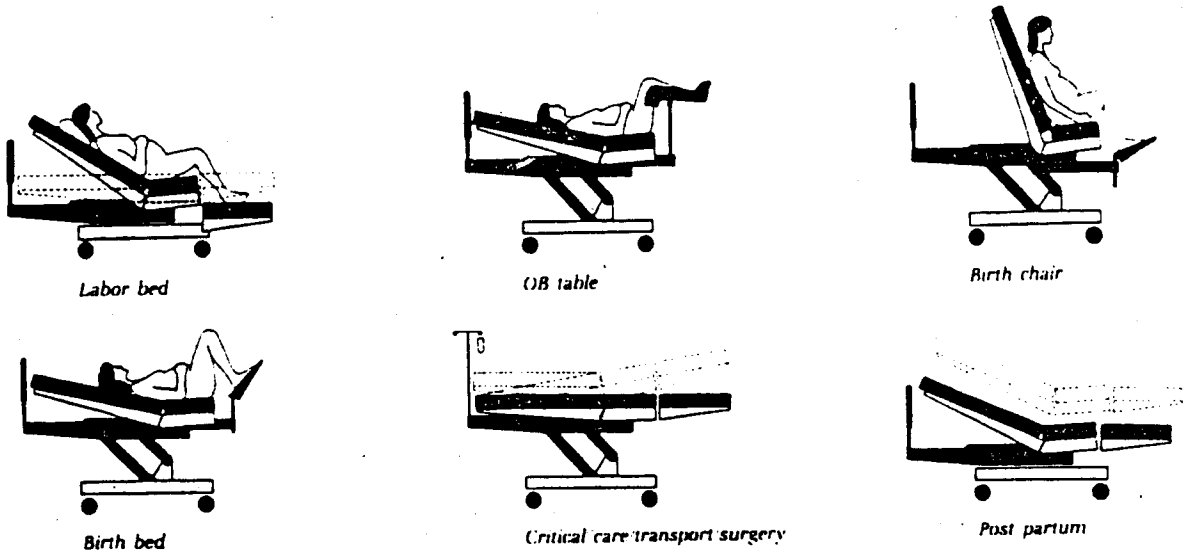
Stopping points along the route will encourage the mother to continue to be mobile because her trip from her room will be less overwhelming if she knows she can rest along the way. Stopping points can be just a comfortable chair or loveseat or a small alcove with furnishings.

A Social lounge at one point in the obstetric unit gives the mother an opportunity to relax with other people, or observe other people from a secluded corner. She can use this as another activity to pass the time, or as a stopping point or goal during her walk. The lounge could contain entertainment, such as music or T.V., refreshments and telephones. All these accommodations will make the laboring mother more comfortable and relaxed.

A **bar secured to the wall** for the woman to grasp during a contraction would allow her to assume different positions during contractions that may help her labor.

Furnishings, (and enough space for furnishings), such as a rocking chair, would offer a woman a choice of places to rest and spend the time rather than just in bed. She would still have the privacy of her room, if that's what she desires.

A birthing bed, which is a hospital bed that breaks apart and offers many different positions for birth, should be provided in each LDR or LDRP unit. Access to both sides of the bed is important.



The modern multipurpose birthing bed has many uses in today's LDR unit. (Dundes, 1987)

PHYSICAL CONTACT BETWEEN PARENTS AND INFANT IMMEDIATELY FOLLOWING BIRTH

NEEDS AND GOALS

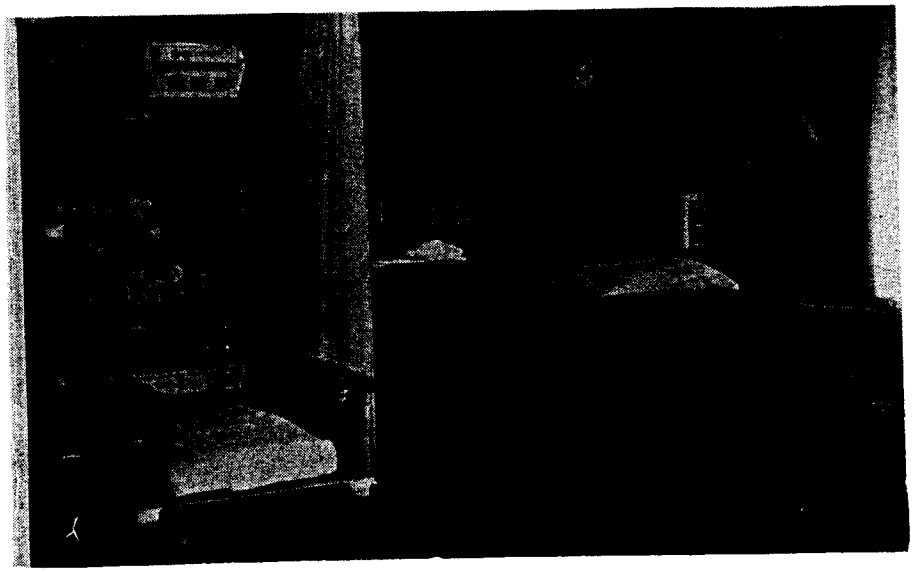
Breast feeding immediately after birth is important to many women who want to establish early attachment between mother and child. The newborn learns to recognize its mother very early by her scent and the scent of her milk. The bonding between mother and child is very meaningful and enjoyable for the new mother and offers her an immediate reward for all her pain and suffering.

Early and close contact between the father and the newborn has been shown to benefit some father-infant relationships. Evidence suggests that father involvement in birth attendance, early contact, and extended contact with the newborn enhances the marital relationship, as long as the experience is viewed positively by the couple.(Palkovitz, 1985)

The new parents need time alone with their newborn shortly after birth to feel comfortable handling the baby and begin to establish new family bonds. Even immediately after birth, while the nurse is checking the newborn's vital signs and general health, the mother can be holding the baby.

DESIGN CONCEPTS

Single room maternity care and LDR units allow the mother to stay in the same room, in which she gave birth, with her baby during the recovery period. It is not necessary to remove the baby from the mother's care as long as the baby is well. LDRP units should accommodate the baby in the room. The LDR system should also provide postpartum rooms that accommodate mothers fully caring for their newborns. This keeps separation of mother and baby to a minimum.



The LDRP units at St. Francis Hospital are equipped with movable infant warmers and a built in head wall for the baby in order to facilitate keeping the newborn in the room with the parents after birth.

Recovery rooms for women who have c-section births should be large enough and equipped to have newborns in the room with mothers who are well enough to want their babies with them.

Temperature controls in each room would allow for additional warmth to help the new infant maintain its temperature. Usually body warmth from the mother is

sufficient to warm the baby, but a warmer unit that is flexible to move over the birthing bed can help the baby keep warm as well.

Warmer/bassinets, designed with sophisticated medical equipment for infants in need of medical aid at birth should be concealed during labor, and accessible in the LDR unit at the time of birth. Many techniques, especially providing oxygen for breathing problems, can be administered in the room with the mother present, if this equipment is immediately accessible. The designer should configure the space so that the infant head wall is located close enough to the mother's bed so she can at least see what's happening to her baby.

OPPORTUNITY FOR THE HIGH RISK MOTHER

NEEDS AND GOALS

Many women are placed in a high risk category because of age, problematic birth histories, or other health problems. Some know in advance that they will be having a c-section. Others are labeled high risk from a cautionary point of view because they need to be carefully monitored but intend to try to have a vaginal delivery.

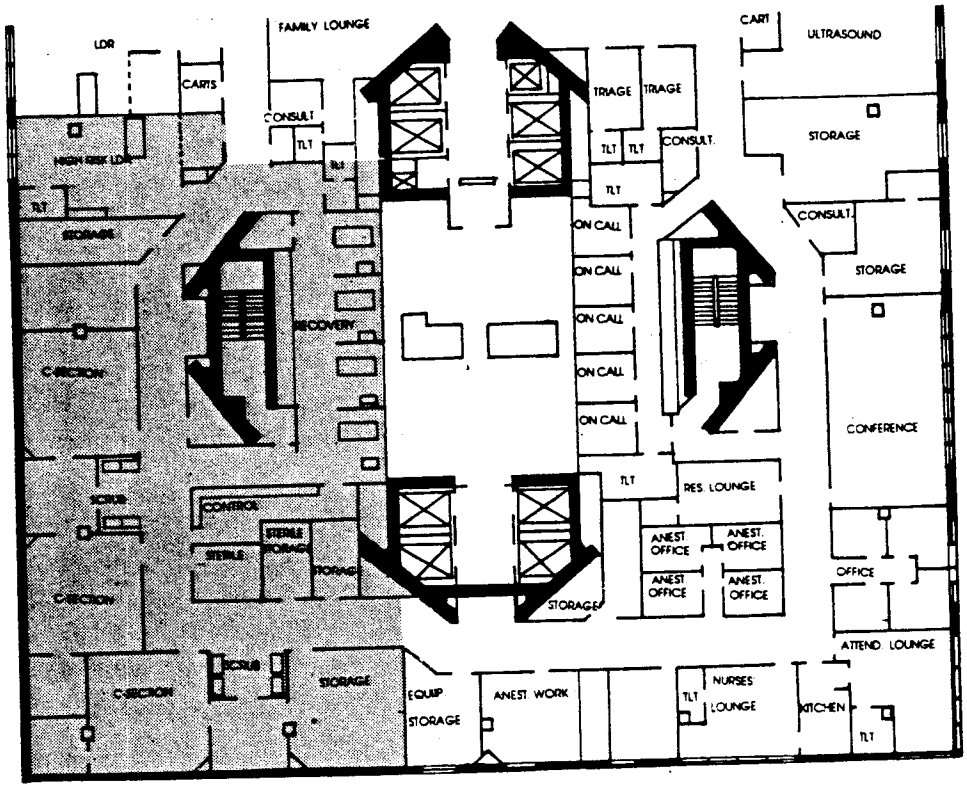
Women in these high risk groups will be screened out of midwife programs and alternative childbirth centers that are geared to low risk, low-tech births. These women have no choice but to be in the hospital because they may need high-tech medical equipment and expertise. Often the physical comfort and emotional needs of these high risk mothers is ignored or placed as a very low priority by the medical and nursing staff.

Women in the high risk group, who have added anxiety, stress and physical problems, are especially in need of a comfortable and relaxing environment for giving birth.

DESIGN CONCEPTS

Adjacency: An LDR or LDRP unit can be designed to be adjacent to the c-section operating suite, and even open onto the operating suite for very quick transfer for an emergency c-section.

Additional space: Since the high risk LDR or LDRP unit will have additional sophisticated medical equipment, it may be necessary to allow some additional square footage to accommodate the same features that are present in the other LDR or LDRP rooms.



The floor plan at Prentice Women's Hospital shows the high risk LDR room, which is specially equipped, located so that it opens directly to the c-section room. A four bed recovery room allows room for newborns.

13

BABY CARE BY MOTHER DURING THE POSTPARTUM STAY

NEEDS AND GOALS

A high percentage of expectant mothers are having their first child. Nursing staffs in obstetric units recognize their responsibility to teach new mothers basic baby care skills. Techniques for holding the baby, breast feeding, bottle feeding, bathing, taking a temperature and recognizing illness are skills that must be taught to new mothers.

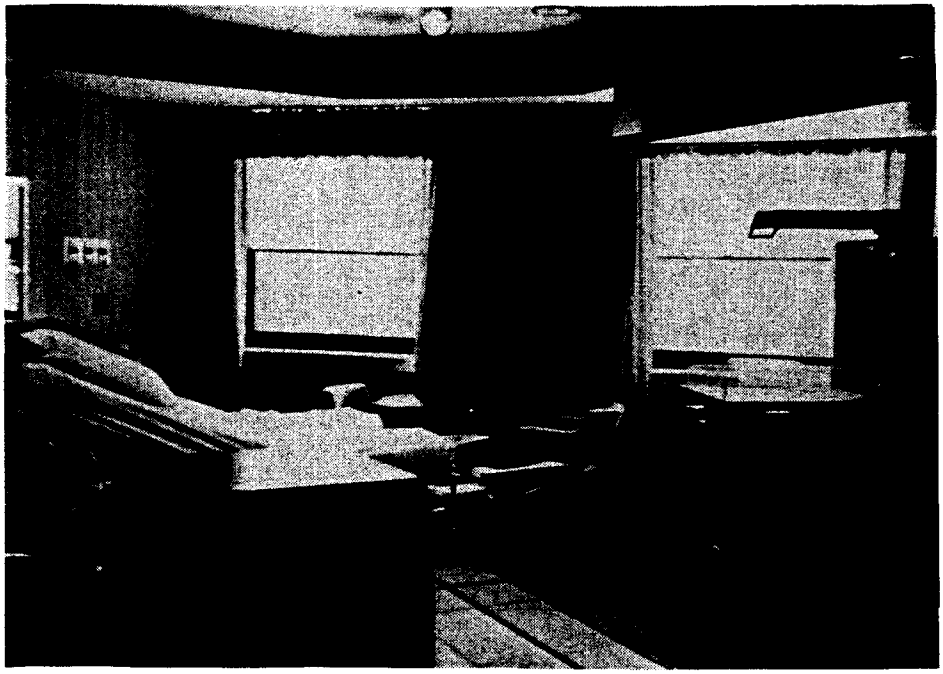
The reality of insurance coverage almost always limits the length of stay to 24 to 48 hours after birth. This leaves very little time for nurses to teach these skills and for problems with the baby to manifest themselves. Because of the time limitations, it has been found that most of the baby care should be done by the mothers in their rooms, rather than by nurses in a well baby nursery.

After experiencing hours of labor and birth most women need a chance to recover before going back to household and childcare responsibilities. One or two nights of sleep in the hospital may be vital to her recovery. The obstetric facility must recognize the mother's need for sleep and offer at least night nursing care for the well newborn to those who need it.

DESIGN CONCEPTS

Home base for the newborn: The mother's postpartum room or LDRP unit should be designed to accommodate the extra space needed for the infant bassinet and infant supplies. A comfortable space for a

rocking chair for feedings should be provided in the design.



The LDRP units at St. Margaret Hospital is spacious enough to accommodate room for a baby bassinet and comfortable furnishings.

A sitting room or alcove adjacent to the mother's room should be designed as a space for the mother to socialize with her baby, the father and other visitors.

A well baby nursery or holding area connected to the nurses station should be designed into the facility. This would allow mothers an option to rest, confident that their infants are well supervised.

CHILDBIRTH EDUCATION CENTER

NEEDS AND GOALS

Obstetricians, midwives, nurses and childbirth attendants agree that preparation for childbirth is extremely important for the quality of the birth experience. A woman who is totally unprepared for the birth and has no expectations of what will happen to her body will most likely be shocked and terrified by the experience. (Interviews of Dr. Fagan, Ms. C. Schroeder,Ms. C. Seigel, Ms. R. Willick)

LaMaze childbirth preparation tries to equip the woman with a variety of tools to help her cope with the intensity of the pain and emotional anxiety. The classes also give expectant fathers training to help their wives through the birthing experience.

Childbirth education classes include a great deal of informational material regarding the physical changes that will occur during the birth process. This makes the woman intellectually aware of the variety of sensations she will feel as she goes through the stages of birth.

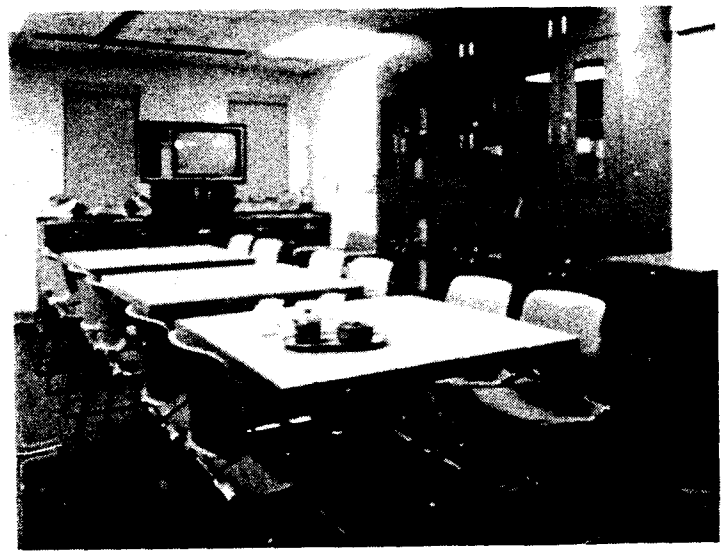
DESIGN CONCEPTS

A childbirth education center located at the birthing facility will be very beneficial to the expectant parents and the facility. By providing classes in the center where the birth will take place, many new parents will have the opportunity to become familiar with the facility. In many cases, the first time the expectant parents enter the medical

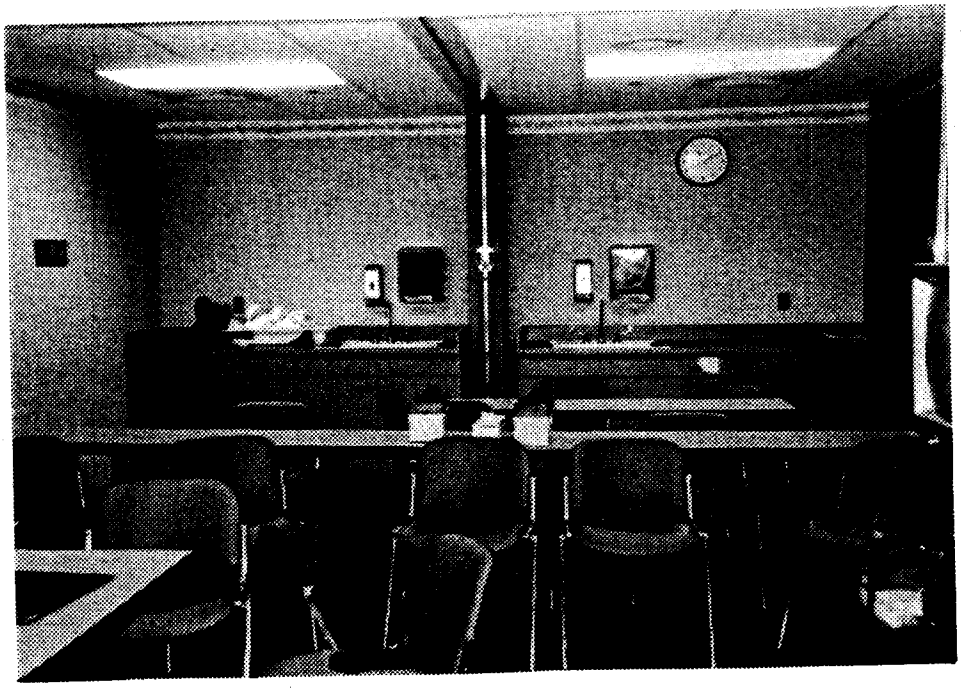
facility is when they go there to have the baby. Familiarity dispels the feelings of being intimidated by a strange place.

In a large hospital, every effort should be made to design space in the obstetrics unit for the childbirth classes so finding the way to the unit also becomes familiar.

Seminar style classrooms should be designed to encourage interaction and informality during the sessions. An adjacent large space for learning the relaxation and breathing exercises should be provided.



A staff conference room at the Boulder Women's Center doubles as a seminar style classroom for childbirth education classes.



At St. Margaret Hospital the partitioned classroom is located right at the entry to the maternal care center, drawing women to the center for repeated classes before the birth.

PART TWO:

CASE STUDY ANALYSIS

I

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

ARCHITECTS

Matthei and Colin Assoc.- Chicago, Il.

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

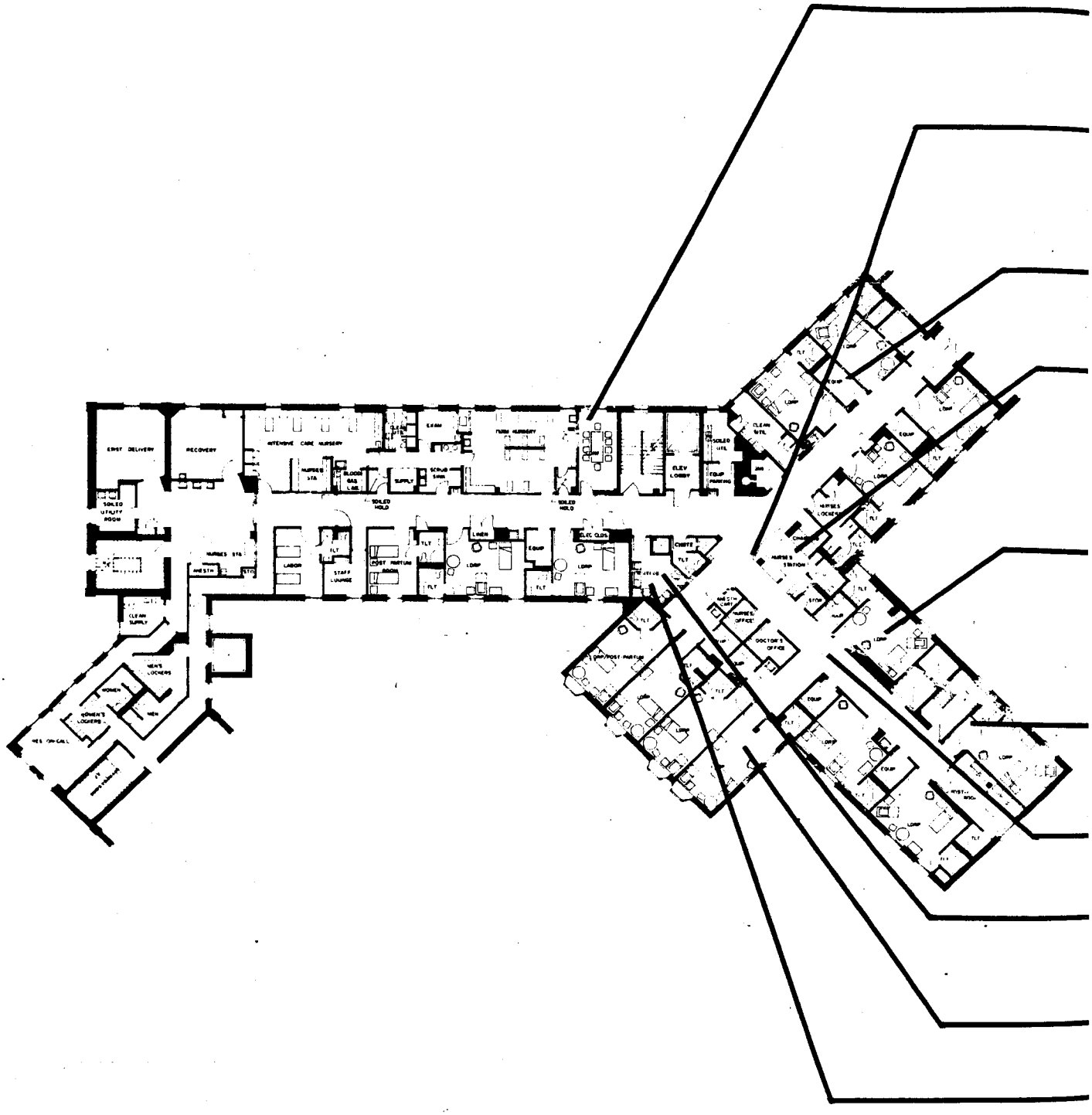
during labor. The nurses' station and family lounge are centrally located. Equipment is decentrallized in equipment rooms shared by LDRP units all over the floor.

NEGATIVE FEATURES

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.

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.

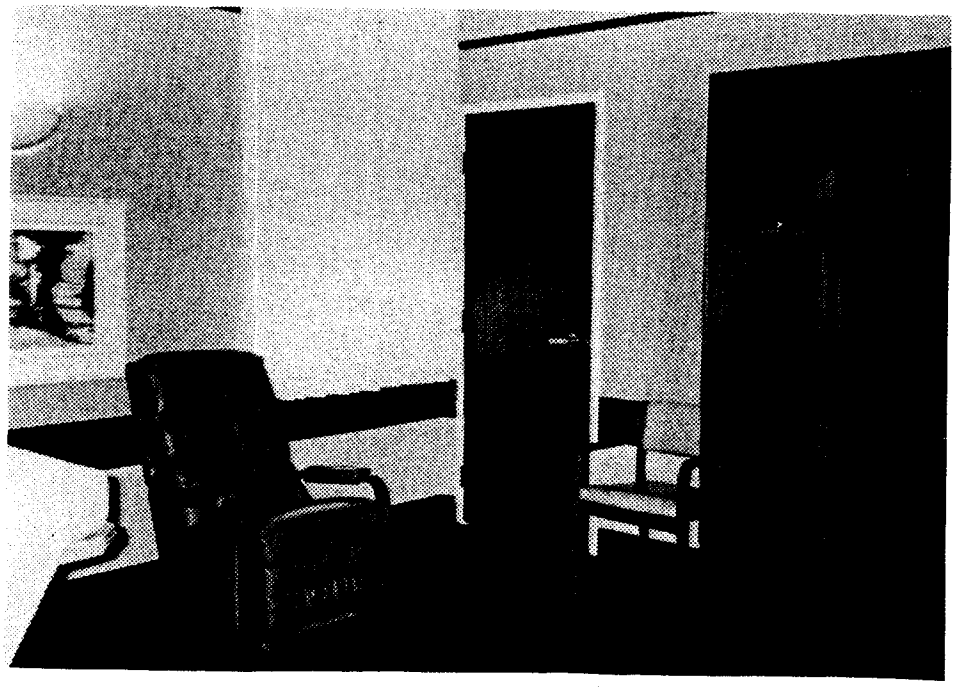
ENCOURAGE MOBILITY DURING LABOR

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.

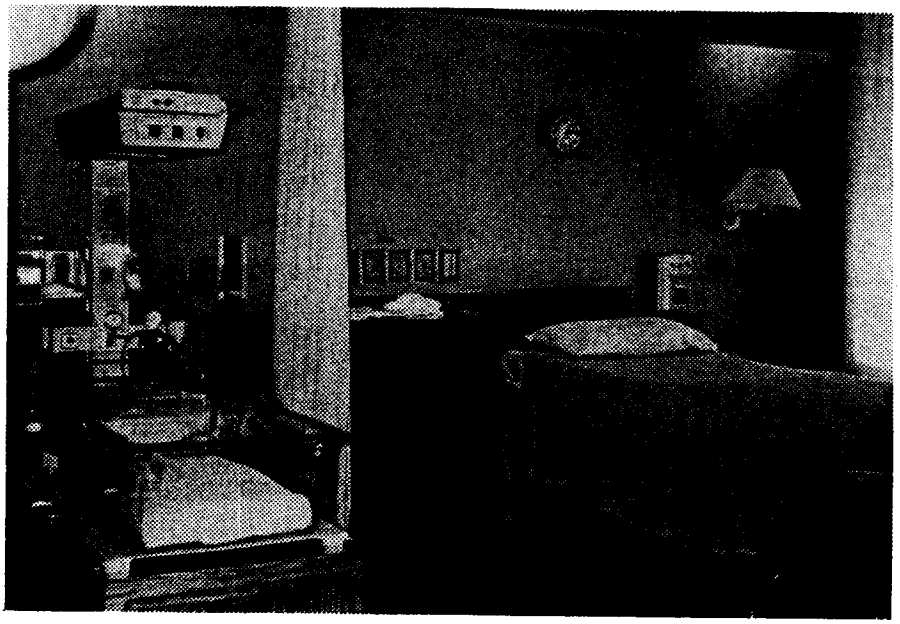
SPACE FOR FAMILY OR OTHER SUPPORT PERSON

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.

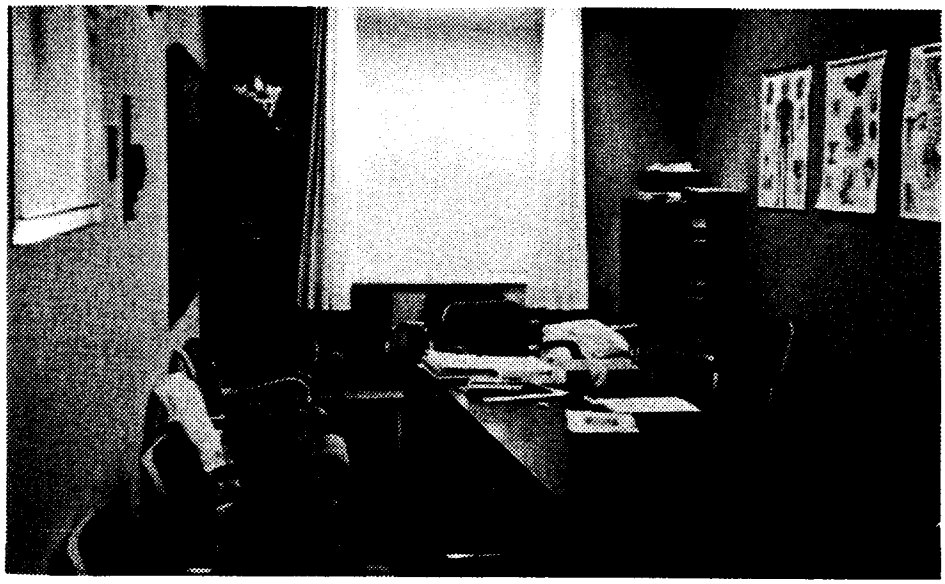
ST. FRANCIS HOSPITAL



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.

II

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.

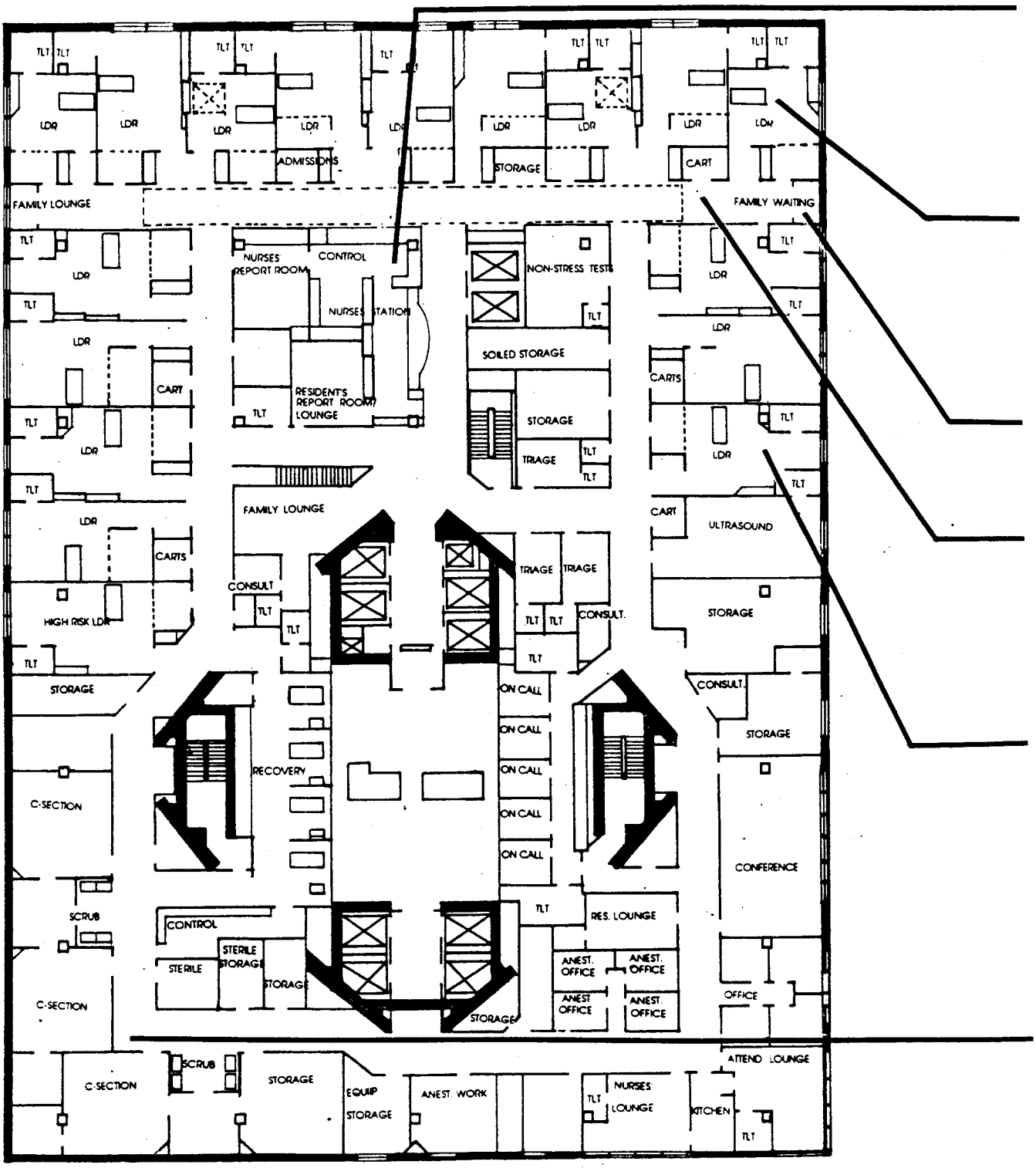
NEGATIVE FEATURES

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 romote 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.

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.
1. 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.

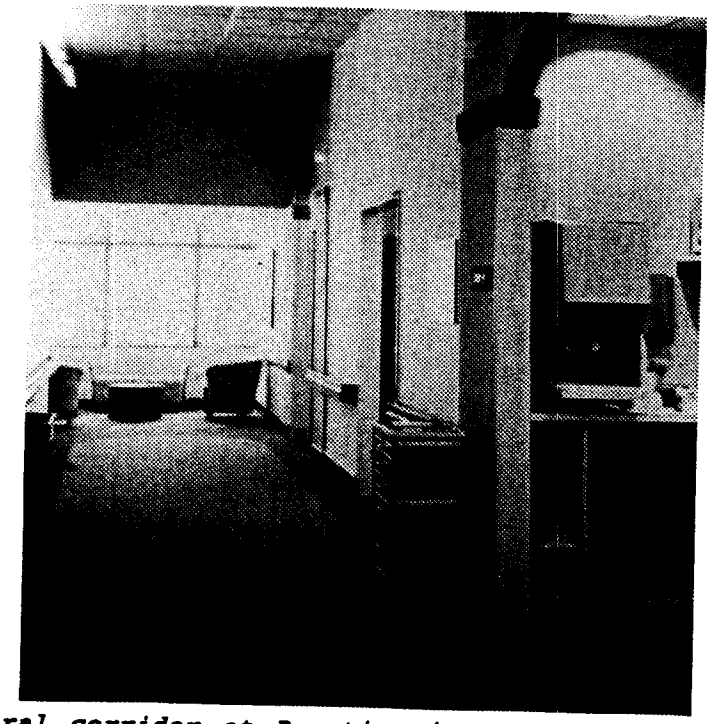
PHYSICAL CONTACT BETWEEN PARENTS AND INFANT IMMEDIATELY FOLLOWING BIRTH

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.

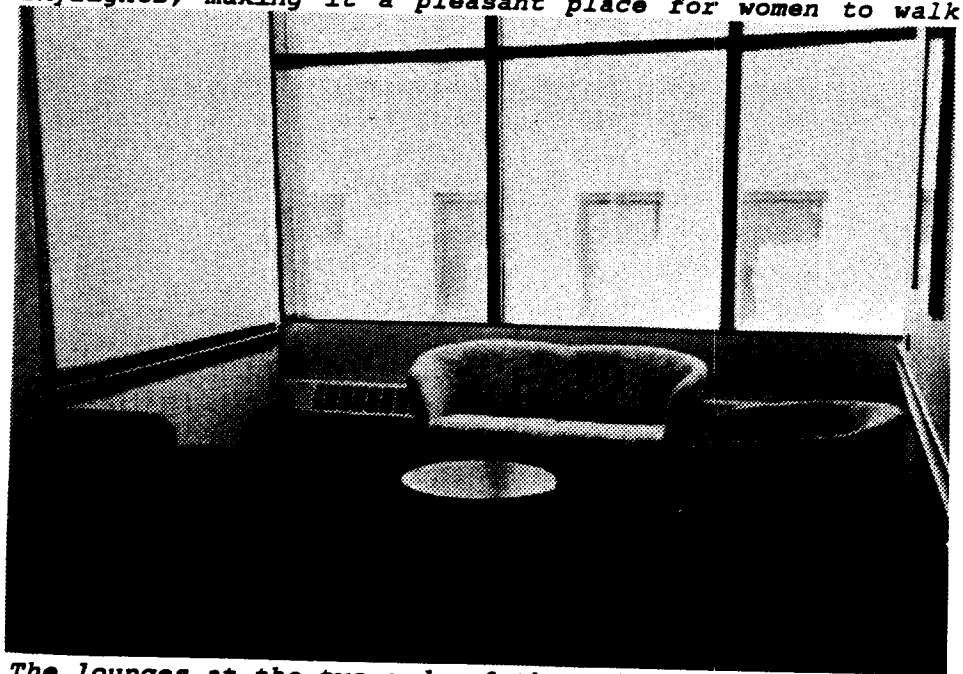
OPPORTUNITY FOR THE HIGH RISK MOTHER

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.

PRENTICE WOMEN'S HOSPITAL

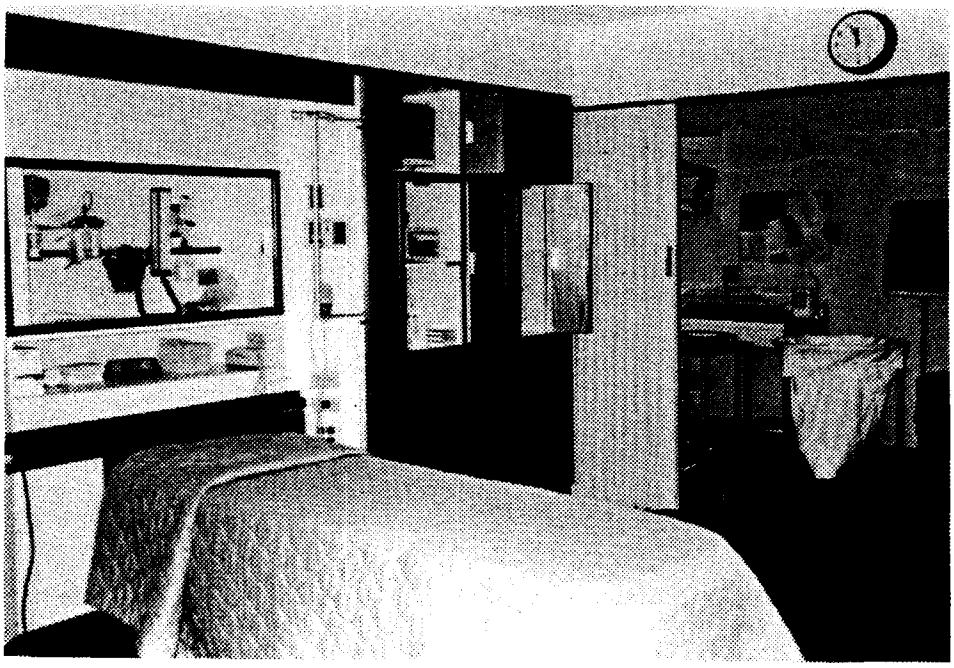


The central corridor at Prentice is carpeted and lit by skylights, making it a pleasant place for women to walk



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.

PRENTICE WOMEN'S HOSPITAL



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.

III

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 apointed 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.

NEGATIVE FEATURES

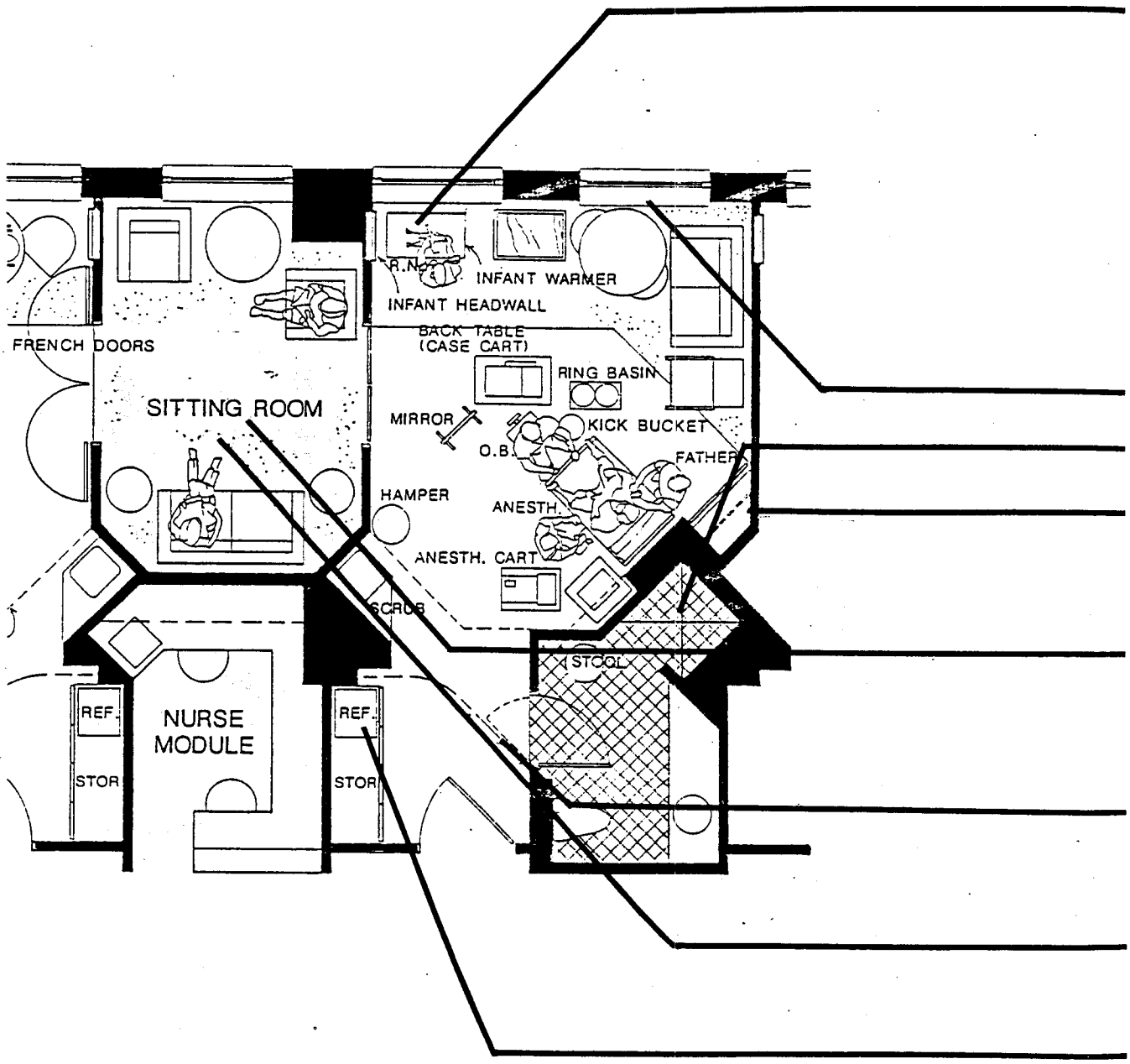
The family waiting room is small and windowless. This poorly designed space was originally designated as the nurses' lounge and the large well lit lounge was for family waiting. The administration decided the better quality space was under utilized by family members (who have open access to the LDRP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

ST. MARGARET HOSPITAL



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

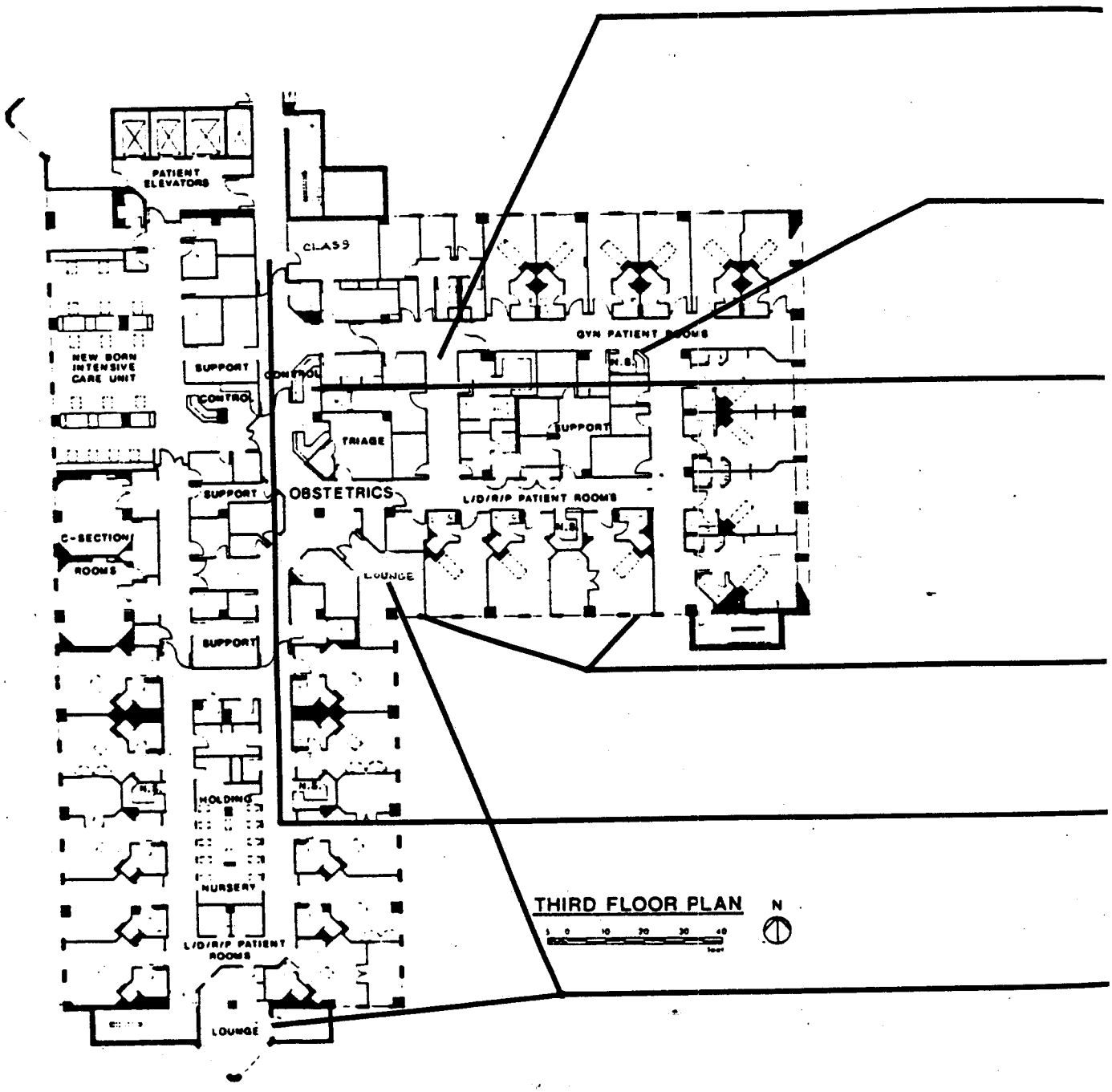
VARYING DEGREES OF PRIVATE AND SOCIAL SPACE

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.

ST. MARGARET HOSPITAL



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.

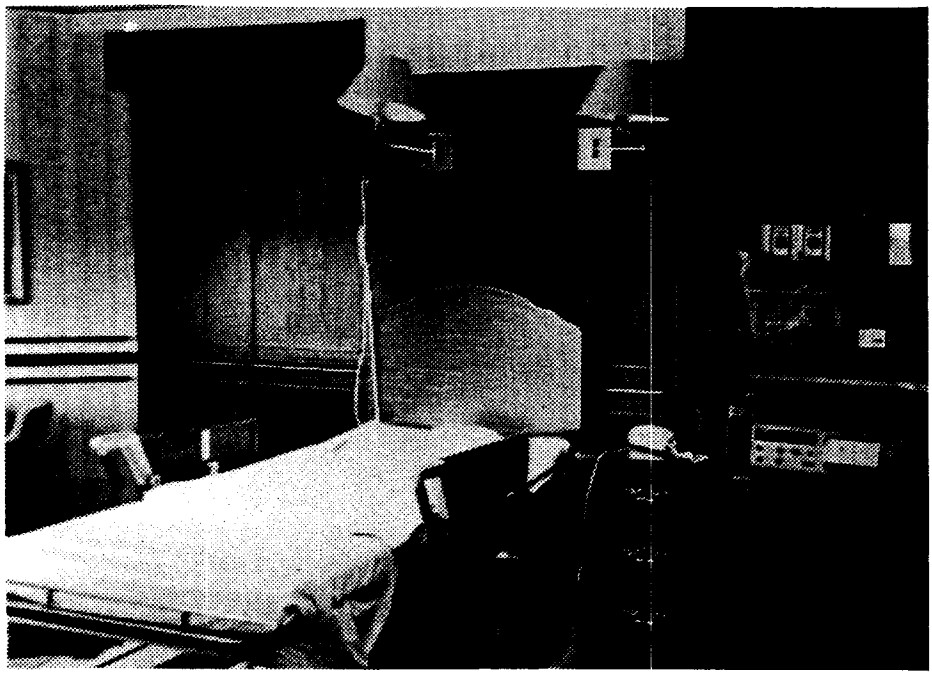
CHILDBIRTH EDUCATION CENTER

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

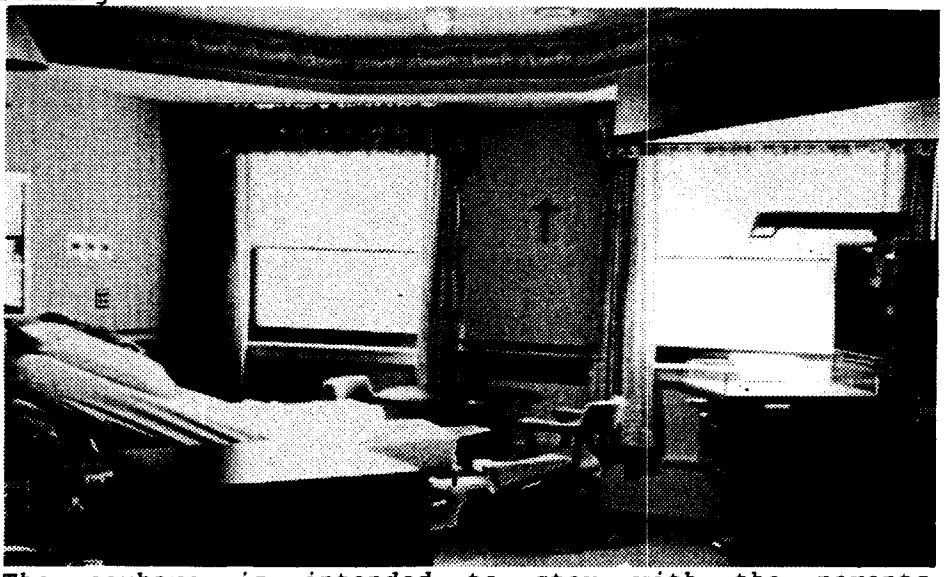
STAFF RETREATS AND WORK SPACES

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.

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.

ST. MARGARET HOSPITAL

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.

IV

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.

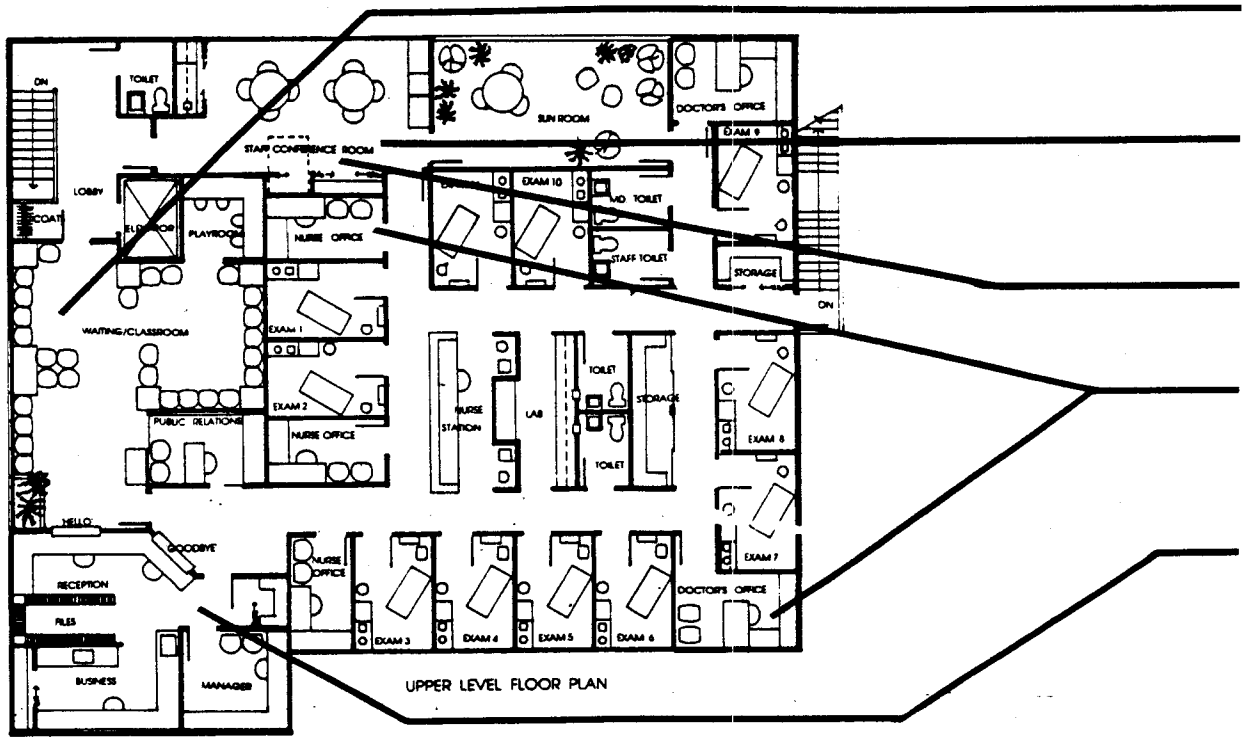
NEGATIVE FEATURES

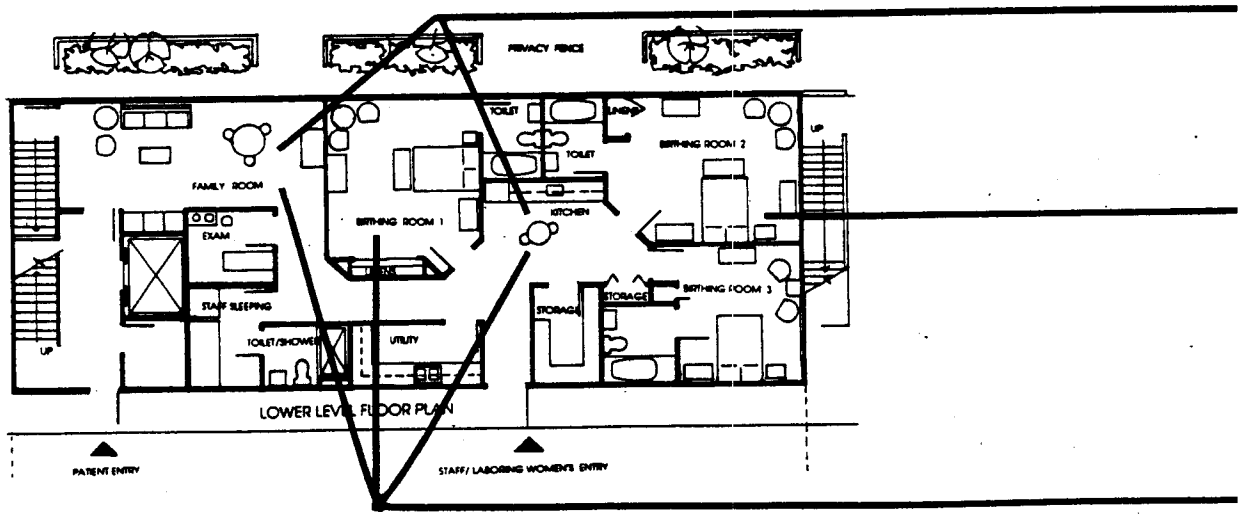
The nursing staff is responsible to do all the laundry to keep the facility suppplied with clean linens. The utility area for the washer and dryer is insufficient for the amounts of laundry needed to be done. Two sets of machines would allow the staff to work more efficiently.

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.

BOULDER WOMEN'S CENTER





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.

1. 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 MOBIILITY DURING LABOR

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

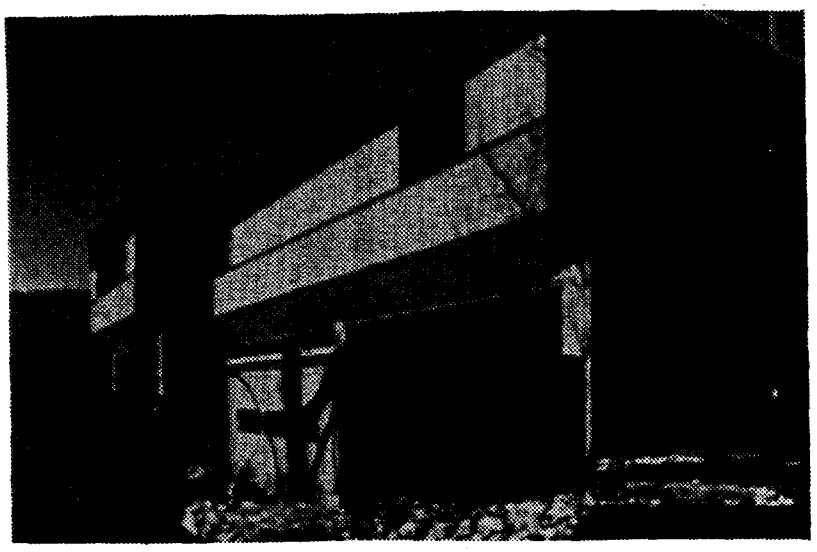
RELAXATION AND COMFORT

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

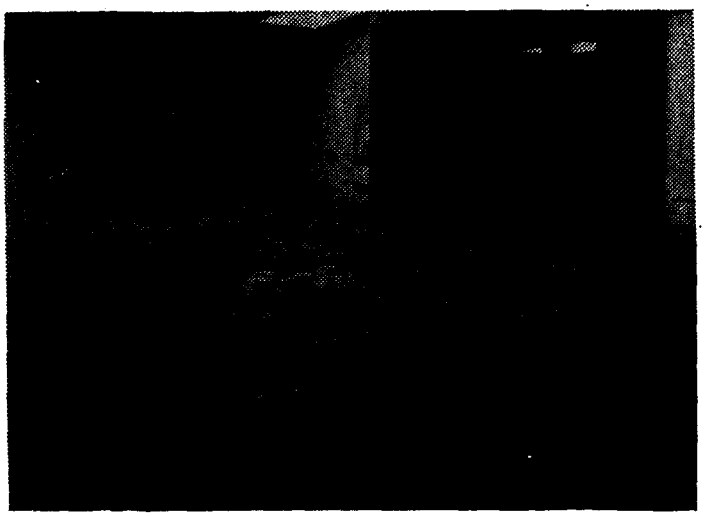
VARYING DEGREES OF PRIVATE AND SOCIAL SPACE

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



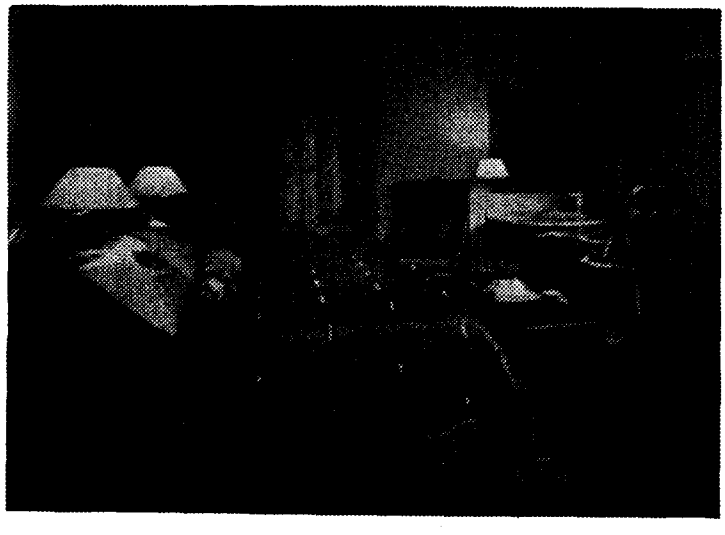
Boulder Women's Center offers one stop OB/GYN and birthing services. It's style is professional, but smaller in scale and less intimidating than a hospital.



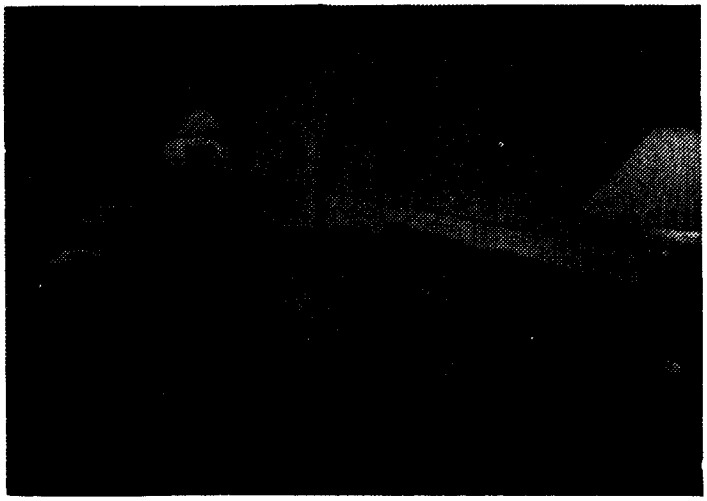
The conference room offers staff a place to relax and get refreshments and provides a support space for childbirth classes at night.

BOULDER WOMEN'S CENTER

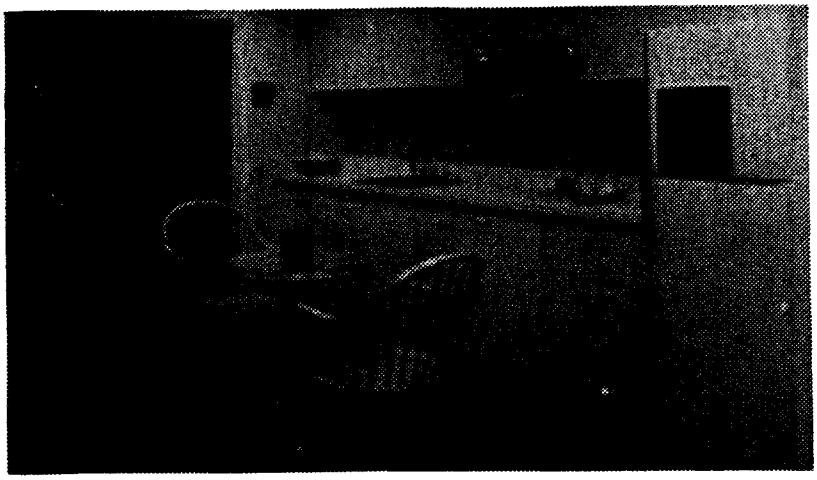
These photos of the birthing rooms express the residential character of the Boulder Birth Center.



BOULDER WOMEN'S CENTER



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



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

PART THREE:

ANNOTATED BIBLIOGRAPHY

PROCEDURE

I

A multi-pronged approach was employed to gather relevant literature.

The research included a computer search of journal articles written in the last twenty years which focused on birthing and environmental design.

A review of standard references on the birthing process was conducted to identify the behaviors and activities that occur during birth that can be influenced by the physical environment.

The resulting set of approximately twenty citations represents a broad range of disciplines including architecture, obstetrics, health planning, nursing and social science. Roughly one-third of these citations are chapters or entire books, and the balance are research reports in journal articles.

In all cases, the goal was to identify items which provide the latest and most up-to-date information regarding the birthing process and/or provide guidance for environmental planning and design. Given the specialized focus of this project and the intention to cover only the most recent literature, this bibliography is not meant to be exhaustive.

The Index on the following page is keyed to topic headings within the text of the annotations. The intention is that the reader can quickly zero in on the items that match his/her immediate needs.

INDEX FOR ANNOTATED BIBLIOGRAPHY II

AUTHOR	ENVIRONMENTAL CONTEXT	SOCIAL ISSUES	WOMEN	MED/NURSE STAFF	RESEARCH FINDINGS	THERAPEUTIC GOALS	DESIGN GUIDELINES
Ahrentzen	*	*					
Annandale	*		*		*		
Arney	*						
Bajo	*						
Cohen	*		*		*		
Contract	*					*	*
Danko					*		*
Doering	*		*		*		
Jordan		*					
Klee	*				*		*
McClain			*		*		
McClain			*		*		
Newton	*			*		*	
Palkovitz		*					*
Parker	*					*	*
Sacks	*				*		
Schneider					*		
Sumner	*					*	*
Stolte				*	*		
Thiede	*					*	
Wayras	*		*				
Wertz		*	*				

ANNOTATIONS III

Ahrentzen, Sherry Boland, "Birth Settings, A Perspective On Our Progress", Women and Environments, 16 - 19, Winter, 1986.

Description

This article is an historical overview investigating the birth setting as it reflects the social values towards childbirth and the meaning of the physical setting. During pre-industrial societies women probably attended each other and the attending group was small because other adults could not be spared from their many tasks. Some cultures included the father in the birthing process.

Environmental Context

A special birth setting was evident in some primitive societies, such as a birthing chair, stool and special structure to house the event.

Through the 1800's, assistance to the laboring mother by women relatives, neighbors and midwives was the norm in America. Births took place in the home, sometimes in a special "borning room", or in the parent's bedroom. By the end of the 19th century the trend was to give birth in a hospital with a trained male physician. It was felt to be more comfortable (medications for pain), safer (with the rise of obstetrics as a medical specialty), and more sanitary.

By 1975, 99% of all births in America took place in the hospital. The author describes the atmosphere and social attitudes of the traditional modern hospital birth. In the 1970's a birth reform movement arose, with an increase in "out of hospital" births and the emergence of alternative birth centers. The freestanding birth center most closely meets the social and physical requirements of a family oriented philosophy towards childbirth.

Annandale, Ellen, C., "Dimensions of Patient Control in a Free-Standing Birth Center", Social Science and Medicine, Vol. 25, No. 11, pp.1235 - 1248, 1987.

Description

This paper explores the phenomenon of patient control in a midwife-run free-standing birth center which emphasized natural, patient controlled childbirth. Specifically, it addresses the ability of patients to translate an inner desire for control into actual controlling behavior during the birth process.

Environmental Context

The research site used to explore these issues was a free-standing birth center located on the campus of a community hospital. Prenatal, intrapartal and postnatal care were provided by nurse-midwives backed up by obstetricians at the adjacent hospital. The philosophy of patient care in the birth center stressed both natural childbirth and patient control.

Women in Childbirth

From the perspective of the patient, going to a birth center reflects a challenge simply because it goes against conventional opinions of where birth should take place and also because it involves an active seeking out of an alternative to the dominant mode, rather than a passive choice of the local hospital or doctor that ones family or friends may have chosen in the past.

In choosing the birth center, most patients were reacting against hospital care. The most prevalent reaction was that hospitals have a sterile and impersonal atmosphere. Others reacted against specific hospital practices and some specifically reacted against a lack of personal control in the hospital.

Annandale, continued,

Research Methodology

The methodology employed included 18 months of participant observation, periodic interviews with 46 patients over the course of their pregnancies, observations of most of their consultations with the midwives and quantitative analysis of about 1000 medical records covering the five-year operating history of the birthing center.

Research Findings

The data revealed that although many women chose the birthing center because they had a desire for control (specifically, control of the decision making) in the birthing process, accounts of their perceived controlling role when in the birth center were vague and unspecified.
The author concludes that information exchanged from the midwives to the patients had a limiting effect on the actual control the patient was able to implement during the birth.

Arney, William Ray,
Power and the Profession of Obstetrics,
Chicago: The University of Chicago Press, 1982.
Ch. 7 "Modern Women and Modern Obstetrics".

Description

A critique of the new system of obstetric practice, ie., natural childbirth examines the role of the woman, the obstetrician and the hospital environment.

Hospital staffs must be trained, educated, and subjected to systems of surveillance, just as women must be trained, educated, and subjected to systems of surveillance, in order to assume their proper places in the new system of obstetrical alternatives.

Environmental Context

A description of the Childbearing Center, established in New York in 1975 by the Maternity Center Association and the goals of the Center are presented. The author offers a critique of the birthing center and its ability to meet its stated goals.

Bajo, Kathleen, MHA, "Obstetrical Design Trends Reflect Move Toward Personal Touch", Michigan Hospitals, 23:8, August, 1987, p. 37-41.

Description

This article explains how economic trends in obstetrical care impacts on the design trends for obstetric departments in hospitals.

The national average length of stay (ALOS) for normal vaginal deliveries has fallen recently from three days to two days, with a growing trend toward one-day postpartum discharge.

Each day of decline in the three day ALOS represents a 33 percent decrease in total patient days for the obstetric department, creating a vital interest in the need to increase the volume, or in some hospitals, the critical need to alter the patient reimbursement mix, balancing toward a higher percentage of "paying" customers.

These changes have resulted in increased competition between hospitals and increased importance of marketing strategies. All these factors have influenced the rapid acceptance of innovative facility design for obstetrics.

Environmental Context

LDR Room

The LDR unit, designed for both high risk and low risk vaginal deliveries, is equipped well enough to give physicians the confidence that everything they need will be available. It is large enough to give staff adequate circulation room, and its interior design creates a

Bajo, continued,

pleasant, home-like atmosphere. The design of the LDR unit reflects the fact that in most hospitals at least 80 percent of births are normal.

LDRP Unit

LDRP, (labor/delivery/recovery/postpartum), is also known as the single room maternity care (SRMC) concept. The key difference between the LDR and the LDRP units is that in the LDRP the mother stays in the same room from admittance until she leaves the hospital.

The LDRP concept has recently become practical for hospitals in terms of total square footage (300-350 sq.ft. per room), due to the decrease in ALOS.

Cost

It is estimated that between 10 and 28 percent in operating cost savings can be achieved with the LDRP system over the traditional four-room design, because of the additional increases in productivity of nursing staff. Also infant care is reduced because the system is designed for the baby to be in the LDRP unit most of the time, under the care of the mother.

Cohen, Richard L., M.D.,
Psychiatric Consultation in Childbirth
Settings, New York: Plenum Publishing Corporation, 1988.

Description

The purpose of this book is:
1. To provide mental health practitioners with a current overview of our knowledge about normal parental development during pregnancy and its relation to fetal development, with particular emphasis on the impact of acute and chronic stress on these developmental processes.
2. To provide an understanding of the general state of the field of pregnancy and childbirth care both in conventional health systems and in alternative options.
3. To provide an understanding of models of consultation and liaison that are adapted to the special conditions of pregnancy and childbirth care, as contrasted to the more traditional modes that characterize these activities in medical and surgical hospitals.

Women in Childbirth

Emotional disorders and mental illness associated with pregnancy and the postpartum period are addressed.

Environmental Context

Birthing Room vs.
Out-of Hospital
Birthing Center

A description of family centered hospital care (birthing room)and the alternative "out of hospital" birthing center is presented. The birthing room is one space where labor, delivery and recovery occur so that the woman doesn't have to be moved during the entire process. The out of hospital birthing center is generally a clinic run by midwives for prenatal care as well as birthing, with great emphasis on a natural approach to childbirth.

Cohen, continued,

Research Based Findings

The purpose of the study was to learn something about the factors that are leading women and their mates to choose one method of childbirth over another. The information was derived from 125 postnatal interviews conducted in six programs (two university hospitals, two "out of hospital" birth centers, and two "in hospital" birthing rooms).

_____, "Joyous Design", Contract, 30:2, February, 1988, p. 102-103.

Description

This case study is a description of the LDRP units at the Family Birthplace, at Pacific Presbyterian Medical Center, in San Francisco, designed by Stone, Marracini, and Paterson. The designers advocate the LDRP over the LDR system because using a single room for the entire stay is less disruptive to the mother and allows the family greater privacy.

Therapeutic Goals

The designer's goal is to create an intimate environment with high-tech capabilities.

Design Guidelines

The result should be one room in which the home-like labor room can be converted to a functional delivery room in less than one minute.

Walls and ceilings specifically designed for high acoustical privacy are meant to encourage family members to feel a part of the birthing process.

Designs should give the patient the best views to the outside.

Designs should emphasize adjacencies so that no patient ever has to be moved far from her birthing room base, whether to use a special cesarian operating room or to visit the nursery.

Danko, William D. and Boucher, David L., "Perspectives from Users of Obstetric Services: Implications for Providers", Health Marketing Quarterly, State U. Of New York, School of Business, Albany, 1985 Vol. 3(1), p. 41-48.

Description

The objectives of this research is as follows:
1. Determine the extent to which a hospital's future marketing planning for obstetric services should focus directly on women in the child bearing age group as opposed to obstetricians themselves.
2. Identify the community's perception of obstetric services offered at competing hospitals in a given service area.

Research Methodology

To provide greater insight into the market dynamics in a particular service area, three focus groups were conducted by the first author in the spring of 1984. In total, 31 women aged 18 to 35 who had given birth to at least one child in the last five years were surveyed. Sixteen mothers delivered at a proprietary hospital, six at a teaching hospital, and nine at a community hospital in the same service area. Each focus group session lasted approximately 90 minutes. Furthermore, to corroborate and summarize the major points that were discussed, each woman responded to a structured questionnaire at the conclusion of each session. The structured questionnaire which measured the importance and satisfaction of 20 criteria as they related to each woman's most recent birth, was based on a review of the literature.

Research Based Findings

One of the most significant findings of this research was the rank ordering of the evaluative criteria. The order of importance of the characteristics, starting with the most important, is as follows:
high quality medical care, pre-delivery nursing care, adequate modern equipment,

Danko, continued,

clean hospital, father allowed in delivery room, post-delivery nursing care, family visitation rights, good hospital reputation, efficient admission procedure, privacy, delivery procedure options, pleasant physical surroundings, food quality, convenient location, attractive post-delivery rooms, preferred by physician, adequate parking, religious affiliation, respectable people as patients.

This study supports the notion that a positive birthing experience is in the best interest of a hospital if it is to continue to attract a patient base.

Design Guidelines

Based on the findings listed above, the design of birthing environments should emphasize accommodations for the father to be present during the entire birthing process, privacy, and pleasant physical surroundings. Privacy can be achieved by arranging square footage allocations so that all rooms are private, rather than two patient rooms. Entry to each room could provide initial screening from the patient bed.

Doering, Susan, G., Entwisle, Doris R., and Quinlan, Daniel, "Modeling the Quality of Women's Birth Experience", Journal of Health and Social Behavior, vol. 21, March 1980, 12-21.

Description

This is a longitudinal study of 120 couples during the period of family formation. The paper focuses on how preparation of the wife during pregnancy and the husband's participation in the birth of their child affect the wife's reaction to the birth event. It is shown that the quality of a woman's birth experience not only is important for her own well being but is increasingly recognized to be of importance for the marital relationship and parenting as well.

Research Methodology

A model was formulated to explain the quality of a women's birth experience. In the model both the woman's preparation level and husband's participation are taken as exogenous variables. Direct paths link both woman's preparation level and husband's participation to the perceived degree of pain during childbirth. Earlier work, described in the paper, documents the possible correlation between women's preparation for childbirth and the pain she experiences. In addition, one would suspect that the husband, by encouraging and comforting his wife, would reduce her anxiety (closely related to pain), and at least the pain would be more bearable with the husband present to help the woman in controlling contractions.

Both pain and the two variables prior to it are expected to act directly upon level of awareness - with less pain and less medication is required.

Doering, continued

Women's birth enjoyment, the ultimate endogenous variable, is assumed to be directly affected by all of the prior variables, the reasons for which are explained.

Data source: The study utilized interviews of 120 Maryland women delivering a first child. Interviews were conducted twice before and once shortly after the birth. Half of the women's husbands were interviewed before and after the birth.

Measurements: Each variable was analyzed and formulated into a numbered scale based on relative degree of women's preparation, husband's participation, perceived pain, level of awareness and quality of women's birth experience.

Environmental Context

Editor's note: Although this study doesn't directly address the environmental context as a variable for the quality of the women's birth experience, it can be concluded that the physical environment should accommodate and encourage the variables that do have a positive affect of the birth experience, specifically the husband's participation and the level of the women's awareness.

Research Based Findings

1. Preparation acts to increase the likelihood of a higher level of awareness at the time of delivery.
2. Husband's participation contributes both directly and indirectly to the woman's birth enjoyment.
3. The effects of pain on birth enjoyment are negative. Also, more pain reduces the level of awareness (more medication is required).
4. The importance of the level of awareness in predicting the quality of the women's birth experience is clearly revealed in this analysis.

Jordan, Brigitte, "The Hut and the Hospital: Information, Power, and Symbolism in the Artifacts of Birth", Birth, 14(1),March 1987, 36-39.

Description

As the tools of birth change from familiar household objects, such as hammocks and beds, to high technology objects, such as delivery tables and fetal monitors, significant changes occur in the ability to give physical support to women during labor and in who owns the tools and the information they provide. Data derived from the laboring woman herself are less sought after and less valued.

Social Issues

Low-Tech vs. High-Tech Impact on Women in Childbirth

Changes from low-tech to high-tech result in a change of who controls the flow of information relevant to the management of the birth.

A low-tech birth involves the shared distribution of knowledge among the collaborative team, leading to joint decisions when trouble arises.

A high-tech birth involves specialized instruments which provide knowledge that is privileged to the medical team. All participants, including the woman, look to the machine for the crucial information, not to the woman's experience or the state of her body.

Klee, Linnea,"Home Away From Home: The Alternative Birth Center", Social Science and Medicine, Vol. 23, No. 1, pp. 9-16, 1986.

Description

In response to consumer complaints, some physicians and hospitals have established in-hospital centers for family oriented maternity care. These programs are specifically designed as an alternative to those who may have chosen to give birth at home.

Environmental Context

Alternative birth centers offer a home-like setting for birth in the hospital. The labor and delivery take place in a room designed to appear like a bedroom at home. Hospitals vary greatly in terms of policies for the extent of medical intervention permitted and/or required, and the extensiveness of high-tech medical equipment available behind the closed cabinet doors of the "ABC".

This paper examines the reasons for choosing the alternative birth center and the satisfaction with the outcome using this type of facility for giving birth.

Research Methodology

Open-ended, semi-structured interviews were conducted with 36 women who chose to have their babies in ABCs in two private and one county hospital on the West Coast in 1980-1982. It compares the opinions of these women to those of women who selected either birth at home with lay midwives or conventional hospital birth with obstetricians.

Research Findings

When asked why women chose to use the ABC for giving birth, the most common answers given were: 1. to avoid obstetrical interventions and 2. to experience the physical comfort of a home-like atmosphere. Other answers given less frequently were: to be attended by a midwife, to insure fewer medical risks, and to experience a more "natural"

Klee, continued,

childbirth than believed possible in conventional labor and delivery.

Women in this study chose the ABCs so that they could experience greater comfort and avoid interventions performed in delivery room births, but also have obstetricians and technological interventions on hand "just in case something goes wrong". Women in this study who chose home births expressed more critical and skeptical views of biomedical approaches to childbirth. These women adopt a different ideology of childbirth and do not trust hospitals.

Conclusions

Hospitals have established ABCs to attract women who would otherwise be giving birth at home. However, the evidence shows that they are in fact attracting women who would otherwise have given birth in a conventional labor and delivery suites. These women have been somewhat influenced by the birth reform movement, preferring no medications and as little intervention as possible, but they generally trust the established authority of modern obstetrics and the expertise of physicians.

Design Guideline

Designers should recognize that one of the top reasons for women choosing the ABCs was a preference for a "home-like atmosphere". The interior design for birthing rooms and birth centers should emphasize colors and furnishings that avoid an institutional and hospital ambiance and do promote a likeness to home.

McClain, Carol S., "Perceived Risk and Choice of Childbirth Service", Social Science and Medicine, Vol. 17, No. 23, 1983, pp. 1857-1865.

Description

This paper presents an analysis of the risk perceptions of a sample of pregnant women in a large metropolitan area on the West Coast regarding childbirth and its medical management, and how these perceptions correspond to their choice of childbirth service. The analysis first summarizes recent experimental work in cognitive and social psychology on information processing in decision making and examines its usefulness for the study of women's reproductive strategies in real life contexts. Following this, perceived risks of childbirth and its management are examined in light of the concept of "bolstering" advanced in Janis and Mann's conflict theory of decision making. The findings, that women discount the risks and magnify the benefits of the chosen birth service, and exaggerate the risks and minimize the advantages of the rejected services, support the concept of bolstering and provide empirical evidence of its explanatory power in interpreting a decision making domain - women's childbirth care decision making.

Research Method

Interview respondents were healthy women with uncomplicated pregnancies who were drawn in purposeful samples from a variety of prenatal care services. Data on perceived risk associated with childbirth and its care were obtained by means of semi-structured, focused interviews conducted with respondents during the second trimester of pregnancy. To see if risk perceptions differed by choice of birth service, respondents were divided into three contrasting groups.

McClain, continued,

according to their choice of birth service: 15 women had chosen home births with lay midwives, 15 women had selected an alternative birth center with nurse-midwife care, and 17 had favored conventional hospital labor and delivery with an obstetrician as attendant.

Research Findings

Decision makers who have made a social commitment to a given birth service bolster their choice by playing up the risks of rejected alternatives and by discounting the risks of the chosen method. The bolstering hypothesis provides a plausible explanation of how women as consumers of obstetric care construct idiosyncratic risk-benefit assessments of childbirth care alternatives which make their choices appear as the most attractive and the least risky of the available options.

McClain, Carol S., "Some Social Network Differences Between Women Choosing Home and HOspital Births", Human Organization, Vol. 46, No. 2, 1987, pp.146-152.

Description

This paper examines how important social networks are to women's choices for childbirth care, and if they assume distinct functions for women choosing birth at home. Social network is defined as a "unit of social structure that includes all of an individual's social contacts". The paper presents data which shows significant differences in social network uses between women planning birth at home and those planning birth in the hospital.

Research Method

Open-ended, semi-structured interviews were conducted with 45 women choosing birth at home and 69 women choosing birth in the hospital. Respondents in the hospital birth option included 37 women choosing in-hospital alternative birth center care, and 32 women choosing conventional labor and delivery care. Respondents were located through their prenatal care providers, and contacted by phone in the first or early second trimester of pregnancy to explain the study and request their participation. Each participant was interviewed twice, once before and once after the birth.

Research Findings

Women choosing home birth were found to be significantly different from women choosing both hospital birth services along seven network dimensions.

1. Home birth women knew many more women who had also given birth at home than did both groups of hospital birth women.
2. and 3. The second and third network variable compared friend's attendance at respondents' births and, reciprocally, respondents' attendances at the births of

McClain, continued,

friends. Home birth women invited more friends to the birth, and in turn, attended more births of friends, in particular home births, than did both groups of hospital birth mothers.
4.Detailed knowledge of friends births was more common among home births than hospital births.
5.Influence of friends as a factor: A large majority of home birth women felt that their friend's experiences and plans regarding pregnancy and birth influenced their own choices, and that they, in turn, influenced their friends' choices. Women who delivered in hospitals, conventional care choosers more so than ABC choosers, not only know less about their friends pregnancies and births, but also reported less influence from friends on their own plans.
6. and 7. The extent to which birth care choices deviated from social norms, as represented most vividly by the values and preferences held by social network members. Home birth mothers encountered the most disapproval and approval from network members. Because the choice of birth at home is still socially regarded as deviant, home birth mothers encountered stronger opinions on both sides of the issue from friends than did women making the much more conventional choice of having a baby in the hospital.

Newton, Niles, "Special Issues in Nurse-Midwifery: A Look at the Past and Future", Journal of Nurse MIdwifery, 31:5, September/October, 1986, 232-239.

Description

This paper cites some of the documented achievements of nurse-midwifery and presents a fantasized look at the status of the profession in the year 2001.

Environmental Context

Free Standing Birth Centers

Free standing birth centers with midwife attended deliveries offer a viable alternative to healthy pregnant women in this country. Birth centers are also economical.

In Hospital Birth Center

The in-hospital childbearing center is a new approach to labor, delivery and recovery in the hospital under the primary care of either a midwife or obstetrician. Even with an apparently healthy, normal pregnancy, many medical and obstetrical emergencies occur that cannot be anticipated. The author believes that a childbearing center remote from a medical facility cannot adequately cope with many emergencies.

Research Based Findings

A 1982 study of 11 birth centers whose primary caretakers were certified nurse-midwives with physician backup was reported. The findings showed that only 15% of the birth center families needed transfer to the hospital after the onset of labor. Ninety nine percent of the women began labor spontaneously, but 38% had augmentation of labor by artificial rupture of the membranes. Almost 60% of the labors proceeded without any medications for pain. 89% were spontaneous deliveries, and 5% had cesarean sections at the backup hospitals.The free standing birthing

Newton, continued

center is a combination clinic for pre-natal care and childbirth education center, and a place for childbirth for mothers that have been carefully screened for any high risk factors. The midwife team provides the health care with physician backup if the need arises.

Therapeutic Goals

Therapeutic goals for the childbearing center are safe care, low cost, family participation, effective primary care and referral, responsive governing body, mutual respect between professionals and families, and an extensive childbirth education program.

Palkovitz, Rob, "Father's Birth Attendance, Early Contact, an Extended Contact with Their Newborns: A Critical Review", Child Development, vol. 56, 1985, 392-406.

Description

Research concerning fathers' birth attendance, early contact, an extended contact with newborn infants is reviewed in this paper. Relationships between fathers' early history with infants and subsequent patterns of involvement are discussed. Methodological challenges of studying the effects of fathers' birth attendance and early contact with infants are considered. Implications for future research and policy-making are discussed.

Conclusion

An objective reading of the existing literature suggests that although some father-infant relationships may benefit from increased exposure, birth attendance, early contact, and extended contact are neither necessary nor sufficient for the establishment of positive father-infant relationships.

Evidence does suggest that father involvement in birth attendance, early contact and extended contact enhances the marital relationship (if the experience is viewed positively by the couple) and father's feelings of inclusion in the evolving family (Parke, 1978). Based on this review of the literature, it appears as though the indirect effects of marital enhancement and feelings of inclusion in the evolving family exert a more powerful impact on the father-infant relationship

Palkovitz, continued

than the direct effects of early interaction with the infant.

Design Guidelines

[The editor recommends that since the literature points to the positive effects of father's birth attendance and since that is the current expectation of couples and the policy of most hospitals, that birthing rooms be designed to accommodate the needs of the fathers. This includes space allocations and appropriate furnishings for father's relaxation, refreshments and space at his wife's bedside.

Parker, William A. Jr., "Designing an Environment for Childbirth, An Architect's Approach" in, Blum, Barbara L, ed. Psychological Aspects of Pregnancy, Birthing and Bonding, New York: Human Sciences Press, 1980.

Description

This chapter examines the design of the obstetrics and delivery environment in the hospital setting. A brief summary of the history of childbirth and the changes taking place in the obstetrics and delivery department and the underlying philosophies is presented. Design implications are suggested, based on the author's personal experience and observations.

Therapeutic Goals

Provide Flexibility and Options

In order to provide a responsive, sensitive, and meaningful environment for the potentially wide range of activities and needs experienced by today's expecting mother, the design must not preclude a correspondingly wide range of perceptual and behavioral options. These options include mobility during the early stages of labor, involvement of other family members, and various posture options during the actual birth. Because every mother is different and will experience childbirth differently, each mother will have different physical and psychosocial needs and should be able to find the appropriate amount and kind of support from her labor/delivery environment.

Design Guidelines

Admitting

A small admitting office provides privacy and lends a formal sense

Parker, continued

of importance to the admitting interview, thereby reinforcing the patient's individual identity.

Prepping

When the woman has to undergo some dehumanizing procedures or invasions of privacy to be "prepped" this should take place in the mother's bedroom. She should have her own home base while she is in the hospital.

Labor

During the beginning stages of labor many women may choose to be alone or she may prefer to walk and socialize. These options should be made available to her. As the labor progresses to the more intense and painful phase, the woman and her husband will be primarily in her bedroom and the focus of attention will shift from the social support of a lounge to the medical support of the staff work area or nurse station. The design recommendation is that the cluster or row of LDR units be centered between a wing that is a "social", public space and a wing that is a "medical" private zone.

Delivery

There is a clear demand for delivery facilities which are less technologically dominant, less complex, less frightening, and more comfortable or homelike. Yet,emergency backup services must be provided.

Most normal deliveries do not require the antiseptic environment of the typical delivery room and could therefore occur in the mother's bedroom, provided there is enough space for staff and equipment. Three hundred to three hundred fifty square feet is the recommended minimum.

Parker, continued,

Recovery	Recovery, with time for mother, father and child to be alone, can take place in the same room as labor and delivery. The delivery environment should be adaptable to the quiet nature of this recovery period. If it is possible for the mother to remain in her homebase-bedroom for the remaining 2-3 days of her hospital stay, then it is suggested that the room accommodate the father to stay overnight with mother and baby.

Sacks, Susan Riemer,"Parental Choice of Alternative Birth Environments and Attitudes Toward Childbearing Philosophy", Journal of Marriage and the Family, 1984, 469-475.

Description

This study sought to determine the attitudes and values of prospective parents choosing three approaches to childbirth: maternity center, hospital, and home birth. The investigation examined (a) decision-making procedures and considerations for choice of birth environment, and (b) attitudes toward traditional parenting and values.

Research Methodology

Sixty four prospective mother-father pairs from the three birth environment groups participated in the questionnaire survey.

Research-Based Findings

The birth environment groups differ with respect to how and why they select a particular delivery mode for their first child. Maternity center couples emerge on the whole as less traditional and more representative of sex-egalitarian attitudes toward parenting.

Although the 128 participants in this study were from the same metropolitan area and had access to birth environment information, only maternity center and home birth couples indicated full awareness (95%-100%)of the three available birthing modes. This suggests differences in the initial approach to childbirth, with pairs in these two groups, as compared with those in the hospital group, more fully investigating options for childbirth environments.

Schneider, Dona, "Planned 'Out Of Hospital' Births, New Jersey, 1978-1980", Social Science and Medicine, Vol. 23, No. 10, 1986, P. 1011-1015.

DESCRIPTION:

From 1975 to 1978 there was a major increase in the number of "out of hospital" births in New Jersey. As birthing centers were opening, midwifery licenses increasing in number and OOH deliveries on the rise, it appeared that a trend toward an increase in birth alternatives was taking hold in New Jersey. A data base was being established by the New Jersey Department of Health, Maternal-Child Health to study all OOH births.

RESEARCH METHODOLOGY:

This study was designed to collect residence location and personal data on all OOH births from New Jersey birth certificates, determine whether the birth was planned or unplanned to occur outside the hospital, plot locational data on New Jersey maps, tabulate the data and compare both locational and personal data on OOH births with statewide birth data. Interviews with midwives, physicians, Health Department personnel, medical educators, consumer advocates, mothers and birthing center personnel were conducted to elicit explanations for data results.

RESEARCH FINDINGS:

Trends:

1. While a rise in the number of OOH births in 1977 provided the impetus to begin data collections, the absolute number of planned OOH births did not rise over the next three years, nor did the

Schneider, continued

percentage of planned OOH births relative to the total number of births in the state.

Caregivers:

2. The majority of planned OOH births were attended by midwives. The data showed that of 208 births that were attended by physicians at home, 172 were attended by the same physician. Of 214 home deliveries attended by midwives, 156 were attended by the same midwife. The entire birth alternative movement in New Jersey was dependent on the activity of less than a dozen individuals.

Infant Weight:

3. The data showed that the proportion of low birth weight infants born at planned OOH births is significantly lower than the proportion of low birth weight infants born to the total population.

First v.s. Second Births:

4.Significantly more second children were born in planned OOH births than would be expected from the number of second children born to the total population. Interviews revealed that women often chose the OOH birth after an unsatisfactory traditional first birthing experience.

Women:

5.Women who chose planned OOH births were more than likely than the total birthing population to be married, unlikely to be under 19 or over 35 years of age, having their second child, to have had 13 or more years of education and often had post-graduate training, as well.

Schneider, continued,

HEALTH PLANNING IMPLICATIONS:

There appears to be a small but consistent demand for birth alternatives in New Jersey. In some areas the medical establishment has answered this demand by in-hospital midwifery services and birthing rooms. This arrangement satisfies the medical community in regard to safety and that they are providing the alternative services necessary to meet the demands of women.

A small but widely diffuse birthing population continue to demand a planned OOH birth. For some the answer is the free standing birthing center. Here they will be treated as clients rather than patients. The normalcy of their pregnancy and birthing experience will be confirmed by the staff, and the woman will participate in her care and decisions about her body.

Home birth remains firmly entrenched in New Jersey as a birthing alternative.

Sumner, Philip E. and Phillips, Celeste R. Birthing Rooms - Concept and Reality, St. Louis: The C.V. Mosby Company, 1981.

Description

This book describes the history and rationale behind the Manchester Memorial Hospital, in the small town of Manchester, Connecticut. In 1969 this hospital became the first hospital in the United States to establish a birthing room. The author, who was the driving force behind the formation of the birthing room concept at the hospital, reviews how he came to be convinced that a natural, rather than pathologic and technological, approach to childbirth is the better way.

Research Method

Informal interviews with couples taking an active and meaningful part in childbirth and utilizing the birthing room at Manchester Memorial Hospital are presented in an anecdotal fashion. The women and their husbands offer their critique of important aspects of their care, their environment and how it effected their feelings about the birth experience.

Environmental Context

The birthing room at Manchester Memorial Hospital and its primary furnishing, the labor-delivery bed, are described in great detail and shown to be far superior to the traditional hospital delivery room and delivery table. Different types of delivery beds are illustrated and described.

Sumner, continued,

Therapeutic Goals

1. The physical and emotional preparation of the mother and father.
2. Availability of continuous, one-to-one support for mother and father throughout labor and delivery by a maternity nurse (monitrice) prepared in psychoprophylaxis.
3. Individualization of each birth experience with maximum emotional support for the new family.

Design Guidelines

A single, all-inclusive unit for both labor and birth, with all mothers eligible for this unit is recommended.

Stolte, Karen and Taylor Myers, Sheila,
"Nurses' Responses to Changes in Maternity Care
Part I. Family-Centered Changes and Short Hospitalization",
Birth, 14(2), June 1987, 82-86

Description/ Research Method

An informal study, based on interviews of nurses, was conducted to determine what changes nurses report in maternity care and how these changes affect them and their practice. Changes related to family centered maternity care, short postpartum hospitalization, and patient characteristics are reported.

Nurses

Nurses report more job satisfaction overall, but that their workloads had increased as a result of these changes, with more "traffic managing" and patient teaching required. Conflicts arise from a lack of postpartum teaching time, lower patient census causing job insecurity, and from the need to care for all the members of the family instead of only mothers and babies.

Thiede, Henry A., M.D.
"The Case For the Hospital Delivery," in
Maternity Care in Ferment: Conflicting
Issues, ed. Martin Kelly, New York: Maternity
Center Association, 1980.

Description

The author is an obstetrician who compares free standing birthing centers and hospital childbearing centers. Nurse-midwives provide the primary care in the free standing birthing center. They are skilled in normal obstetrical care, strongly pro-feminist, and seek independence of expression and less accountability to physicians. Midwives intend to isolate themselves physically from the medical community through the use of free standing birthing centers.

Environmental Context

Free Standing Birthing Center

The free standing birthing center is a combination clinic for pre-natal care and childbirth education center, and a place for childbirth for mothers that have been carefully screened for any high risk factors. The midwife team provides the health care with physician backup if the need arises.

In-Hospital Childbearing Center

The in-hospital childbearing center is a new approach to labor, delivery and recovery in the hospital under the primary care of either a midwife or an obstetrician. Even with an apparently healthy, normal pregnancy, many medical and obstetrical emergencies occur that

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cannot be anticipated. The author believes that a childbearing center remote from a medical facility cannot adequately cope with many emergencies.

Therapeutic Goals

Therapeutic goals for the childbearing center are safe care, low cost, family participation, effective primary care and referral, responsive governing body, mutual respect between professionals and families, and an extensive childbirth education program.

Waryas, Frances S. and Luebbers, Matthew B., "A Cluster System for Maternity Care", MCN, 11, March/April 1986, 98-100.

Description

This article describes the Family Maternity Center at Holy Family Hospital, which opened in 1983. The program demonstrates how hospitals can provide cost-effective maternity services without sacrificing quality of care or client and nurses' satisfaction.

Women in Childbirth
Social Control and Social Support

Throughout pregnancy and childbirth, expectant mothers are considered partners in their care which is delivered according to a plan that they design with their physician. Support persons, including children, can remain in the birthing room. The birth process is kept as normal as possible. Mothers actively participate in all decisions pertaining to labor and childbirth. After the birth, close relatives and support people are permitted into the birthing room with the baby present.

Environmental Context
LDRP Rooms

The Center was designed as a cluster system based on the concept of single room maternity care, for labor, delivery and postpartum care. Seven birthing rooms are clustered around a central service core. The birthing rooms are equipped to handle all obstetrical procedures except cesarean births. They are decorated in attractive, individual styles, and each has a shower and toilet, a childbirth

Waryas, continued,

bed/chair, a table and chairs, a dresser and nightstand.

Nursing Stations

The central core contains the nurses station, storage space for equipment, a traditional delivery room and a cesarean delivery room, and a waiting room. Next to the nursing station is a nursery area for infants with special needs.

Wertz, Richard W. and Wertz, Dorothy C.
Lying-In, A History of Childbirth in America,
New Haven: Yale University Press, 1989.

Description

This book integrates the cultural, social and technological events surrounding birth into a comprehensive approach to the history of birth. It explains how changes in gender roles and cultural values interacted with the medical profession as it emerged with its technologies to transform birth from a natural to a technological event.

Social Trends in Childbirth

The last two chapters of the book examine the decade of the 1980's and how contemporary women choose to have their babies. Most women today give birth awake and aware in the presence of husbands or another companion, receive fewer drugs, hold their babies right after birth and are likely to breastfeed with the hospital's encouragement. It appears that the consumers' demand for a more humane birthing process has been fulfilled.

Yet most pregnancies and births actually use more kinds of technology today than in the 1970's. This is because most of the participants, (parents, doctors and the general society), have shifted the emphasis from creating a humane birth to producing the "better child". The primary goal of families in birth is to produce the newborn that is unblemished, free of inherited disease and birth trauma.

Wertz, continued,

Women

Women have been increasingly willing to surrender some control over their bodies and some of their aspirations to natural birth by choosing to collaborate with medicine's new birth technologies.

Political Influence on Birthing Environments

An historical review of the movement for free standing birth centers is presented. Birth centers fulfill the desires of middle class women who seek to avoid the hospital but still wish to have medically trained attendants. They also fulfill the need of some of America's 1500 certified nurse-midwives who use the centers as a means for an independent practice. Actually 28% of free standing birth centers are owned and run by physicians.

PART IV:

EPILOGUE

Many aspects of the way health care providers deliver services to women in childbirth are tied to the economic realities of costs and revenues. Hospitals are updating their facilities to compete in the market for women's health care, but also face decreasing lengths of stay and insurance coverages. Single room maternity care is intended to answer both of these problems by decreasing hospital labor costs and increasing the appeal of the new facility design to expectant mothers and their doctors.

Those who advocate various methods of natural childbirth, midwifery and the use of free standing birth centers also are reacting to the limitation of funds for childbirth. Most proponents of free standing birth centers and a non-medical interventionist approach tout the reduced cost of giving birth in this type of facility. In this setting, often women are sent home from four to twelve hours after birth, with some type of nurse follow-up service.

Although experts in the field of childbirth indicate that it is usually safe to send women home four to twenty-four hours after birth, most agree that this situation is far from optimal. Reasons for this discontent range from concerns about newborn problems that often don't arise until the third day after birth, to too short of a recovery period for women going home to active household and childcare responsibilities.

The economic reality of competition in the health care industry has required designers of birth facilities to create environments for childbirth that encourage a comfortable, pleasant and supportive experience.

This research project and the resulting **"Design Guidelines for Birthing Environments"** is intended to offer birth facility planners and designers a source for research based design concepts and features. The ambulatory care center for birthing and women's health care is fast becoming a reality.

POSTPARTUM CONVALESCENT CENTER

Perhaps a new facility type is on the horizon. Women who need to extend their supported recovery period could do so in a facility designed for an extended postpartum stay. This facility for new mothers and babies may be considered as an adjunct to hospitals or birth centers. Designed for women who need a low level of medical care, the Postpartum Convalescent Center could provide flexible nursery care for newborns, prepared meals and housekeeping care for mothers, and nursing follow-up for mothers as it becomes necessary. This new facility type, with a low level of medical services and equipment, could offer mothers and hospitals a low cost flexible option for postpartum needs.

APPENDIX A:

ILLINOIS AMINISTRATIVE CODE, REGS. FOR SINGLE ROOM MATERNITY CARE

Section 250.1870 Single Room Maternity Care

a) Hospitals may establish a single room maternity care program in compliance with this Section. The single room maternity care program may include the hospital's entire maternity service or a specific portion of the hospital's maternity service.

b) General Description

1) A single room maternity care program provides labor, delivery, recovery, and postpartum care for a mother in a single room. The combination of functions in a single room is designed to reduce the movement of the mother within the hospital.

2) The single room maternity care program must be coordinated with other maternity services of the hospital. Facilities for emergency Cesarean deliveries must be available. Single rooms may be used for all levels of maternity care, other than Cesarean deliveries, based on the hospital's program.

3) Rooms used for single room maternity care must include facilities for care of the infant during delivery and immediately after birth. Such rooms may also include facilities for rooming-in care of the infant.

c) Program Establishment

1) The single room maternity service program shall be submitted to the Department as an amendment to the hospital's maternity and neonatal services plan. The amendment shall include all of the policies and procedures for operation of the program which are required by this Section.

2) The program shall be approved by the Board of the hospital prior to submission to the Department.

3) Architectural plans for any remodelling or changes in room functions which are required for operation of the program shall be submitted to the Department for review as provided in Section 250.2420.

4) Any increases or decreases in the number of beds in the hospital's maternity service which occur as a result of the establishment of a single room maternity care program may also require the approval of the Illinois Health Facilities Planning Board. Refer to the rules of the Illinois Health Facilities Planning Board at 77 Ill. Adm. Code 1100 and 1110.

5) The hospital shall not implement the program prior to approval of the program and any architectural plans by the Department.

Section 250.1870 (continued)

d) Designation of Rooms. The single room maternity care program shall specify the specific rooms which will be used for single room maternity care. These rooms may be used as patient rooms for other maternity patients in the maternity unit at times when they are not being used for single room maternity care.

e) Staffing Requirements

1) The program shall include a staffing plan which meets the nursing needs of the patients.

2) The program shall include provisions for specialized orientation and training for nurses and other health care personnel in the operation of the single room maternity care program, including the care of both mothers and infants.

f) Visiting Requirements. The program shall include specific policies and procedures concerning visiting. These policies and procedures shall include the following:

1) A requirement that the consent of the mother and the physician be obtained for each visitor who will be permitted in the room during delivery.

2) Provisions for prior orientation and education for visitors who will be permitted in the room during delivery.

3) A requirement for gowning and handwashing by all visitors who are present in the room during delivery.

4) Provisions for visiting during labor, recovery, and postpartum care of the mother which comply with Section 250.1830(k).

5) Provisions for visiting during rooming-in of the infant which comply with Section 250.1850.

g) Physical Plant Requirements

1) Each room used for single room maternity care shall be a single patient room. Rooms for multiple patients are not permitted.

2) Minimum Room Sizes

A) Each room used for single room maternity care shall include a minimum dimension of 12 feet and a minimum clear area of 250 square feet, except as provided in subsections (g)(2)(B) or (g)(2)(C) of this Section.

Section 250.1870(g)(2) (continued)

B) Rooms which were approved for use as "birthing rooms" by the Department prior to September 1, 1990, may continue to be used for single room maternity care. The hospital must follow the policies and procedures under which the rooms were approved.

C) Rooms which contain a minimum dimension of 10 feet and a minimum clear area of 180 square feet will be approved by the Department for single room maternity care, when the hospital demonstrates that all of the following conditions are met:

i) Policies and procedures for assessing the level of risk for each patient, for determining which patients may not utilize single room maternity care, and for referring patients to other facilities have been established and are being followed.

ii) The hospital participates in a Regional Perinatal Network and has been approved for Level I or Level II care. The hospital does not provide Level III care as described in the Department's rules entitled "Regionalized Perinatal Health Care Code" (77 Ill. Adm. Code 640).

iii) At least one delivery room with a minimum clear area of not less than 300 square feet is available for more complex deliveries and unanticipated risks. The delivery room must be in the maternity unit, on the same level as the rooms in which single room maternity care is provided, and accessible without passing through any areas used for functions other than single room maternity care, labor, or delivery, and without traversing any obstacles. In determining the accessibility of the delivery room the Department will consider factors such as traffic patterns, corridor width, corridor width changes, and number of turns.

iv) The medical staff of the hospital has approved the use of the rooms for single room maternity care based on their medical judgment that such care can be provided safely within the rooms.

D) For purposes of this subsection (g), clear area shall include only useable space within the 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 room.

Section 250.1870(g) (continued)

3) Staff Handwashing Sink

A) Each room used for single room maternity care shall have direct access to a handwashing sink for the exclusive purpose of staff handwashing prior to and during the delivery process. The sink may be used for other purposes at other times.

B) The staff handwashing sink must be adequate in size and appropriately equipped to allow thorough handwashing.

C) The staff handwashing sink may be located in the room, in the adjacent bathroom (if the bathroom is not shared with another patient room), or directly outside the room.

4) Bathroom

A) Each room used for single room maternity care shall include a bathroom equipped with a toilet and with a shower or bathtub. The bathroom shall also include a sink, unless a sink is located in the patient room.

B) The bathroom shall be directly accessible from the patient room without going through the corridor.

C) Bathrooms may be shared by no more than two patient rooms.

5) An area for gowning by staff and visitors prior to delivery shall be provided within or immediately adjacent to each room used for single room maternity care.

6) Rooms used for postpartum care of the mother shall also comply with the patient room requirements of Section 250.2630(d)(1) or Section 250.2440(d)(1).

7) Adequate nursery facilities shall be provided when rooming-in of infants is not utilized, when individual mothers choose not to participate in rooming-in of the infant, and when intermittent rooming-in of infants is utilized. [See Sections 250.1830(e), 250.1850, 250.2440(h) and 250.2630(h).]

8) Each room used for single room maternity care shall also comply with the following requirements:

A) Mechanical requirements for patient rooms in Section 250.2480(e)(8) or Section 250.2660.

B) Electrical requirements for patient rooms in Section 250.2500 or Section 250.2680.

Section 250.1870(g) (continued)

9) Wall, floor, and ceiling finishes shall be cleanable. All finishes shall be able to withstand cleaning and treatment with chemicals and disinfectants.

h) Equipment Requirements

1) All equipment necessary for delivery, for emergency care of the mother, for infant care, and for infant resuscitation shall be available to each room used for single room maternity care.

2) A complete set of delivery and infant care equipment shall be provided for every four or fewer rooms used for single room maternity care. For example: if four rooms are used, one complete set of equipment shall be provided; if five to eight rooms are used, two sets of equipment shall be provided; if nine to twelve rooms are used, three sets of equipment shall be provided.

3) Equipment may be stored in an equipment alcove or closet in the room, or in a separate equipment storage room. However, the equipment must be accessible for use without passing through another patient room. Each equipment storage area shall be located on the same floor and not more than 75 feet from each of the rooms served by the equipment storage area.

i) The policies and procedures approved by the Department in the amendment to the hospital's maternity and neonatal services plan shall be followed in the operation of the program. The program shall also be operated in accordance with all other requirements of this Part, unless specifically modified by this Section.

(Source: Added at 14 Ill. Reg. 13824, effective September 1, 1990)