

whites, mothers of children with IQs under 50 but without major neurological signs had a significantly higher frequency of urinary tract infection during pregnancy (40 percent) than mothers of severely retarded children with neurological abnormalities (5 percent) or those of children with IQs in the borderline, average, or above average ranges, where the frequency of this complication decreased linearly from 21 percent to 9 percent (2, 3,). A discriminant function model was used to investigate the independent contribution of maternal urinary tract infection to this subtype of severe cognitive deficit. Of the 92 children in the white sample with IQs under 50, 26 were free of major neurological abnormality. The prospectively ascertained pre- and perinatal characteristics of this group were compared with those of the neurologically abnormal severely retarded children, and with those of a large group of normals with IQs in the average range of 90 to 119 ($N = 12,667$). Maternal urinary tract infection during pregnancy was a significant independent discriminator in both comparisons.

Mothers with urinary tract infections may also have endotoxemia, which, in turn, can cause fetal damage. Within the Collaborative Perinatal Project population, this pregnancy complication has been related to low birth weight (4), excess perinatal deaths (5), and to fetal leukoencephalopathy in infants who died in the first month of life (6, 7). The

present findings are based on a small sample, but they suggest that maternal urinary tract infection is a significant risk factor for severe cognitive deficit in children.

References

1. Broman, S.H.: The collaborative perinatal project: an overview. *In* Handbook of longitudinal research, edited by S.A. Mednick, M. Harway, and K. M. Finello. Praeger Publishers, New York, vol. 1, 1984, pp. 185-215.
2. Broman, S.H., Nichols, P.L., Shaughnessy, P., and Kennedy, W.: Retardation in young children: a developmental study of cognitive deficit. Lawrence Erlbaum Associates, Hillsdale, NJ, 1987.
3. Broman, S.H.: Perinatal antecedents of severe mental retardation in school-age children. Paper presented at 86th annual convention, American Psychological Association, Toronto, August 1978.
4. Sever, J.L., Ellenberg, J.H., and Edmonds, D.: Maternal urinary tract infections and prematurity. *In* The epidemiology of prematurity, edited by R.M. Reed and F.J. Stanley. Urban and Schwarzenberg, Baltimore, 1977, pp. 193-196.
5. Naeye, R.L.: Causes of the excessive rates of perinatal mortality and prematurity in pregnancies complicated by maternal urinary tract infections. *N Engl J Med* 300:819-823, Apr. 12, 1979.
6. Leviton, A., and Gilles, F.: Maternal urinary tract infections and fetal leukoencephalopathy. *New Engl J Med* 301:661, Sept. 20, 1979.
7. Leviton, A., and Gilles, F.: Acquired perinatal leukoencephalopathy. *Ann Neurol* 16:1-8, July 1984.

Women's Health: Pregnancy and Childbirth

Issues and Concerns of Healthy Pregnant Women

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Synopsis

The issues and concerns of the 85 percent of essentially healthy women who have normal pregnancies and births are reviewed. The importance of their issues in relation to their health care and outcomes is discussed.

THIS DISCUSSION CONCERNS the approximately 85 percent of essentially healthy women who have normal pregnancies and babies. In reviewing the report of the Public Health Service Task Force on Women's Health Issues, however, very little was found on the issues of concern to these 85 percent of pregnant women. This discussion, then, takes the form of an overview of these issues and concerns and selected studies and references which address them.

The demographics of the 85 percent vary widely across the socioeconomic spectrum. Included is the lower socioeconomic, the so-called "clinic" population, who largely have fewer years of formal education. The 85 percent also includes the middle and upper socioeconomic, educated consumer population. The 85 percent range in age from the young adolescent to the over-30 elderly primigravida. These two diverse groups, and all those in between

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who comprise the 85 percent, have similar needs and issues. These include: one, knowledge about their own bodies and the anatomic, physiologic, and psychologic processes involved in pregnancy and childbirth; two, respect for their individual variations in education, culture, desire for participatory decision-making, and involvement in their pregnancy and childbirth experience; and three, maintenance of their healthy condition and screening for the earliest possible signs and symptoms of a developing complication.

Maternity Center Association (MCA) in New York City conducted one of the first intensive educational efforts in the 1920s to disseminate information to expectant parents about the need for maternity care. MCA's staff developed teaching materials and educational exhibits for use by individuals and agencies and assembled packets of these materials which they sent to ministers and mayors for use in making Mother's Day proclamations and speeches (1). With prenatal care well established, MCA next developed educational materials for teaching mothers' classes and preparation for natural childbirth during the 1940s. Researchers in a Yale-MCA project first studied the effects of natural childbirth on a woman's antepartal, intrapartal, and postpartal experience and reported their findings in "Support During Labor," a 1954 article by Herbert Thoms, M.D., and Ernestine Wiedenbach, Certified Nurse-Midwife (2).

The late 1950s and early 1960s saw the burgeoning of natural childbirth theories and methods, a key element of which was knowledge, and the birth of psychoprophylaxis. National organizations were formed, comprised of consumers and professionals who were allied in their beliefs and in the promotion of mothers prepared for childbirth. Early organizations included the International Childbirth Education Association (ICEA) and the American Society for Psychoprophylaxis. In 1956, the La Leche League was founded by a group of mothers to promote breastfeeding and provide help to breastfeeding mothers (3).

Since then, innumerable studies have documented the effectiveness of different childbirth preparation methods. These were reviewed in a 1986 publication by Broome and Koehler (4), who reported that the studies consistently showed that prepared women used less medication, reported less pain in all phases of labor, and reported more positive feelings about their childbirth experience. Prepared fathers reported greater expectations of being involved with infant care and demonstrated more attachment behaviors. Prepared couples were more positive about their infants, with higher gratification scores, and they reported less difficulty with their new infant. The research findings are inconsistent about the effect of prepared childbirth on length of labor or on reducing fetal and maternal complications. This inconsistency may be due to methodological problems, especially in controlling the variables and having comparable populations for comparison (4).

The inclusion of prenatal education within the context of the woman's prenatal visits is a vital component of prenatal care for all childbearing women. How to do this within the limitations of time in a busy clinic or office is a challenge. Roberts advocates the following priorities in giving information during a prenatal visit (5): first, information given in response to specific questions, problems, or experiences that the woman is having at this particular time in her pregnancy; second, information that is essential for a woman to have for her own, and her baby's, health and safety; third, anticipatory guidance that will facilitate a woman's efforts to deal realistically with the pregnancy and with issues or aspects of childbirth which she is likely to encounter; and finally, fourth, additional information regarding pregnancy progress, childbirth, or institutional policies that may be helpful but is not related to the immediate needs of the woman.

Health promotion and disease prevention during pregnancy start during the preconceptional period. This is especially critical in the early weeks of the first trimester, when a woman might not know she is pregnant, and the embryo is particularly susceptible to teratogens. The healthiest woman enters pregnancy with no drug use—prescription, social, or street drugs—not smoking, not using alcohol, regularly exercising, in good nutritional status, having had good pelvic health care, and having planned and wanted this pregnancy.

Participatory decision-making and involvement in their pregnancy and childbirth experience run the full gamut within the 85 percent from those women who do not wish to assume this responsibility to those consumers who are disenchanted with the health care

system and wish to control fully all aspects of their pregnancy and birth. The primary decisions made by pregnant women are the choice of health care provider and the locale of birth. If the pregnancy is complicated, these decisions become nonissues. For the 85 percent, however, these are often stormy, conflict-laden issues.

Fullerton (6) studied the choice of in-hospital or alternative birth environment, meaning home birth or out-of-hospital birth centers, in relation to the concept of control. She reports that, "attitudes towards issues of choice in the childbirth experience are related to the degree of control that one expects to exert over specific life events." Then she concludes: "Those individuals who need to, or are willing to, surrender control and decision-making during the birth experience are best served by obstetrical policies and procedures which provide such a structure of support. Alternately, those individuals who wish to retain that control cannot be well-served by environments which restrict freedom of choice" (6a).

The literature is full of the need for childbirth alternatives. Angry, educated, and articulate consumers from the 85 percent have written about their childbearing experiences in their belief that change can and must be effected in maternity care. In so doing, they have spoken for all childbearing women in their desire for respect for the right of the individual—to know all there is to know about what is happening to her; to participate in her pregnancy and birth and care and the decisions made rather than just having things done to her; to involve whoever is important and significant to her and to have these people treated with respect; to maintain self-worth and dignity; to have woman-centered and family-centered care rather than physician-centered and hospital-centered care; and to not be physically separated from her family and from her baby if her and her baby's condition are normal and healthy.

Concurrent with the blooming of the childbearing consumer movement during the 1960s and 1970s was the latest wave in the women's movement, which raised the consciousness of all individuals for women's issues. Many women in the childbearing consumer movement do not consider themselves feminists. However, the childbearing consumer movement and the women's movement agree that it is their right to have knowledge about and control over their own bodies. This juncture of the women's movement and the childbearing consumer movement is a powerful force (7a).

Safety is the first question raised in any discussion of out-of-hospital settings as a childbirth alternative

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for any portion of the 85 percent. Although the safety issue is often abused as a front for competitive economic concerns, this does not negate the fact that safety is a valid concern. It is a concern, however, that has valid answers. Five criteria must be met to ensure safety in alternative out-of-hospital birth settings and to draw comparisons with in-hospital birth settings. These follow (8): one, attendance by a qualified health care professional; two, strict adherence to stringent screening and transfer criteria; three, provision of care appropriate to the setting; four, immediately available transport system; and five, immediately accessible consulting physician in hospital arrangements.

Much has been written about out-of-hospital birth, much of it controversial. The statistics of the better designed studies and reports, however, support the premise of safety if the preceding criteria are met (9-11). The National Association of Childbirth Centers has undertaken a large study involving childbirth centers all over the country which will provide invaluable comprehensive data.

Certified Nurse-Midwives, as a health care provider option for the 85 percent, have always practiced in all the birth settings. The early nurse-midwives provided home birth services (12). One result of the reciprocal relationship which developed between the childbirth consumer movement and nurse-midwives during the 1970s and 1980s was the development of free-standing, out-of-hospital childbirth centers (13,14). Haire, in 1981, (15), and Sharp and Lewis, in 1984, (16) documented the value of nurse-midwives in collaborative management with physicians of patients in tertiary medical centers. A wealth of evaluation and effectiveness literature and research of nurse-midwifery practice is available, some of it well known for reporting of decreased perinatal and infant mortality, in areas such as Madera County, CA (17) and in Mississippi (18). This body of literature has been reviewed by Diers and Burst (19) and by Thompson (20). The American College of Nurse-Midwives Foundation released its report in 1986 entitled "Nurse-Midwifery in America," which includes a national survey of

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factors contributing to and hindering the successful practice of nurse-midwifery (21).

Respect for individual variation in choices is critical. It is also critical to respect individual variation in cultures and to interpret behavior correctly. For example, a recent study by Harris (22) of Haitian-American women showed that in Haiti the women experienced particular beliefs and practices immediately postpartum and in caring for their newborns. They had no such beliefs and practices pertinent to the antepartal period, so these women are not acclimated to the idea that receiving care during pregnancy is important. This should not be misinterpreted, however, as their not caring about the pregnancy or the forthcoming baby. Such understanding is critical to any plan to change behavior.

Maintenance of a healthy condition during pregnancy for mother and baby depends on a number of factors including those that were listed for the preconceptional period. Proper nutrition is paramount for good fetal growth, especially in the third trimester during the period of accelerated brain development, and it is a key component in decreasing low birth-weight rates with their sequelae of physical and mental handicaps. Utilization of the basic precepts contained within the Higgins methodology of nutritional intervention during pregnancy (23) and the provision of basic foodstuffs as done through the Women, Infants, and Children's Program for those who cannot afford them has been shown to be effective, even in pregnant adolescent populations, in reducing the rate of low-birth-weight babies (24, 25).

The Office of Technology Assessment of the U.S. Congress solicited contracts in 1986 to identify the components of prenatal care and then evaluate their effectiveness according to the research literature. Both this proposal and a paper recently prepared for the Bush Foundation (26) show an apparent lack of recognition that the content of prenatal care is only

as good as the interpersonal processes and the systems used to deliver the care. Equally important must be research and evaluation of these processes and systems.

Finally, continual screening is needed to detect the earliest possible signs and symptoms of a developing complication. This awareness starts with the clinical judgment applied to the findings from the woman's initial history, and the physical, pelvic, and laboratory assessment.

The issues arise when any technology is used routinely in screening. One of the current controversies is over routine use of ultrasonography during pregnancy. However, the debaters fail to recognize that they are discussing the use of a diagnostic tool as a screening tool and that these are two different things. Here the 85 percent with normal pregnancies are divided, as there are those for whom there is no clinical indication for ultrasonography other than that they are pregnant, but who can be persuaded to have a sonogram to determine the sex of the baby or to have a picture of the baby, or because the doctor says that it is a good idea. Others in the normal 85 percent, however, question the unknowns of ultrasound and worry that there might be adverse long-range effects which would evidence themselves years later (27).

Data are inconclusive. The methodology of the research done thus far on the safety of ultrasound can be criticized, yet members of the 85 percent read reports that there is evidence of *in vitro* cellular damage and genetic alterations from exposure to ultrasound at higher level output intensities than are used *in vivo* (28). Although these findings have not been demonstrated *in vivo*, and thus their application to the clinical situation and to obstetric diagnostic ultrasound is not clear (29), women are expressing concern and raising questions. Issues in the controversy include safety, risk-benefit ratios, routine use of ultrasound versus indicated use of ultrasound and the effect of either on outcomes, lack of valid research on latent or long-term effects, and informed consent (8). A reasonable path for pregnant women and health care professionals during this controversy is outlined in a position paper by the ICEA as recommendations for the use of diagnostic ultrasound (30).

There are countless other concerns and issues for the 85 percent; one is that they not be "risked out" of being in the 85 percent through the use of risk-screening tools that have been shown to lack sensitivity and predictive ability (26, 31). Rather, the risk-screening tools should be dissected in order to learn how to use better the data obtained from that

initial and revisit history, and from the physical, pelvic, and laboratory assessment.

My plea is that the 85 percent of healthy women with normal pregnancies and their concerns and issues not be ignored, or we may find their percentage dropping.

References

1. Maternity Center Association, 1918-1943, Maternity Center Association, New York, 1943.
2. Thoms, H., and Wiedenbach, E.: Support during labor. *JAMA* 156:3-5 (1954).
3. Burst, H. V.: The influence of consumers on the birthing movement. *In* Topics in clinical nursing: rehumanizing the acute care setting. 5:44-54, (a) pp. 45, 46 (1983).
4. Broome, M. E., and Koehler, C.: Childbirth education: a review of effects on the woman and her family. *Family Community Health* 9(1): 33-44, May 1986.
5. Roberts, J. E.: Priorities in prenatal education. *JOGN Nursing* 17-20, May/June 1976.
6. Fullerton, J.: The choice of in-hospital or alternative birth environment as related to the concept of control. *J Nurse-Midwifery* 27:17-23 (1982); (a) pp. 22, 23.
7. Burst, H. V.: Alternative birth settings and providers. *In* Current issues in nursing, edited by J. McClosky and H. Grace. Ed. 2. Blackwell Scientific Publications, Boston, 1985, Ch. 25; (a) p. 353.
8. Varney, H.: Nurse-midwifery, Ed. 2. Blackwell Scientific Publications, Boston, 1987.
9. Bennetts, A. B., and Lubic, R. W.: The free-standing birth centre. *Lancet* 1:378-380 Feb. 13, 1982.
10. Lubic, R. W.: Evaluation of an out-of-hospital maternity center for low-risk patients. *In* Health policy and nursing practice, edited by L. H. Aiken. McGraw-Hill Book Co., New York, 1980.
11. Mehl, L. E.: Research on alternatives in childbirth: what can it tell us about hospital practice? *In* 21st century obstetrics now!, Vol. 1, edited by L. Stewart and D. Stewart. Napsac, Inc., Marble Hill, MO, 1977, pp. 171-207.
12. Ernst, E. M., and Gordon, K. A.: 53 years of home birth experience at the frontier nursing service, Kentucky: 1925-1978. *In* Compulsory hospitalization or freedom of choice in childbirth, Vol. 2, edited by D. Stewart and L. Stewart. Napsac, Inc., Marble Hill, MO, 1979, pp. 505-516.
13. Lubic, R. W.: Childbearing centers: delivering more for less. *Am J Nursing* 1053-1056, July 1983.
14. Lubic, R. W., and Ernst, E. K. M.: The childbearing center: an alternative to conventional care. *Nursing Outlook* 26:754-760 (1978).
15. Haire, D.: Improving the outcome of pregnancy through increased utilization of midwives. *J Nurse-Midwifery* 26:5-8 (1981).
16. Sharp, E. S., and Lewis, L. E.: A decade of nurse-midwifery practice in a tertiary university-affiliated hospital. *J Nurse-Midwifery* 29:353-365 (1984).
17. Levy, B. S., Wilkinson, F. S., and Marine, W. M.: Reducing neonatal mortality rate with nurse-midwives. *Am J Obstet Gynecol* 109:50-58 (1971).
18. Meglen, M. C.: Nurse-midwife program in the southeast cuts mortality rates. *Contemporary OB/GYN* 8:79-97, August 1976.
19. Diers, D., and Burst, H. V.: Effectiveness of policy related research: nurse-midwifery as case study. *Image: J Nursing Scholarship* 15(3):68-74, Summer 1983.
20. Thompson, J. E.: Nurse-midwifery care: 1925-1984, *In* Annual review of nursing research, Vol. 4, edited by H. Werley, J. Fitzpatrick, and R. L. Taunton. Springer Publishing Co., New York, 1986, pp. 153-173.
21. Rooks, J., and Haas, J. E., editors: Nurse-midwifery in America. A.C.N.M. Foundation, Washington, DC, 1986.
22. Harris, K.: Beliefs and practices relating to childbearing of Haitian-American women. [Master's thesis] Yale University School of Nursing, New Haven, CT, 1986.
23. Higgins, A.: Nutritional status and the outcome of pregnancy. *J Can Diet Assoc* 17-35 (1976).
24. Corbett, M. A., and Burst, H. V.: Nutritional intervention in pregnancy. *J Nurse-Midwifery* 28:23-29 (1983).
25. Piechnick, S. L., and Corbett, M. A.: Adolescent pregnancy outcome: an experience with intervention. *J Nurse-Midwifery* 30:88-98 (1985).
26. Peoples-Sheps, M. D.: The content of prenatal care: evidence of effects and recommendations for essential components. Paper prepared for the Bush Institute for Child and Family Policy Conference on Prenatal Care, Washington, DC, May 27-28, 1986.
27. Haire, D.: Fetal effects of ultrasound: a growing controversy. *J Nurse-Midwifery* 29:241-246 (1984).
28. National Institutes of Health, Consensus Development Panel: The use of diagnostic ultrasound imaging in pregnancy. *J Nurse-Midwifery* 29:235-239 (1984).
29. Gonzalez, F. A.: Ultrasound. *J Nurse-Midwifery* 29:391-394 (1984).
30. ICEA Position Paper: Diagnostic ultrasound in obstetrics. International Childbirth Education Association, Minneapolis, MN, March 1983.
31. Marshall, V.: A comparison of two risk assessment tools, [Doctoral Dissertation] Harvard University School of Public Health, Cambridge, MA, 1986.