REPORT OF THE
SURGEON GENERAL'S WORKSHOP ON

BREASTFEEDING & HUMAN LACTATION

U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES · Public Health Service · Health Resources and Services Administration

We must identify and reduce barriers which keep women from beginning or continuing to breastfeed their infants.

—C. Everett Koop, M.D., Sc.D.
Surgeon General

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Presented by the
U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES
Public Health Service
Health Resources and Services Administration
Bureau of Health Care Delivery and Assistance
Division of Maternal and Child Health

In cooperation with
The University of Rochester Medical Center

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PREFACE

The Surgeon General's Workshop on Breastfeeding and Human Lactation represents a milestone in our continuing efforts to improve the health of our nation's mothers and infants. Research findings have documented the benefits of human milk and lactation for babies and mothers. One of the "Health Promotion/Disease Prevention Objectives for the Nation" is that by the year 1990, the proportion of women who breastfeed their babies should be increased to 75% at hospital discharge and 35% at 6 months of age.

The last decade has seen a steady increase in breastfeeding, predominantly among middle- and upper-income, educated, white women. We need to identify and reduce the barriers that interfere with breastfeeding, especially in those population groups with low prevalence of breastfeeding—among women who are minority, low income, and less educated.

The Workshop has provided an opportunity

- to review progress of past efforts, in both public and private sectors, to promote breastfeeding;
- to assess the state of the art related to factors that enhance and those that inhibit breastfeeding and human lactation;
- to determine remaining challenges;
- to develop strategies and recommendations in order to facilitate progress toward achieving the 1990 Objective.

Building on the model of the Healthy Mothers/Healthy Babies Coalition, this Workshop involved the participation of representatives of major professional and voluntary organizations. These organizations working in the public and private sectors will play a major role in the dissemination and implementation of the national recommendations.

The strategies developed at this Workshop will result in promotion of sound infant feeding practices and in informed decisions by more women about breastfeeding their babies.

C. Everett Koop, M.D., Sc.D.
Surgeon General

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WORKSHOP PROGRAM

June 11, 1984

8:00 a.m. - 12:00 noon	Opening Plenary Session The Strong Auditorium University of Rochester
Presiding	Elizabeth Brannon, M.S., R.D. Nutrition Specialist Division of Maternal and Child Health United States Department of Health and Human Services
Welcome	Robert Sproull, Ph.D. President University of Rochester
	Frank Young, M.D., Ph.D. Vice President for Health Affairs Dean, School of Medicine and Dentistry University of Rochester
	Ruth A. Lawrence, M.D. Associate Professor, Departments of Pediatrics and Obstetrics and Gynecology University of Rochester
	Henry A. Thiede, M.D. Chairman, Department of Obstetrics and Gynecology University of Rochester
Introduction of the Surgeon General	Michael McGinnis, M.D. Deputy Assistant Secretary for Health Disease Prevention and Health Promotion United States Department of Health and Human Services
8:30 a.m. Keynote Address	C. Everett Koop, M.D., Sc.D. Surgeon General
8:50 a.m. Human Lactation as a Physiologic Process	Ruth A. Lawrence, M.D.
9:15 a.m. The Unique Values of Human Milk	Cutberto Garza, M.D., Ph.D. Associate Director, USDA Children's Nutrition Research Center Department of Pediatrics Baylor College of Medicine
9:40 a.m. Breastfeeding Patterns in the United States	Gilbert Martinez, M.B.A. Director of Marketing Research Ross Laboratories
9:55 a.m.	Nutrition Break

9:55 a.m.	Nutrition Break
10:25 a.m. The Cultural Context of Breastfeeding in the United States	Susan Scrimshaw, Ph.D. Associate Professor of Public Health Division of Population, Family and International Health University of California, Los Angeles
10:50 a.m. Successful Approaches to Promote Breastfeeding	Henry A. Thiede, M.D., Moderator
State-wide Approach	Jerianne Heimendinger, D.Sc., M.P.H. Director of Nutrition Services Rhode Island Department of Health
City-wide Approach	Linda Randolph, M.D., M.P.H. Director, Office of Public Health New York State Department of Health
Rural-community Approach	John E. Alden, M.S., C.N.M. Indian Health Service Poplar, Montana
Hospital-based Approach	Audrey Naylor, M.D., Dr.P.H. Co-Director, San Diego Lactation Program Mercy Hospital and Medical Center
11:40 a.m. Guidelines for Work Groups	Martin Nacman, D.S.W. Director, Social Work Divison, Strong Memorial Hospital Professor, Department of Health Services University of Rochester
12:15 p.m. - 1:45 p.m.	Luncheon Bridge Lounge and May Room Wilson Commons
Presiding	Vince L. Hutchins, M.D., M.P.H. Director, Division of Maternal and Child Health United States Department of Health and Human Services
Invocation	Rabbi Judea B. Miller Temple B'rith Kodesh
Audiovisual Presentation "Outside My Mom"	March of Dimes Birth Defects Foundation
Speaker The Lay Volunteer in the Mother-to-Mother Program of La Leche League	Viola Lennon Founding Member, La Leche League International
2:00 p.m. - 4:30 p.m.	Work Groups Medical Education Building

7:00 p.m.	Reception and Dinner Memorial Art Gallery and Cutler Union Prince Street Campus
Master of Ceremonies	Richard Collins, M.D. Avon, New York
Invocation	Charles T. Lavery, C.S.B. Chancellor, St. John Fisher College
Speaker Breastfeeding: New York State's Infant Health Strategy	David Axelrod, M.D. Commissioner, New York State Department of Health
June 12, 1984	
7:45 a.m.	Continental Breakfast Medical Education Wing
8:30 a.m. - 11:45 a.m.	Work Groups
12:00 noon - 1:45 p.m.	Luncheon Helen Wood Hall
Presiding	Robert E. Hoekelman, M.D. Chairman, Department of Pediatrics University of Rochester
Invocation	Chaplain Thomas Herbek, M.Div., M.Ed. Strong Memorial Hospital
Speaker Breastfeeding and the Media	Robert Bazell NBC Network
2:00 p.m. - 4:00 p.m.	Closing Plenary Session First Floor Auditorium Medical Education Wing
Presiding Reports from Work Groups	Vince L. Hutchins, M.D., M.P.H.
3:00 p.m.	Open Discussion
3:15 p.m. Summary of Recommendations and Presentation to the Surgeon General	Ruth A. Lawrence, M.D.
Response of the Surgeon General	C. Everett Koop, M.D., Sc.D.
Closing Remarks	Frank Young, M.D., Ph.D.

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Doctor Beverly Winikoff feeds her daughter, Lindsay.

INTRODUCTION

Breastfeeding is believed to provide substantive advantages to both the mother and the infant. The mother's choice to breastfeed is most likely based upon the family's knowledge of breastfeeding and their perception of the environment in which the infant will be fed. Certain barriers at home, work, or school, or in the health care delivery system or the community can negatively influence both a woman's decision to breastfeed and her breastfeeding experience. The promotion of breastfeeding, a national priority, can be achieved through changing community views.

Knowledge and acceptance of breastfeeding by the general public are influenced by not only the media but also cultural and ethnic background, community attitudes, family patterns, and formal education. The community attitude to be fostered is that breastfeeding is a normal part of everyday life. A positive attitude toward breastfeeding must be promoted in future parents; public officials and employers must be encouraged to remove barriers to breastfeeding; the health care system must review its policies and procedures to insure that they facilitate breastfeeding; multi-media approaches to specific target audiences must be developed; the education of health professionals on the physiology of lactation and the management of breastfeeding for optimal infant health must be enhanced.

Excellent models of support in initiation and continuation of breastfeeding exist. These models need to be shared for application in a variety of settings. To assess the current status of breastfeeding in the United States and to develop strategies to facilitate breastfeeding, Dr. Koop convened the Third Surgeon General's Workshop at the University of Rochester, June 11–12, 1984. The Workshop on Breastfeeding and Human Lactation brought together from a wide range of disciplines and settings health professionals who serve different ethnic and cultural groups throughout the nation. One hundred invited participants included representatives of professional and lay organizations, local, state and federal governments, industry, and volunteer groups.

Speakers at the opening session discussed the physiology and process of human lactation, the composition of human milk, trends in breastfeeding, socio-anthropologic factors, and successful approaches for promoting breastfeeding. The roles of the lay volunteer and of the media in the promotion of breastfeeding were highlighted. Participants convened in work groups to consider key issues such as the decision to breastfeed, socio-cultural influences and determinants of infant feeding practices, support services for mothers who breastfeed, roles and responsibilities of the health care system in promoting breastfeeding, vocational

supports and barriers to breastfeeding, educating health professionals and the public about breastfeeding, and research needs related to breastfeeding and human lactation. Excerpts from presentations and recommendations of the work groups are included in this Report.

Presenting the findings and recommendations of the Workshop to the Surgeon General, Workshop Chairperson Ruth Lawrence, M.D., synthesized the deliberations of the participants in her summary. The Surgeon General accepted the report, commented on the general topics, and stated that this Report of the Workshop would be prepared for widespread dissemination.

KEYNOTE ADDRESS

C. Everett Koop, M.D., Sc.D.

Surgeon General and Deputy Assistant Secretary for Health

In 1978 the World Health Organization set for itself a goal of health for all by the year 2000. Now this is a tall order, and many of the lesser developed countries—those with limited resources—will have trouble in meeting that goal. Other countries, with help from some of the more developed countries in the western world, will succeed in at least improving health for all in their countries by the year 2000 only to see those gains slip as support is subsequently withdrawn.

The United States is a signatory to "health for all" by the year 2000, but we in this country had previously set ourselves a series of objectives to be realized not by the year 2000, but by 1990. These are largely contained in a publication called *Healthy People,* the Surgeon General's Report on Health Promotion and Disease Prevention. This volume was subsequently supplemented by *Objectives for the Nation.* Among the national objectives for the United States by the year 1990 is the topic of this Workshop. This objective states: "The proportion of women who breastfeed their babies at hospital discharge should be increased to 75%, and the percentage of those still breastfeeding at 6 months of age should be increased to 35%." In 1978, when this objective was chosen, the proportion was 45% at hospital discharge and 21% at 6 months of age. Historically the federal government has not been idle in the promotion of breastfeeding. During the years 1946–47 Dr. Katherine Bain of the Children's Bureau conducted the first nationwide survey on the incidence of breastfeeding in hospitals in the United States. This report was published in *Pediatrics* in September 1948.

A symposium on human lactation was held at George Washington University in October 1976 and was co-sponsored by the Public Health Service, the March of Dimes, and George Washington University. The proceedings of that symposium were widely disseminated in public health circles. In 1978, an annotated bibliography on breastfeeding, supported by the Public Health Service, was published by the National Academy of Sciences. Then in 1983, a nationwide video-teleconference on improving nutrition of mothers and babies was co-sponsored by the Department of Health and Human Services and the United States Department of Agriculture. "Breastfeeding and Human Lactation" was one of two major topics presented during this 3-hour program viewed at 125 sites coast-to-coast. The program presented an update of new research findings with special emphasis on practical application. Edited videotapes of the teleconference are now being disseminated. The Public Health

Service has not been idle in current activities. Breastfeeding promotion is one of the thrusts of the Healthy Mothers/Healthy Babies Coalition. A breastfeeding kit for professionals is now being produced in collaboration with several professional organizations, voluntary associations, the Department of Health and Human Services, and the United States Department of Agriculture. The National Natality Survey of the National Center for Health Statistics provides an ongoing surveillance and reporting mechanism on educational factors associated with breastfeeding.

But let us return for a moment to objectives for the nation. The current roles of the federal government in promoting breastfeeding to meet the already mentioned 1990 national objective include the following:

- establishing and promulgating policy;
- offering professional consultation and technical assistance to providers;
- supporting professional training;
- conducting research;
- implementing service delivery; and
- sponsoring public education.

Let me highlight some of these points. In reference to policy on nutrition, the guidelines and policies issued by recognized professional organizations such as the American Academy of Pediatrics, the American College of Obstetricians and Gynecologists, the American Academy of Family Physicians, the National Academy of Sciences, and the Association of State and Territorial Health Officials are used by the Public Health Service in formulating policies and recommendations in maternal and child nutrition.

Professional consultation and technical assistance on maternal nutrition, lactation, and infant nutrition are made available through guidance materials and technical references developed in concert with professional organizations. For example, recommendations on breastfeeding and other information on infant feeding are addressed in the *Pediatric Nutrition Handbook* published by the American Academy of Pediatrics with the support of the Division of Maternal and Child Health. An example of a more recently developed technical reference is *Guide to Breastfeeding the Infant with PKU.*

Another federal role is the support of professional training. Breastfeeding is included in the curriculum of graduate training programs in public health nutrition and in the maternal and child health curriculum for physicians, nurses, social workers, and other health-care providers. For example, over the last 10 years, 200 public health nutritionists have received Title V/Maternal and Child Health support, and 107 nutritionists have received National Health Service Corps scholarships for training leading to a master's degree.

As in all of these endeavors, research and study form the basis for policy and practice. In government, the National Institutes of Health plays a major role in breastfeeding research efforts. A revival of interest in the composition of human milk and the special functions of its many components has been stimulated by the necessity of devising proper nutrient therapy for premature, growth-retarded, and immunologically

compromised babies. The National Institute of Child Health and Human Development has stimulated studies of immunologic and nutrient composition, as well as perhaps undefined components and possible contaminants of colostrum and human milk obtained from mothers delivering babies at various gestational ages. In addition, in response to the recommendations from workshops held by the Division of Maternal and Child Health, in both 1975 and 1976, the National Institute of Child Health and Human Development is supporting applied studies of human milk-banking in order to develop techniques of collecting, storing, and distributing human milk and colostrum for use in clinical situations. Currently techniques are being developed to combat viral contamination without destroying immunologically active cells or denaturing proteins that possess antimicrobial activities. The eventual isolation of special immunologic and nutrient components of human milk which could assist in the care of premature and growth-retarded babies will be the hoped-for outcome of such research. As a matter of fact, a workshop was held in September 1982 on human-milk banking in order to provide further stimulation for this expanding research. The report will be available this summer. The National Institute of Allergy and Infectious Diseases is studying the role of breastmilk as a defense against enteric infections. The National Institute of Environmental Health Sciences is conducting a longitudinal study of 900 children in North Carolina to see if childhood morbidity is attributable to DDT and PCBs in breastmilk.

In response to the controversy over the International Code of Marketing of Breastmilk Substitutes, two task forces were established by the Assistant Secretary for Health in November 1981. A Public Health Service Task Force on the assessment of scientific evidence relating to problems of infant feeding, both in domestic and international context, was chaired by the then-Director of the Centers for Disease Control, Dr. William Foege. These findings will be published as a supplement to *Pediatrics* in October 1984. I chaired the other task force on domestic activities, and the findings have been incorporated into a report that I made to the World Health Assembly last month in Geneva.

Education, perhaps the most important aspect of all, should not really be left until the last. Educational materials on nutrition for use in counseling parents and other caregivers of children in community health education programs have been developed by the Public Health Service. Maternal and Child Health funds are frequently used by the states to disseminate educational materials. An example of this is *Breastfeeding*, a publication developed in 1979 and aimed at parents-to-be and new parents. Other federal agencies such as the United States Department of Agriculture, voluntary groups such as La Leche League, and practitioners as well as parents had the opportunity to review the material in draft and make suggestions. Thus, the publication is as practical and useful as

possible. To date, over 60,000 copies of the publication have been distributed nationwide.

Now you might wonder why we are having this Surgeon General's Workshop on Breastfeeding and Human Lactation. Although the number of breastfed infants has grown in recent years, the increase has not been as great in the highest risk groups. The number of women who start to breastfeed has increased, but many of them do not continue breastfeeding beyond the first few weeks of their infant's life. We know that breastfeeding gives babies complete nutrition plus immunologic benefits to launch them on a healthy life. Breastfeeding also provides its particular benefits at a low cost. We must therefore identify and reduce those barriers which keep women from initiating or continuing to breastfeed their infants. And it is now time to consider what needs to be done. You have already heard a little bit of why we chose the University of Rochester, but let me expand on that. The University of Rochester School of Medicine and Dentistry was selected because of its active and unique efforts in the support of breastfeeding. Along with the School of Arts and Sciences and the School of Nursing, the School of Medicine and Dentistry has developed a cluster for the interdisciplinary study of the physiologic, psychologic, sociologic, and anthropologic aspects of human lactation. Dr. Ruth Lawrence, Associate Professor of Pediatrics and of Obstetrics and Gynecology, is the workshop chairperson and a nationally recognized authority on breastfeeding. She is the author of the primary text on the subject entitled *Breastfeeding: A Guide for the Medical Profession.* The University of Rochester has a strong Obstetrics and Gynecology Department whose chairman is Dr. Henry Thiede. He is co-chairperson of this workshop. Dr. Thiede, in his prior position as the Chairman of OB/GYN at the University of Mississippi, was instrumental in the creation of the certified nurse/midwifery training program.

Now, let us turn our attention to what will be going on here for the next two days. The luncheon speaker today will highlight the role of the lay volunteer in the mother-to-mother program of the La Leche League. On Tuesday, Bob Bazell, Health and Science Correspondent for NBC, will discuss the use of media in promoting breastfeeding. Speakers this morning will give us an update on the state of the art and the state of science on the physiology of breastfeeding, the unique values of human milk, current trends, and cultural factors related to breastfeeding. This introduction will provide background for the discussions to follow in the work groups. Models of successful approaches will also be presented this morning, in order that they become part of our knowledge base. This afternoon and continuing through tomorrow morning, participants will convene in 8 work groups to consider and make recommendations on key issues, such as:

- the decision to breastfeed;
- sociocultural influences and determinants of infant feeding practices;
- support services needed for initiation and continuation of breastfeeding;
- roles and responsibilities of the health-care system in promoting breastfeeding;
- overcoming barriers to breastfeeding in the world of work;
- educating health professionals and the public about breastfeeding; and
- research needs in breastfeeding and human lactation.

My charge to the participants of this Workshop is to report the following: which efforts have been successful, which need better application, what else do we need to know, and what of the above will better promote breastfeeding among high-risk groups in order to realize greater benefits? Now this charge, as I stated earlier, is a tall order, but I know that you will do this, I know that you will do it well, and I will be here tomorrow afternoon to receive your report.

Thank you very much.

EXCERPTS FROM PRESENTATIONS

HUMAN LACTATION AS A PHYSIOLOGIC PROCESS

Ruth A. Lawrence, M.D.

Lactation is the physiologic completion of the reproductive cycle. The breast, the body, and the psyche are prepared for lactation during pregnancy. The newborn infant is prepared to suckle at the breast at birth.

Growth of the mammary gland is a gradual process that starts during puberty under the influence of the sex steroids. The embryonic buds which developed initially in the fetus and have been quiescent since birth are stimulated by estrogen to proliferate and to become multilayered. Buds and papillae are formed. The lobuloalveolar development and ductal proliferation depend on the intact pituitary gland.

There are three major stages of activity: 1) mammogenesis—mammary growth, which begins embryonically and culminates during pregnancy, 2) lactogenesis—the initiation of milk secretion, which begins in pregnancy and increases at delivery, 3) galactopoeisis—maintenance of established lactation, which begins a few days postpartum and continues as long as there is stimulus.

The embryonic breast begins its preparation at puberty when the hypophyseal-ovarian-uterine cycle is established. Fifteen to 20 primitive ducts arborize extensively and form a compound tubuloalveolar gland. A relatively inactive stage continues through adult life until pregnancy initiates the proliferative stage. Spectacular ductal growth begins in response to luteal and placental hormones. There is true hyperplasia, but in an orderly fashion, as one alveolus does not overrun another. (Figure 1)

The hormones—placental lactogen, prolactin, and chorionic gonadotropin—contribute to the acceleration of growth. At this stage one can observe the complex interaction of the many hormones that function in the development of both the fetus and the breasts during pregnancy. Estrogen stimulates ductular sprouting, and progesterone stimulates lobular formation. There is a delicate balance of prolactin inhibiting factor in the hypothalamus and prolactin production in the adenohypophysis as the presecretory phase progresses in the second trimester to a secretory phase. In this phase, material resembling colostrum is seen in the alveoli stimulated by placental lactogen.

A mother delivering a previable infant at 16-weeks gestation will secrete colostrum. As early as 24 weeks, lipid droplets can be seen in the

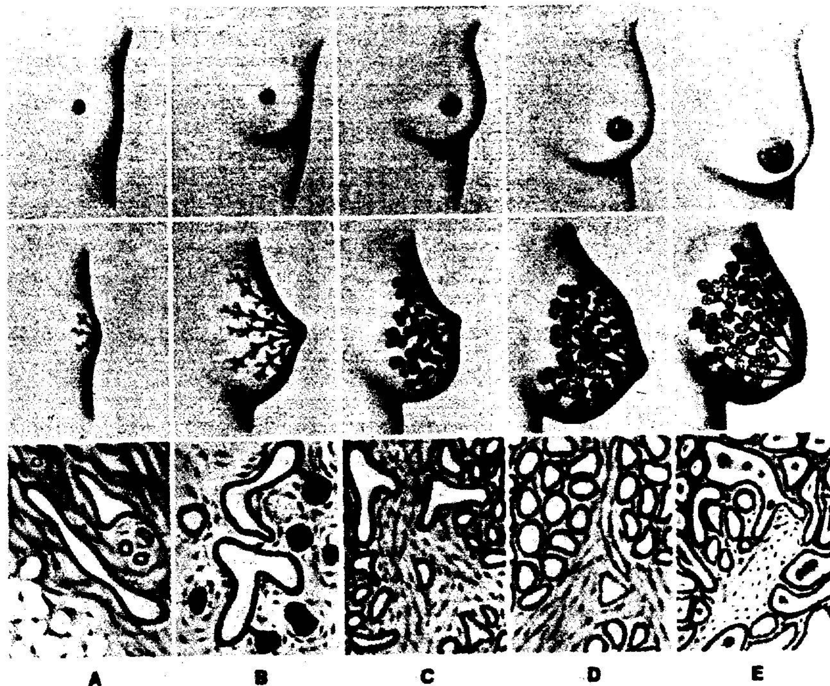

Figure 1. Female breast from infancy to lactation with corresponding cross section and duct structure. **A, B,** and **C,** Gradual development of well-differentiated ductular and peripheral lobular-alveolar system. **D,** Ductular sprouting and intensified peripheral lobular-alveolar development in pregnancy. Glandular luminal cells begin actively synthesizing milk fat and proteins near term; only small amounts are released into lumen. **E,** With postpartum withdrawal of luteal and placental sex steroids and placental lactogen, prolactin is able to induce full secretory activity of alveolar cells and release of milk into alveoli and smaller ducts.

alveolar cells. The composition of the secretion is fairly consistent from 16-17 weeks right up to the time of delivery.

With the delivery of the placenta, the source of hormones is lost abruptly and the plasma levels begin to fall. Placental lactogen is gone within hours, progesterone within 2-3 days, estrogen reaches basal levels within 5-6 days, but prolactin levels depend upon the amount of suckling. In the non-nursing mother, prolactin drops to prepregnant levels in about 14 days. Observation of nursing mothers with retained placenta indicates that lactation is suppressed until the placental fragments are removed. This supression is similar to the lack of milk secretion seen in mothers experiencing an intrauterine death. Evidence strongly suggests that it is loss of the placental progesterone with the decline in plasma progesterone which triggers galactogenesis, or milk production.

The necessity for adequate levels of prolactin for lactation to begin in humans has been demonstrated. The exact role of prolactin in ade-

quate milk production, however, continues under investigation. In the first week postpartum, the high levels of prolactin are only slightly augmented by nursing. In the second stage, from 2 weeks to 2 months, baseline levels of prolactin are 2–3 times normal, and increase to 10–20 times normal with suckling. The third phase begins at about 3 months and lasts to weaning. Prolactin levels are almost normal, and no rise is seen with suckling, even though milk production continues.

The role of other hormones such as insulin and thyroxine in mammogenesis, lactogenesis, and galactogenesis is well established, but the definition of their roles does not have universal agreement. The breast does not function in isolation, but in synchrony and balance with the maternal endocrine system.

The process of milk synthesis is complex. There is a marked alteration of the maternal metabolism with a redistribution of the blood supply and an increased demand for nutrients. The mammary blood flow, cardiac output, and milk secretion are suckling-dependent. These changes in turn trigger the hypothalamus to release prolactin to act on the mammary cells. Milk is iso-osmolar with plasma in all species. Although milks of different species vary tremendously, each is physiologic for the growth demands of that species.

The biosynthesis of milk involves a cellular site where the metabolic processes occur. Milk is secreted by apocrine and merocrine mechanisms. Protein and fat are synthesized de novo; lactose is synthesized from glucose; ions and water diffuse across the membrane so that primary alveolar milk is diluted to plasma isotonicity by water extracted from extracellular fluid.

While the glands prepare for full lactation, other structures of the breast prepare as well. The areolae increase in prominence with the development and activity of the glands of Morgagni which provide a secretion to lubricate and protect the nipple and areolae during suckling. Some of the zealous rituals recommended to mothers during pregnancy (such as scrubbing, buffing, and stretching these tissues) actually interfere with nature's process.

During pregnancy, the body stores nutrients that are intended for the manufacturing of milk in the postpartum period. Eight to 10 pounds of added weight (neither fetus, placenta, uterus, or fluid) are carefully stored for future nutrient and energy needs. The body stores reflect the cumulative dietary intake of prepregnancy and pregnancy coupled with the short-term dietary variation to ensure daily sources of both macro- and micronutrients. Thus the daily nourishment provided through the milk is consistent and balanced. Temporary deficiencies of diet are compensated by body stores.

Lactation also influences the return to prepregnant state for the mother. Getting back "in shape" is facilitated by utilizing the extra weight of pregnancy for milk production. Thus, breastfeeding women return to baseline weight more quickly.

The direct effect of the oxytocin released on stimulus of suckling not only contracts the myoepithelial cells for milk ejection but also contracts the uterus for faster physiologic involution and increased tone.

In most anticipated normal pregnancies, a woman finds that the hormonal milieu triggers latent maternal instincts leading to anticipation of holding the infant closely to the breast and providing continued nourishment. Parenthood potentially provides the opportunity for psychologic growth from the egocentricity of adolescence to an adult self-concept in which the mother cares for and nourishes this new being.

The mind, however, is not controlled by body function alone. Many societal, community, family, and individual forces influence attitudes and feelings about breastfeeding. If a woman rejects her own mother as a model, other life experiences prevail. There are other psychodynamic issues and social trends that may lead to negative decisions about breastfeeding.

In the meanwhile, the fetus is simultaneously undergoing development. The infant is prepared to suckle shortly after birth. The newborn already has been making sucking motions in utero. Part of the balance of the amount of amniotic fluid depends upon the fetus sucking and swallowing fluid in utero. Until birth, the infant has not had to synchronize this action with breathing, but as Tizzard showed in England some years

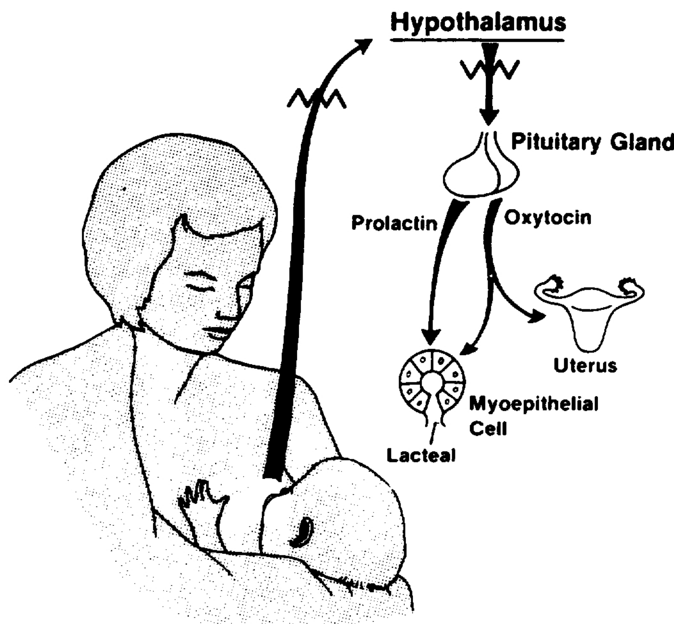

Figure 2. Diagrammatical outline of ejection reflex arc. When infant suckles breast, he stimulates mechanoreceptors in nipple and areola that send stimulus along nerve pathways to hypothalamus, which stimulates the posterior pituitary to release oxytocin. It is carried via bloodstream to breast and uterus. Oxytocin stimulates myoepithelial cells in breast to contract and eject milk from alveolus. Prolactin is responsible for milk production in alveolus. It is secreted by anterior pituitary gland in response to suckling. Stress such as pain and anxiety can inhibit let-down reflex. The sight or cry of infant can stimulate it.

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ago, suckling at the breast is compatible with continuous breathing compared to the suck-swallow-breathe pattern of the infant while bottle feeding. The infant also has a rooting reflex that helps him turn to grasp the nipple. The normal newborn infant adapts to breastfeeding readily.

When the infant grasps the nipple and areola, the sucking stimulates the nerve fibers in the nipple and these, in turn, stimulate the afferent nerve fibers via the spinal cord to the mesencephalon and the hypothalamus in the maternal brain and trigger the pituitary to release two hormones—prolactin and oxytocin. (Figure 2) The prolactin stimulates the synthesis and secretion of milk itself. The oxytocin rapidly causes the ejection of milk from alveoli and smaller ducts into larger lactiferous ducts and sinuses by stimulating the myoepithelial cells to contract. The myoepithelial cells (or basket cells) are wrapped about the ducts, and when they contract, milk is ejected. Milk ejection involves both neural and endocrine stimulation and response. A neural afferent pathway and an endocrine efferent pathway are required, but this stimulus is triggered predominantly by touch and not by pressure of a full milk gland. This response may be inhibited by pain or stress.

Breastfeeding is not a reflex; it is a learned process. In our present culture, many women have never witnessed an infant at the breast. When a woman is called upon to nurse her own infant, much of her success depends on a learning process. Successful lactation depends on proper information. As increased numbers of women breastfeed, we need more knowledge to help those who have difficulty in lactating. Another physiologic effect of lactation—important, though it receives little notice—is the suppression of ovulation and of menses. There is a temporal difference in the return of menses and ovulation among women who fully lactate, who partially lactate, and who have either discontinued breastfeeding or never began. The nonlactating woman ovulates within 4–6 weeks of delivery; the lactating woman does not ovulate for 4 months or more. This effect plays a role in general population statistics.

Finally, as we look at all the physiologic processes, the interaction of the breast with the mother's other bodily functions, we see that breastfeeding is an art—one based on the science of lactation. We need to continue our explorations, for as Aristotle would have it: "There is a reason behind all these things in nature."

THE UNIQUE VALUES OF HUMAN MILK

Cutberto Garza, M.D., Ph.D.

Introduction

Recommendations of human milk as the ideal nutrient source for term infants are common. These endorsements and the growing clinical interest in its use have prompted a remarkable increase in studies of human milk. The results of such investigations have underscored the dual roles played by its constituents: 1) the classic role that is associated with most nutrients, i.e., the provision of enzymatic cofactors or substrates for energy or structural components and 2) a more complex role that is the performance of functions complementing the developing abilities of maturing infants. For example, proteins provide amino acids for growth, but they occur in the form of polypeptides that aid in digestion, host defense, and other functions. Lipids provide a major source of energy, but some also have antiviral properties that may impart protection to the developing infant. In addition, this nutrient class provides fat-soluble vitamins and essential fatty acids that are important structural membrane components, especially in the nervous system. Carbohydrates provide a significant portion of the energy in milk and also enhance mineral absorption, i.e., calcium; modulate the growth of bacteria, i.e., bifidus factor; and possibly act to prevent the attachment of selected bacteria to retropharyngeal and other epithelial cells found in respiratory and gastrointestinal surfaces exposed to environmental pathogens.

Milk Intake of Breastfed Infants

The unique pattern of constituents in human milk and the feeding practices inherent to breastfeeding appear to result in distinctive levels of milk intake between breast- and formula-fed infants. Recent data indicate that the intake of breastfed infants reaches a plateau at approximately 733 g/day through the first 4 months of lactation. Therefore, on a body weight basis, the energy intake falls from approximately 110 to 70 kcal/kg by the fourth month. These intakes are substantially below those of formula-fed infants and below levels currently recommended for this age group by the National Research Council.

Despite these differences between recommended amounts and observed intakes, exclusively breastfed infants appear to grow well. Nevertheless, the possibility that human milk may become limiting by the fourth month for most infants has been suggested. Current measurements of the intakes of infants whose diets are supplemented ad libitum with solids, however, do not support this view. Results of these recent studies indicate that when the diet of the exclusively breastfed infant is complemented with solid foods, intakes remain at approximately 70 kcal/kg, and infants continue to grow well.

These findings raise interesting points for discussion. They suggest that a child's energy intake is dependent upon the mode of feeding. It is not clear if the differences in intake between formula- and breastfed infants represent a more active "gate-keeping" role by mothers of formula-fed infants or represent sound physiologic responses to different nutrient sources. Formula-fed infants may require "more" food to attain approximately the same endpoint as their human-milk-fed counterparts. Human milk is a highly complex mixture with a nutrient balance that may promote a level of metabolic efficiency unattainable by the formula-fed infant. Yet, if we compare present estimates of the quantities of energy required for growth and maintenance by the 4-month-old infant, it appears that the exclusively breastfed infant would have no energy available for activity. Are the metabolic economies recruited to achieve the apparent high level of efficiency in the breastfed infant accomplished by more conservative uses of energy for growth and maintenance, or are these efficiencies accomplished by a significant curtailment in activity? Are the same levels of efficiency possible under hostile environments? If the energy consumed by bottle-fed infants represents a true excess, are there any positive or negative short-term or long-term consequences? These observations pose questions of significance to the general health of all infants.

Functional Components: An Example—Secretory IgA

The issues raised by the differences between energy and protein intakes of formula- and human-milk-fed infants are interrelated with the in vivo roles of milk components with demonstrated functional potentials. Of these components, those with protective functions have been examined most actively. Secretory IgA (SIgA) is the predominant immunoglobulin in human milk and is thought to represent one of its key protective agents.

Specific SIgA antibodies are found against a wide array of bacterial and viral organisms. This protein has the ability to adhere to mucosal surfaces and prevent the subsequent attachment, and possibly the invasion, of specific infectious agents. Significant data exist indicating that the appearance of these specific antibodies in milk is a response to environmental challenges. Specific antibodies have been observed in the first few weeks of lactation and are known to persist through 2 years of lactation. Observations made during weaning suggest that these antibodies persist through the period of decreased suckling stimulation.

The presence in human milk of SIgA antibodies which act against potential pathogens in the maternal environment provides for "environmentally specific" milk. The mechanism by which these antibodies, directed against gastrointestinal and respiratory pathogens, appear in human milk has been difficult to identify. In contrast to the gastrointestinal and respiratory tracts, where such SIgA is abundant, direct contact with such antigens is unlikely to occur in breast tissue. Experimental data suggest that immune cells travel from gastrointestinal and respiratory-associated immune tissues to multiple mucosal surfaces, in-

cluding breast tissue, and thereby effect the same specific immunity to all mucosal surfaces. During lactation, the "homing" of these cells to the breast appears to be activated by hormonal profiles which exist only in lactating women. The concept of a gastrointestinal-respiratory-mammary immune circulation provides an explanation of the means by which antigen stimulation at distant sites results in the local production of specific SIgA antibodies in milk.

This is one example of a protein with a great degree of specificity. There are other proteins that have more general, potentially protective functions. It is important to emphasize that carbohydrates and fats also have functions which may contribute to the high level of metabolic efficiency apparently characteristic of the breastfed infant.

Significance of Functional Components

Although the potential roles of specific antibodies, nonspecific immunologic factors, and other functional components may be extrapolated from laboratory studies, a definitive demonstration of their significance in free-living populations has been much more problematic. For example, differences in morbidity between bottle- and breastfed infants often are difficult to interpret because of confounding environmental and demographic variables. Factors such as the degree of preventable contamination of artificial formulas, the number of caretakers with whom the child has contact, the behavioral characteristics of the caretaker—including sanitation practices and other mothering skills, the number of potential disease-carrying contacts, etc.—are difficult to control unless appropriate data are collected and sufficiently large numbers of subjects are recruited. Research designs must account for the "unidirectional" flow of infants from one feeding category to another. A breastfed infant may become exclusively bottle-fed for many reasons. An exclusively bottle-fed infant, however, is unlikely to become exclusively breastfed. Although most studies that compare morbidity among children fed human milk or synthetic formula have not controlled adequately for all of the confounding factors, most studies from developed and developing countries have reported significantly fewer illnesses in breastfed infants. A few have found no differences, but there are no reports of increased morbidity among the human-milk-fed groups. Differences in morbidity between feeding groups have been demonstrated more consistently, however, in developing countries than in developed countries. Whereas available data are not conclusive, they generally support the theory that human milk provides components that complement a developing immune system in the infant. Although it is not known whether these complementary components participate in the improved development of active immunoprotective abilities, they may serve as substitutes until the infant matures sufficiently to mount an active immune response. Whether or not the protective effects of human milk components are made real or potential by environmental conditions, such benefits are available only if the infant is breastfed.

Conclusion

Knowledge of the apparent differences between the ad libitum intakes of breast- and formula-fed infants, changes in the composition of human milk as lactation progresses, and responses of immunologic factors in human milk which effect environmentally specific protection contribute to the consensus that feeding human milk to infants is beneficial. The implementation of this consensus requires the identification of barriers that impede successful lactation. The consensus that recommends human milk also poses a significant opportunity to private and public health services to aid in the implementation of a practice which promotes health and fosters greater individual responsibility for health.

TRENDS IN BREASTFEEDING IN THE UNITED STATES

Gilbert A. Martinez, M.B.A.

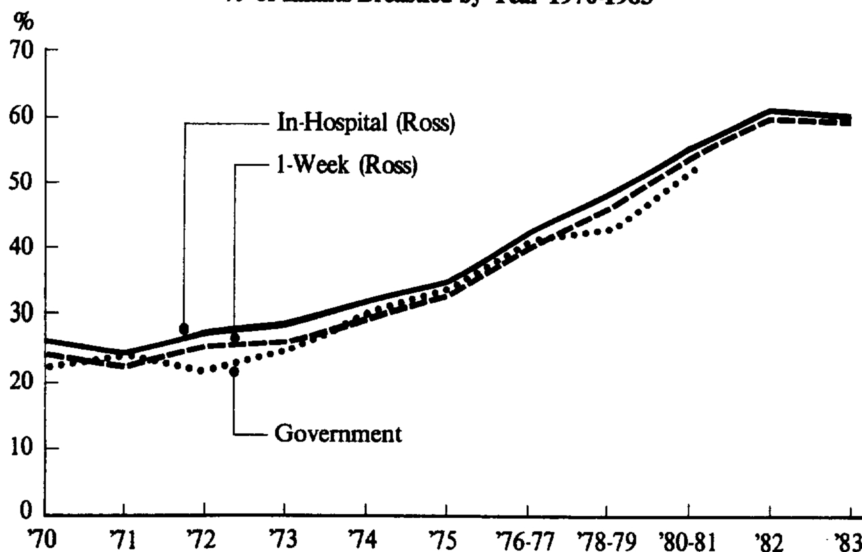
In 1971 the incidence of breastfeeding declined to its lowest level—25%. Since then, breastfeeding has increased to 61.9% in 1982 and has declined marginally to 61.4% in 1983. (Figure 1)

The duration of breastfeeding similarly declined in 1971 to its lowest level of 9% of women who breastfed 3 months or longer. Since then, breastfeeding for at least 3 months has increased to 40% of women giving birth in 1983.

Between 1978 and 1983 breastfeeding increased from 47% to 61% nationally, with substantial variation among socio-demographic groups. The highest incidence of breastfeeding occurs among well-educated, relatively affluent, somewhat older women living in the Western part of the country. Conversely, the lowest proportion of women breastfeeding is among mothers under 20 years of age, grade-school educated, lower income, black, and living in the East South Central part of the country—Kentucky, Tennessee, Alabama, and Mississippi. (Figure 2; Table 1)

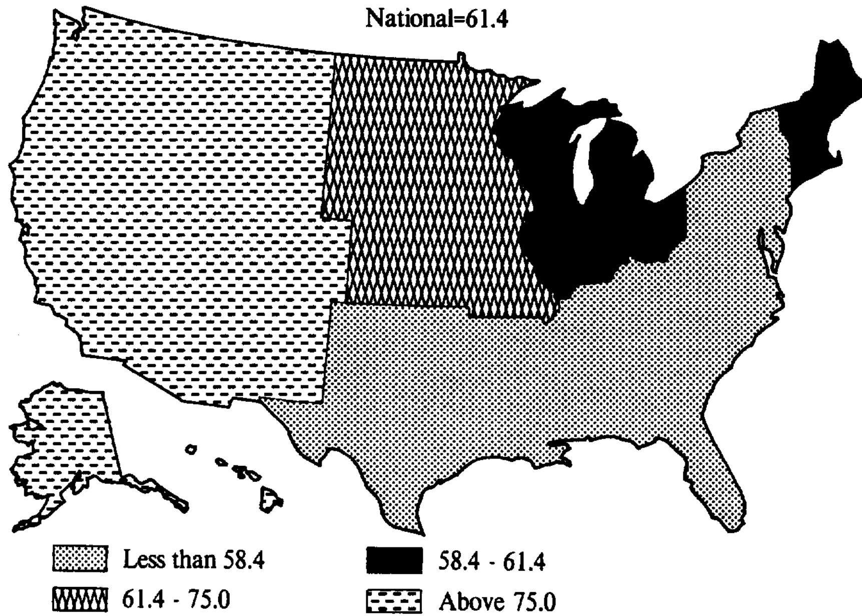
The proportion of women breastfeeding their infants at 5 and 6 months of age increased from about 20% in 1978 to 27% in 1983. The

FIGURE 1- Incidence of Breastfeeding U.S.A.
% of Infants Breastfed by Year 1970-1983



Sources: Ross Laboratories National Mothers Survey
National Survey Family Growth, NCHS

FIGURE 2- 1983 Incidence of Breastfeeding by U.S. Census Regions



Source: Ross Laboratories National Mothers Survey

same differences by socioeconomic groups previously mentioned prevail at 5 and 6 months of age.

The most rapid percentage increases in the incidence of breastfeeding between 1978 and 1983 occurred among women with the least education, employed full-time, multiparous, and in the West South Central area—Arkansas, Louisiana, Oklahoma, and Texas. The least rapid percentage growth occurred among mothers under 20 years of age, the well-educated, the unemployed, and those with lower incomes.

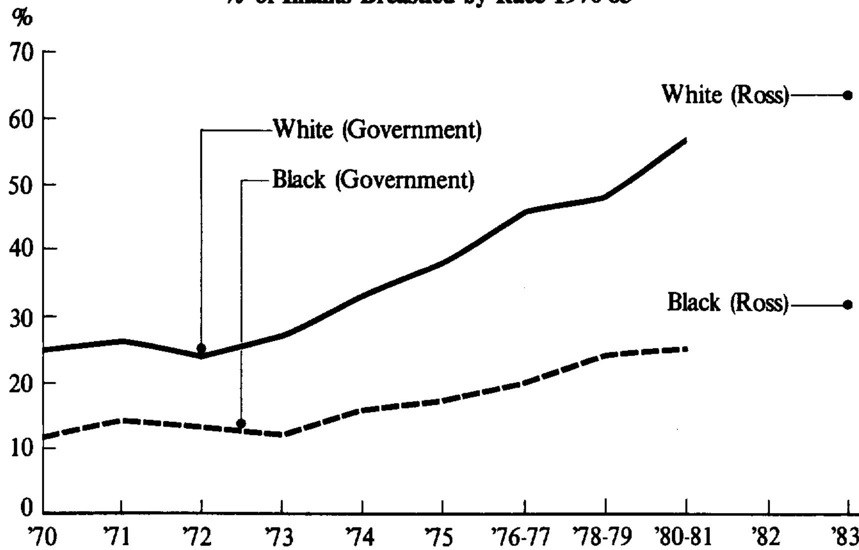
The proportion of black women who breastfed their infants in 1978 is unavailable. Hendershot reported 17% of black women breastfed their infants in 1975. For the 2-year period of 1978–1979, 24% of black infants were breastfed. In 1983 that figure had increased to 32%. (Figure 3)

The proportion of black women who breastfed their infants in 1983 for 3 months or more was 20%, and was less than half of the 42% of white women who breastfed for 3 months or more.

Among black women, as among the whole country, the lowest incidence of breastfeeding occurs among young, less educated, low-income women, and, as is true among all women, the highest incidence of breastfeeding occurs among those Blacks with the most education and income. (Table 2)

The proportion (54%) of Hispanic women who breastfed their infants in 1983 is less than the national rate.

FIGURE 3- Incidence of Breastfeeding U.S.A.
% of Infants Breastfed by Race 1970-83



Sources: Ross Laboratories National Mothers Survey
National Survey Family Growth, NCHS

TABLE 1- Breastfeeding by Demographics: 1983

Rank	Characteristic	Percent breastfed [1]	Percent of all births [2,3]
1	College	78	33
2	Pacific	78	16
3	Mountain	77	6
4	>$25,000 income	71	32
5	30 to 34 years of age	67	16
6	25 to 29 years of age	65	31
7	Primiparous	65	43
8	$15,000 to $24,999 income	64	26
9	White	64	80
10	West North Central	63	8
11	Not Employed	62	65
12	New England	61	5
13	$10,000 to $14,999 income	61	15
	National	*61*	
14	Employed	60	35
15	35+ years of age	60	5
16	East North Central	59	18
17	Multiparous	58	57
18	West South Central	58	13
19	20 to 24 years of age	57	33

Rank	Characteristic	Percent breastfed [1]	Percent of all births [2, 3]
20	South Atlantic	57	15
21	Hispanic	54	15
22	High School Education	54	63
23	Middle Atlantic	52	13
24	East South Central	49	7
25	<5 lbs. 8 oz. birthweight	46	7
26	<$10,000 income	44	26
27	<20 years of age	43	15
28	Grade School Education	41	4
29	Black	32	16

Sources:
[1] Ross Laboratories' Mothers' Survey.
[2] Advance Report of Final Natality Statistics, 1981.
[3] Population Characteristics, Series P20, No. 386, April 1984 (*women 18–44 years of age*).

TABLE 2- Breastfeeding by Demographics among Blacks: 1983

Rank	Characteristic	Percent breastfed [1]	Percent of black births [2, 3]	Percent of all births [2, 3]
1	Pacific	61	9	16
2	Mountain	60	1	6
3	>$25,000 income	56	13	32
4	College	55	22	33
5	New England	54	2	5
6	$15,000 to $24,999 income	45	18	26
7	Employed	41	33	35
8	35+ years of age	41	4	5
9	West North Central	38	3	8
10	30 to 34 years of age	38	11	16
11	25 to 29 years of age	38	24	31
12	Primiparous	38	40	43
13	East North Central	36	17	18
14	Middle Atlantic	33	15	13
	National	*32*		
15	$10,000 to $14,999 income	31	13	15
16	West South Central	31	14	13
17	20 to 24 years of age	30	35	33
18	Multiparous	29	61	57
19	<5 lbs. 8 oz. birthweight	28	13	7
20	South Atlantic	27	28	15
21	Not Employed	27	67	65
22	Grade School Education	27	5	4
23	High School Education	23	73	63
24	<$10,000 income	20	55	26
25	East South Central	20	11	7
26	<20 years of age	15	25	15

Sources:
[1] Ross Laboratories' Mothers' Survey.
[2] Advance Report of Final Natality Statistics, 1981.
[3] Population Characteristics, Series P20, No. 386, April 1984 (*women 18 to 44 years of age*).

The decision to breastfeed is made by well over half the women prior to pregnancy. In 1981, 55% of breastfeeding women had made that decision before becoming pregnant and, in 1984, that number had increased to 63%. An additional 14% of breastfeeders made the decision during their first trimester, and, by the time of delivery, 98% of breastfeeding women had made their decision. In two prospective studies asking women what they intended to feed their infants and subsequently contacting them after the infant was born, 96% had implemented their prenatal decision to breastfeed.

In summary, both the incidence and duration of breastfeeding increased significantly among all segments of society from 1971 to 1982. These gains did not continue in 1983, with the incidence dipping slightly from 61.9% of mothers in 1982 to 61.4% in 1983. The figure remains a function of socio-demographic variables: older, well-educated, relatively affluent women living in the Western United States are more likely to breastfeed; younger, less well-educated, black women in the East South Central United States have the lowest incidence of breastfeeding. Continued gains will need to come from this latter group. Since the decision to breastfeed is made by more than half of women before pregnancy, three groups—the black, the young, and the poorly educated—need to be reached early if they are to be influenced to breastfeed.

THE CULTURAL CONTEXT OF BREASTFEEDING IN THE UNITED STATES

Susan C.M. Scrimshaw, Ph.D.

Breastfeeding, Ethnicity, and Socioeconomic Status

Research on breastfeeding in the U.S. reflects two biases frequently found in medical and public health literature. First, ethnicity, and sometimes even socioeconomic status are not even mentioned in many reports. Second, reports mentioning ethnicity and socioeconomic status often focus on incidence without discussing correlates such as attitudes, reasons for the observed behaviors, and the influence of sociocultural background.

The ethnic groups frequently discussed in the U.S.—Asians, Blacks, Latinos, and Native Americans—are each in fact a complex set of distinct "sub-groups," with varying degrees of acculturation and levels of socioeconomic status. For example, Latinos include major subgroupings of Cubans, Puerto Ricans, Mexicans, and Mexican Americans with smaller numbers of Dominicans, Salvadorans, Guatemalans, and many more people from Central and South America and the Caribbean. Some Latinos, especially from the Caribbean and circum-Caribbean areas, are Black and reflect influences of African cultures. While few studies make comparisons between subcultures in relation to breastfeeding, important differences exist. For example, in her report on feeding practices among Anglos, Cubans, and Puerto Ricans in Dade County, Florida, Bryant reports that most Puerto Ricans think breastfeeding is better for babies, but almost half the Cuban women think bottle feeding is better.

Blacks, frequently thought of as one culture in this country, not only divide into obvious groups like Haitians and Panamanian Blacks, but vary in terms of parts of the country and rural or urban residence. A rural southern Black and an urban western Black are as different from each other as their White counterparts from the same region. Individuals in each subcultural group are proud of their heritage; they resent being lumped with others they perceive as dissimilar. Unfortunately, most of the literature that does discuss breastfeeding and ethnicity does not make these subcultural distinctions.

Many of these variations are reduced when socioeconomic and educational statuses are considered. Baranowski et al. showed bimodal educational relationships to breastfeeding in a tri-ethnic population. Both the least and the most educated were more likely to breastfeed. Middle- and upper-class women are now more likely to breastfeed, although research comparing middle- and upper-class women with lower-class women *within* ethnic minority groups is conspicuous by its absence. Studies such as Baranowski's which compared *low* socioeconomic status Anglo-Americans, Black Americans, and Mexican Americans show significant differences between ethnic groups. It should be noted that Baranowski et al. do not distinguish between Mexicans and Mexican Americans, although

they report that some of their Mexican American sample were interviewed in English and some in Spanish.

Higher educational attainment is also correlated with breastfeeding. Again, the effect of education *within* ethnic groups and subgroups has not been adequately documented.

Frequency and Duration of Breastfeeding by Ethnicity

The data on frequency and duration of breastfeeding by ethnicity vary greatly by region and by ethnic group. There is relatively little information on Asian populations, and even less on Native American populations. Breastfeeding in all populations declined from the beginning of this century until the early 1970s, and Blacks may have experienced the greatest decline. Prior to 1960, the majority of Blacks and Latinos breastfed their first babies, and nursed longer than Whites.

The trend began to reverse in the early 1970s, but this change appears to be occurring more quickly in White than in Latino, Asian, or Black populations. Current figures for Latinos on breastfeeding at discharge from the hospital range from 18% in Upper New York State to 60% in Northern California and 74% in Southern California. Asians are poorly represented in the literature, but Samuels reports that 67% of the Asians in her Northern California HMO population were breastfeeding at hospital discharge. The proportion of Blacks breastfeeding at hospital discharge ranges from 20% in Hartford to 26% in Chicago and 52% in Northern California. These discrepancies illustrate regional and perhaps also rural/urban variations, but probably reflect subcultural and socioeconomic variations as well.

An example of probable variations according to socioeconomic status is that the Blacks studied by Samuels were participants in a Kaiser HMO as an employment benefit. Their socioeconomic status is probably higher than that of the inner-city Blacks studied by Mohrer. The 74% figure for Latinos in Southern California is from our project, which looked at a population of 518 women, 96% Mexican in origin, 4% Mexican in descent. The relatively recent Mexican origin of most of these women probably accounts for the very high rate, and illustrates the importance of being able to distinguish between subcultures.

Duration of breastfeeding also varies, but drops off sharply after the first two or three months. According to Martinez and Nalezienski, in 1978 47% of *all* U.S. women were breastfeeding at hospital discharge, 35% were breastfeeding at two months postpartum, and 20% were breastfeeding at six months postpartum. In one of the two Southern California hospitals we studied, 86% of the Latinos (primarily Mexican) planned to breastfeed as of their in-hospital postpartum interview, but by the six-week postpartum visit, only 43% were still breastfeeding. On the other hand, a greater proportion of Whites breastfed and did so longer.

UNDERLYING FACTORS

Few of the underlying factors associated with bottle-feeding rather than breastfeeding can be directly related to ethnicity, but relate instead to socioeconomic status or are reported by women in all ethnic groups. Cultural values, however, are likely to influence how these factors are interpreted by women. These factors include: general perceptions of the value of breastfeeding (mostly positive), the baby's father's feelings, embarrassment at the exposure of the breasts, concerns about interference with sexuality, questions about mother's temperament and suitability for breastfeeding, anxieties about the mother's ability to produce high quality and sufficient milk, perception of bottles as convenient, perception of breastfeeding as old-fashioned, concerns about breastfeeding ruining the figure, and work intentions.

In addition to socioeconomic and educational status, marital status provides another underlying factor. Several studies show that married women are more likely to breastfeed. The proportion of married women giving birth varies by ethnicity, as do socioeconomic status and educational level.

One factor identified by Bryant is the husband's role. She found that husbands were more often against breastfeeding in the Cuban and Puerto Rican families she studied, and that Anglo husbands varied from being very supportive to indifferent and sometimes negative. The husbands in both Latino groups were concerned about exposure of the breasts, interference with sexual activity, and the perceived "old-fashioned" nature of breastfeeding. This finding may appear to contradict the previously mentioned finding that married women are more likely to breastfeed, but other factors such as the need to work and social isolation may influence single women.

One perception often found in Latino populations is that of "bad milk" due to maternal stress or tendency to have a temper. Mexicans, Hondurans, Puerto Ricans, and Cubans have all described concern that maternal anger and stress would produce bad milk, which would make the baby sick. This concern was cited as a reason not to initiate lactation.

Another interethnic difference identified by Baranowski is the role of the support person. The male partner was the most important breastfeeding support person for the Anglo woman, the woman's mother was most important to Latinos, and a close friend was most important to Blacks. In this study, it was asserted that the woman's mother actually had a negative effect on Anglo women.

Despite these interethnic differences, one major underlying obstacle to breastfeeding in all groups is the woman's need to work postpartum. While many women never even initiate breastfeeding because of postpartum work plans, others simply stop sooner in order to return to work. In our sample of 518 Mexican women, significantly fewer women planned to breastfeed if they intended to return to work soon. The proportion breastfeeding increased with a later return to work. The highest propor-

tion planning to breastfeed did not have any immediate plans to return to work. Women were more likely to return to work soon if they did not have economic support from the baby's father and if they were neither married nor planning to be. Duration of breastfeeding was also influenced by work plans, the variable most predictive of breastfeeding duration. Factors such as educational level and social support did not predict intended duration.

Embarrassment at feeding in public is more difficult to address than some of the other obstacles, particularly since women are occasionally arrested for indecent exposure while breastfeeding. In this society, women are often told to go to the restroom to breastfeed, where (implicitly) excretory acts belong.

Influences During Pregnancy

During pregnancy, family and friends may discuss breastfeeding with the woman, and their influence is reflected in some of the data already described. At this point, the health care providers enter, and can either encourage or discourage breastfeeding by their attitudes and by the information conveyed to the pregnant women. Some studies mention that women did not breastfeed because "it did not occur to them." Many others find that hospitals and clinics encouraging breastfeeding report a higher incidence. An intervention study at Roosevelt Hospital in New York revealed that prior to the onset of a prenatal breastfeeding education program, only 11% of a large Hispanic patient population intended to breastfeed. At the time of the evaluation of the program, 40% intended to breastfeed, and the majority (70%) followed through with their intentions.

Hospital-Based Influences: Delivery and the Early Postpartum Period

Regardless of ethnicity of the mother, the hospital experience strongly influences both initiation and duration of breastfeeding. Obstacles reported in the literature include: medications given during labor and delivery, delivery complications, cesarean section, baby complications, lack of early mother-infant contact and opportunity to nurse, use of stilbesterol for the suppression of lactation, offering water and formula to the breastfed newborn, restricting maternal access to the baby, restricting feedings to every 4 hours, lack of support for overcoming engorgement, sore nipples, not giving nursing mothers enough food or liquid, not allowing mothers access to supportive family members during hospital stay, and encouraging breastfeeding mothers to give babies formula after nursing to "fill them up."

Postpartum contact was associated with breastfeeding duration. Hospitals differ significantly in the location and timing of the first attempt to breastfeed, with some encouraging nursing in the delivery or recovery room, some in the mother's room, and some not providing the opportu-

nity for nursing at the time of the postpartum interview (approximately 24 hours postpartum for normal births, 48 hours for cesarean sections).

Staff attitudes and behaviors are also important. Several researchers point out the different constituencies of nurses. Maternity nurses focus on the mother, and can be either more likely to encourage breastfeeding or may ignore the concept of a mother-baby dyad and focus solely on the mother. Pediatric nurses focus on babies and may be more likely to give babies bottles even when they are supposed to be breastfed. Nurses sometimes encourage the mother to give bottles after breastfeeding. This practice serves to undermine the mother's confidence in her milk, and may influence her milk production as well. Duthie demonstrated that breastfeeding success was significantly associated with not feeding babies sterile water after nursing.

Physicians' attitudes toward and knowledge of breastfeeding also need to be addressed. Hollen found that more pediatricians (58%) than obstetricians (38%) thought breastfeeding was important. Among the nearly 200 physicians he studied, only 22% had children who had been breastfed. Halpern et al. also found that pediatricians indifferent to breastfeeding had significantly fewer nursing mothers in their patient populations than pediatricians favoring breastfeeding. Similarly, Acosta-Johnson comments that the barriers to breastfeeding are not so much the women's desires, but the organization of maternity services.

We also found that most deviations from "normal" recovery interfered with breastfeeding. Cesarean patients had a harder time getting access to their infants, women with fever or on medication were not permitted to nurse, and baby complications such as elevated bilirubin levels were cited as reasons not to nurse. Clearly, good research is needed on the validity of these and other medical practices, and staff must be taught to encourage breastfeeding rather than to discourage it. Figure 1 outlines encouraging and discouraging hospital practices. Hospital practices and health care provider attitudes can be discouraging to women in all ethnic groups, but cultural norms can influence factors such as assertiveness, attitudes toward medical authority, and feelings of autonomy. For some women, language can create an additional barrier.

Conclusions and Recommendations

The research on breastfeeding attitudes and behavior is inconsistent, particularly in its attention to variations between ethnic "subgroups" and in socioeconomic and educational level variations within ethnic groups and subgroups. Nevertheless, a great deal is known about attitudes toward breastfeeding, barriers, and the reasons for not initiating breastfeeding or for early discontinuance. Many of these reasons, such as the need to work and hospital practices, present problems for women from all ethnic groups, although cultural values and institutions will influence the way these barriers are managed. Attitudinal research and research on incidence remain important, but are of greater value when combined with research aimed at reducing hospital barriers and developing and testing high quality intervention programs.

Cultural norms guide decisions about breastfeeding and influence support for breastfeeding. Cultural attitudes must be taken into account in the design of intervention programs. Despite the importance of ethnicity, education, and socioeconomic status, other factors need serious atten-

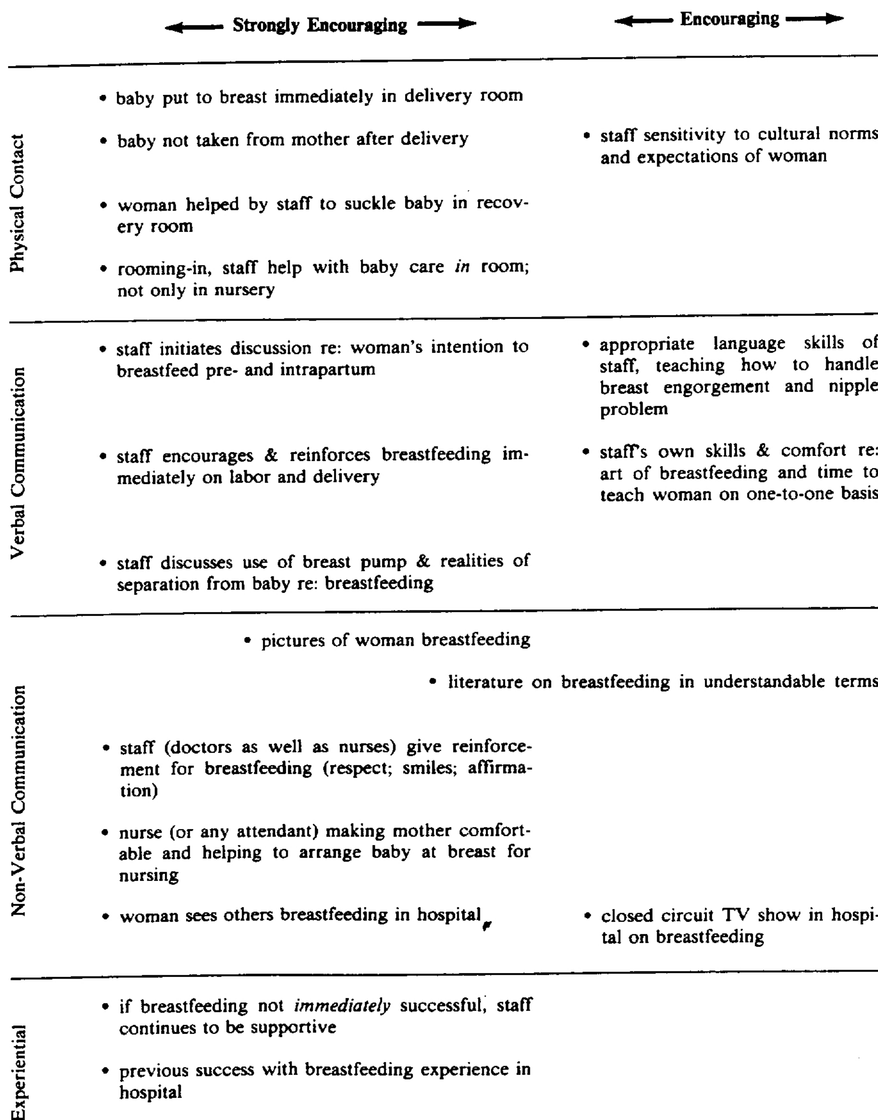


FIGURE 1- Hospital Practices Which Influence Breastfeeding Initiation

	← Strongly Encouraging →	← Encouraging →
Physical Contact	• baby put to breast immediately in delivery room • baby not taken from mother after delivery • woman helped by staff to suckle baby in recovery room • rooming-in, staff help with baby care *in* room; not only in nursery	• staff sensitivity to cultural norms and expectations of woman
Verbal Communication	• staff initiates discussion re: woman's intention to breastfeed pre- and intrapartum • staff encourages & reinforces breastfeeding immediately on labor and delivery • staff discusses use of breast pump & realities of separation from baby re: breastfeeding	• appropriate language skills of staff, teaching how to handle breast engorgement and nipple problem • staff's own skills & comfort re: art of breastfeeding and time to teach woman on one-to-one basis
Non-Verbal Communication	• pictures of woman breastfeeding • literature on breastfeeding in understandable terms • staff (doctors as well as nurses) give reinforcement for breastfeeding (respect; smiles; affirmation) • nurse (or any attendant) making mother comfortable and helping to arrange baby at breast for nursing • woman sees others breastfeeding in hospital	• closed circuit TV show in hospital on breastfeeding
Experiential	• if breastfeeding not *immediately* successful, staff continues to be supportive • previous success with breastfeeding experience in hospital	

tion: postpartum participation in the work force; general U.S. attitudes about breastfeeding in public; hospital practices; and health care providers' knowledge, attitudes, and behaviors. These areas must be addressed in order to facilitate breastfeeding for women in all ethnic groups.

← Discouraging →	← Strongly Discouraging →
• scheduled feedings regardless of mother's breastfeeding wishes	• mother-infant separation at birth • mother-infant housed on separate floors in postpartum period • mother separated from baby due to bilirubin problem • no rooming-in policy
• staff instructs woman "to get good night's rest and miss the feed" • strict times allotted for breastfeeding regardless of mother/baby's feeding "cycle"	• woman told to "take it easy," "get your rest" . . . impression that breastfeeding is effortful/tiring • woman told she doesn't "do it right," staff interrupts her efforts; corrects her re: positions, etc.
• pictures of woman bottle-feeding • staff interrupts her breastfeeding session for lab tests, etc. • woman doesn't see others breastfeeding	• woman given infant formula kit & infant food literature • sees official-looking nurses authoritatively caring for babies by bottle-feeding (leads to woman's insecurities re: own capability of care)
	• previous failure with breastfeeding experience in hospital

SUCCESSFUL APPROACHES TO PROMOTE BREASTFEEDING

A State-Wide Breastfeeding Program: Rhode Island

Jerianne Heimendinger, D.Sc., M.P.H.

Information Provided

If you want to encourage the practice of breastfeeding in a state, where do you begin? Who is the target audience? Do you approach the pregnant woman most likely or least likely to breastfeed? Teenagers before they become pregnant? Grandmothers? Physicians? Nurses? Husbands? All of the above? And what message do you deliver?

Where to begin? With commitment to the effort—a top-level decision to act. The impetus for action within the Rhode Island Department of Health came from several sources. Top-level management decided that there was sufficient evidence of the positive benefits of breastfeeding to promote actively the practice as good preventive health care. The Division of Family Health had recently adopted the Office of Nutrition Services and viewed breastfeeding as a part of the nutritional agenda of maternal and child health. Of greater human interest, two administrators within the Department had recently become fathers of breastfed babies and experienced first-hand the realities of breastfeeding and the institutional and community resistance to the practice.

Finally, a 1981 press release from Ross Laboratories' survey catalyzed action. The survey indicated that Rhode Island had the lowest incidence of breastfed newborns in the U.S. The U.S. average reported was 55%, and the rate for Rhode Island was 36%. Even if the data are questionable, Meyer's report of surveys from 1946 to 1966 also indicated low incidences for the state.

The first obvious question was: Why were fewer mothers breastfeeding in Rhode Island? No hard data were available to answer the question, but a variety of cultural and economic elements were postulated as answers.

Rhode Island is a small, densely populated, urban industrial state with a long history of working mothers. Currently, 50.4% of Rhode Island women work, compared to 50.8% for New England and 47.8% for the U.S. The industries in which many women work, such as jewelry and other manufacturing and cottage industries, often lack time and space flexibility to accommodate breastfeeding women. Consequently, even grandmothers and great-grandmothers may not have breastfed; thus, there is no legacy of breastfeeding practice or exposure. In this situation, health professionals become even more important as sources of information and support.

The state has assimilated several waves of immigrants over the past thirty years, and these immigrants are eager to trade their breastfeeding legacy for the more "American" practice of bottle feeding.

Physicians and hospital nurses did not actively encourage breastfeeding. Hospital routines were not designed to incorporate breastfeeding. Finally, hospital administrators did not encourage the practice because formula companies finance many hospital educational and social activities. Although these last few elements are not peculiar to Rhode Island, they add substantially to bottle-feeding's entrenched status.

With some of these concepts in mind, the staff of the Health Department organized a planning committee to develop a statewide breastfeeding campaign. The committee represented physicians, nurses, nutritionists, hospital administrators, media and public relations experts, nursing mothers, and the La Leche League. A media consultant was employed to help direct the committee's efforts.

The campaign's goal was to increase the incidence and duration of breastfeeding by addressing 3 major target groups: professionals, patients, and the larger community. The committee was correspondingly divided into 3 subcommittees.

The Professional Education Subcommittee developed a strategy for motivating professionals to encourage breastfeeding in their practices. Public endorsement of the campaign was obtained from the local chapters of the American Academy of Pediatrics, the American College of Obstetricians and Gynecologists, the Perinatal Committee of the Medical Society, the American Academy of Family Physicians, the Hospital Association, and the La Leche League. The committee also developed educational materials and counseling standards for physicians, nurses, nutritionists, and other hospital and health center personnel.

The Patient Education Subcommittee discussed the targeting of their efforts and decided to address both the pregnant women in Rhode Island who obtained care from private physicians and the prenatal population served directly through the Department's programs, such as the maternal and infant care projects and WIC.

The Community Education Subcommittee attempted to create a more supportive atmosphere by educating the community at large about the practice of breastfeeding. Specific target groups were fathers, grandmothers, aunts, uncles, brothers, and sisters. A function of this committee was to address cultural and lifestyle issues through the media.

The campaign was officially inaugurated in April 1982 at a press conference held at Women and Infants Hospital, the major maternity hospital in the state. Easelback posters and brochures inviting requests for additional information were mailed to obstetricians, gynecologists, pediatricians, and general practice physicians. Brochures were also distributed to clinics, hospitals, Visiting Nurse Associations, and community organizations statewide. Materials were also available in Portuguese, Spanish, and Vietnamese. Local diaper services and maternity clothing stores distributed brochures to customers.

Public service announcements of 10 and 30 seconds were developed for use by major Rhode Island TV and radio stations. Through these an-

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nouncements, the community was invited to call the Division of Family Health or the Nutrition Hotline to request brochures and additional information. Special feature articles and editorials appeared in the Providence *Journal* and local town newspapers. Members of the Committee discussed breastfeeding issues on radio and TV talk shows, some of which were broadcast in Portuguese and Spanish.

A library of breastfeeding films and slide-tapes was established at Women and Infants Hospital and made available to professional and community organizations. A videotape was developed for patient education within the hospital.

Two audiotapes on why and how to breastfeed a baby were developed for Tel-Med, the community service which makes tape-recorded health messages available to the community by phone. A breastfeeding manual for mothers was made available, and a speaker's bureau was organized.

The nutritionists in the WIC program made a concerted effort to educate their clients and gave them reasonable expectations and anticipatory guidance on such matters as breast engorgement and weight gain. The nutritionists felt that factors which made breastfeeding difficult for mothers were: the presence of other small children in the household; lack of support from health professionals, family, and friends; anxiety that the breastfed infant was not getting enough to eat; and the ready availability of formula both from the WIC program itself and in the hospital setting. Informed discussions about the latter issue led to a decision by the administration of Women and Infants Hospital to establish a policy of not offering formula packs to breastfeeding women.

The message we delivered was: "When feeding your newborn, the natural way is best . . . A popular 'new' way to feed babies is sweeping America . . . Breastfeeding is nature's own way of giving the best to your baby . . . and it's something only you can give." Our messages addressed special attention to the issues of working, worrying about whether babies get enough to eat, and nutrition.

Information Collected

While we were providing information, we were also collecting data. Several small surveys done prior to the campaign indicated that the incidence of breastfeeding ranged from 16% to 48%. I would like to share some of the details of the survey done several months after the campaign was underway.

At the request of the Centers for Disease Control, the Division of Family Health conducted a breastfeeding pilot survey (July/August 1982) designed to serve as a model for other states by providing a simple instrument for sampling from birth certificates and assessing the incidence of breastfeeding nationwide. Although the survey was not designed as part of the breastfeeding campaign, it immediately followed the major media blitz; its design and preliminary results are quite pertinent to the issues of this Workshop.

To allow states flexibility, the survey was designed in 2 parts: a simple one-page mail questionnaire and a telephone interview follow-up. The mail survey recorded data on the incidence and duration of breastfeeding, other food supplements given to breastfed infants, birth weight, and the mother's participation or lack of participation in WIC or Food Stamp programs. The survey also identified whether the mother was given formula by a hospital and whether she was willing to be contacted by telephone. Information obtained on this questionnaire could be linked with demographic information available on the birth certificate. It was thus unnecessary to ask respondents any socio-demographic information.

The reverse side of the mail survey contained an explanatory letter from the Health Department with a name and number to contact if the recipient had any questions. In addition, the letter contained short notes in Spanish and Portuguese. The notes requested non-English speaking recipients to secure help in translating the survey. The purpose of the letter was to assure people of the legitimacy and confidentiality of the survey and to attempt to address the problem of language barriers. Enclosed with the survey was a stamped self-addressed envelope.

The second part of the survey was the telephone interview in which data were obtained on the reasons a mother chose to breastfeed or bottle-feed, why she stopped breastfeeding, what types and amounts of food were fed, at what ages various solids were introduced, and what the weight of the child was. The telephone interview also provided an opportunity to verify the mail-survey questions, such as participation in WIC.

A representative data sample of infants 3 months of age was obtained from 2 sources: 1) a list of April births as recorded by the Division of Vital Statistics and 2) lists of WIC infants born in April and of women known or expected to deliver in April. Two major factors affected the choice of sampling sources and the sampling process. First, it was not possible to obtain a truly representative sample because state confidentiality laws prohibited inclusion of births of unwed mothers in the vital statistics sample. Secondly, the WIC program was interested in obtaining information on the feeding practices of its clients. By sampling from its participant list, we were able to obtain some information on unwed mothers—a fact that we think enhances the value of our survey.

A few pertinent points from the preliminary results follow. Women were very eager to talk to us. In fact, 70% of them indicated they would not mind being contacted. Both breastfeeding and bottle-feeding mothers seemed pleased that someone was still interested in them so long after delivery. Even women without telephones provided us with numbers of family and friends through whom they could be contacted. The conclusion we draw is that women with infants 3 to 4 months of age provide an informative sample population. They are not only eager to talk, but they are likely still to be breastfeeding, carefully measuring the amounts of other foods given their infants, and knowledgeable about the reasons behind their behaviors.

Preliminary analysis indicates that 52% of the total sample of 283

women breastfed at least once; 37% of the sample were still breastfeeding at 3 months of age. Of the WIC sample of 123 women, 40% breastfed at some point; 21% were still breastfeeding at 3 months of age. Comparable figures for the vital statistics sample of 160 women were 62% and 49%. Although these rates may be a little high (respondents tended to be the better educated women of higher socioeconomic status), it is unlikely that even our adjusted rates could be as low as the Ross Survey indicates. Although we would like to think our campaign has had an impact on the incidence and duration of breastfeeding, we cannot draw that conclusion from this survey at this time.

Most surveys on breastfeeding behavior have been limited to legitimate births. Seventeen percent of the infants in our sample were born to unwed mothers. Since the prevalence of single mothers is increasing, we were happy to be able to include a few in our sample. We look forward to further analysis of the data on this cohort.

Finally, we plan to delineate the following reasons given for breastfeeding: health—healthier for the baby; intrinsic reasons such as bonding; extrinsic ones such as encouragement by physicians, relatives, or friends; and practical ones such as ease and economy. Preliminary anlaysis shows that choices were made in the order of: health, health and closeness, health and practical considerations, and health and extrinsic encouragement. Thus, the initial decision to breastfeed by women in our sample was based on concerns about the health and well-being of the child. Interestingly, even in Rhode Island, returning to work was not the most important reason given for stopping breastfeeding; anxiety about whether the baby was getting enough to eat was the major concern.

In summary, we think the simple mail survey linked to vital statistics records is a quick and inexpensive means for states to use to estimate the incidence of breastfeeding. Sampling from programs such as WIC can provide information about the characteristics and infant-feeding behaviors of single mothers, a growing portion of the population. Preliminary analysis indicates that in our sample, health and nurturing factors are the most important determinants of the choice to breastfeed. We still think, however, that creating a supportive environment is a priority.

We think we were correct in our ambition to address all target groups—professionals, patients, and the community at large. We did the best job of communicating with health professionals, largely—I suppose—because we are used to talking to ourselves. The key groups of professionals to enlist are: 1) professionals who interact with women prior to or early in their pregnancies—obstetricians, gynecologists, nutritionists, and childbirth educators and 2) professionals whose support is crucial in initiating the actual practice of breastfeeding—hospital nurses and pediatricians.

As for the patient population, we would target the subgroups *most* likely to adopt breastfeeding who tend to be the better educated women of higher social status. Social norms etablished by higher status groups are eventually adopted by lower income groups. Thus a small amount of effort on the margin can reap large benefits in terms of increased num-

bers of women in a social group who not only lend support to each other but ultimately influence other social groups.

However, it is also important to address the needs of lower income groups. Is it cost effective for us in public health to address the populations most accessible, or should we aggressively seek out the population hardest to reach? The groups most accessible to us are those involved in public programs on the basis of low income or medical or nutritional need; within these groups are subgroups more likely to breastfeed. For example, it is more productive to target married older women than unwed teenagers.

The most difficult population for us to reach is low-income women who are not eligible for our services, work in low-wage jobs, and receive services from private physicians. For this population, we suggest focusing on strategies addressed to the health-care providers and the work place.

The consumers we would target are husbands and grandmothers, since they form the major support around the breastfeeding mother. If we had this campaign to do again, we might hire an advertising agency to do a better job of reaching the community through the media.

We have been pleased that our campaign produced some good materials and initiatives. We have suffered, however, from not providing adequately for continuity of our efforts. A coordinator, committed to maintaining the momentum of this effort, needs to be designated within the Health Department. This initiative, along with others, has suffered from the funding and staffing constraints common in state governments in the past several years.

On the more positive side, some residuals of our efforts are improved inservice education programs for nurses in the maternity hospitals and improved educational materials for both professionals and pregnant women. We have also given people broader access to information through the Nutrition Hotline. In addition, the Department has strengthened its emphasis on breastfeeding through its request for proposal process, which it uses for contracting direct services. Three nutrition-related innovative projects were recently funded. The purpose of one of these is to develop breastfeeding support groups for low-income women. Finally, we hope the ideas generated in this Workshop will re-energize and redirect our efforts to finalize the analysis of our survey and to continue to create a more supportive environment for breastfeeding among women in Rhode Island.

City-wide Approach: New York

Linda Randolph, M.D., M.P.H.

New York City has a high proportion of both ethnic minorities and the poor. In 1980, the White population in New York City was 36.5%, the Black population 30.8%, those of Hispanic origin 27.9%, and the Native American-Asian 3.6%. Twenty-seven percent of the New York City population were below the poverty line in 1980 compared to the New York State percentage with 16% and the U.S. with 13%. In 1970, 19.5% of all children under 18 years of age in New York City lived with a female head of household. By 1980 the percentage had grown to 30.9%. The city's poor increased by 10% between 1969 and 1982. In 1982, the New York City Department of Health conducted a survey of infant feeding practices in municipal, voluntary, and private hospitals. According to this survey, 15.1% of infants discharged from municipal hospitals were breastfed compared to 37.7% discharged from private hospitals and compared to the overall U.S. rate of in-hospital breastfeeding of 57.6% in 1981. In the survey of the New York City Health Department Child Health Stations, 3% to 6% of babies were breastfed during the period of 1980–1982.

In January 1982, the Steering Committee to Promote Breastfeeding in New York City was formed, with the goal of instituting a comprehensive program to increase the breastfeeding rate of women, with specific emphasis on low-income women. The Committee is sponsored by the New York State Department of Health, and I have been its chairperson for the last two years. The State Health Department's Bureau of Maternal and Child Health has had breastfeeding promotion as one of its goals, and this effort in New York City has reflected a local implementation of that goal.

Originally, 25 individuals were called together from medical and public health schools, city and state health departments, voluntary and research organizations, foundations, and maternity service providers to discuss methods of procedure. Based upon the copious literature available and the considerable experience of the various members, the committee developed a comprehensive program to address the barriers to successful breastfeeding. The Steering Committee's total agenda is built around 6 coordinated programs, each administered by a task group. Each group targets a barrier to breastfeeding and works simultaneously to achieve the overall program goal. A multidisciplinary membership on the committee has evolved as interests increased throughout the 5 boroughs of the city. Today it consists of over 40 active members, including pediatricians, obstetricians, nutritionists, nurses, nurse-midwives, public health administrators, social workers, a lawyer, legislative aides, a journalist, health educators, a foundation representative, and public health students.

A brief description of the 6 task groups and their activities to date follows. The first task group is concerned with research and surveys. The intent is not so much to conduct research, but rather to identify existing material to be used by all of the other task groups. Six research background papers are being developed to assess the following areas relating to breastfeeding: 1) trends and patterns of infant feeding practices by socioeconomic and ethnic groups; 2) factors influencing the pattern and incidence of breastfeeding—especially cultural and social influences (this background paper will also analyze the role of existing health services such as prenatal, maternity, and postpartum care, and WIC); 3) the impact of the media and business interests in breastfeeding practices with particular emphasis on the media effects on different ethnic groups; 4) examination of the impact of government, legislation, reimbursement patterns, maternity leave, child-care facilities, government and business support networks available for the lactating mother; 5) the economic value of breastfeeding as it relates to cost of formula versus the increased cost of providing a lactating mother with an enriched diet; and 6) the influence of alcohol, smoking, and drugs on mother's milk.

The professional education task group, our second group, has developed a slide presentation to be used for grand rounds in the city's hospitals. The slides are designed to address lack of knowledge of both breastfeeding physiology and techniques. Since many pediatricians, obstetricians, and even some nurses have never during their training seen a baby being breastfed, they will not necessarily be as informed as they should be in order to provide assistance to a lactating woman. Members of the Steering Committee will be available to conduct the rounds on request of hospitals, and we are beginning to receive those requests.

The third group looks at hospital practices. It addresses barriers of facility design, rigid feeding schedules, supplemental feeding, gift packs, and lack of information on the part of hospital support staff. Guidelines for changes in hospital practices in order to encourage breastfeeding and to create an atmosphere of acceptance at the site of delivery have been prepared with participation of representatives of the Health and Hospital Corporation and the voluntary hospital sector.

One task of the fourth group, the pre- and postnatal care group, has been the development of a handbook for promoting breastfeeding in ambulatory-care facililities. The handbook was done in conjunction with our Office of Health Promotion in the New York State Health Department. In addition, a project developed by a member of the Steering Committee and endorsed by it is the Bronx-based Lactation Consultation Team. This project has received federal MCH funding. It is designed to provide a team of health professionals to institutions for breastfeeding consultation in the Bronx. The entire health care system in the borough will be affected.

The fifth task group is concerned with public policy and legislation; it has been monitoring existing legislation and assisting in the development of new policy and legislative efforts related to the promotion of breastfeeding in both the city and the state. The major emphasis has been the analysis of trends in labor force participation rates among mothers of

children under 3. Existing legislation, maternity benefits, and employer policies have not adequately addressed the difficulties faced by pregnant working women or by those wanting to breastfeed while maintaining their job. A background paper presenting an overview of these trends is in draft form, and it gives an analysis of maternity benefits, including health insurance and maternity leave. The paper also discusses the potential benefits unions and employers might derive from promotion of prenatal care and breastfeeding. In addition, 2 sets of sample guides have been drafted to provide recommendations for the development of prenatal care and breastfeeding promotion programs at the worksite. A third paper will analyze maternity benefit packages and provide recommendations of strategies for change. During 1984, this group also plans to implement a continuing education program for occupational health nurses.

The Public Information Group has developed a 3-tiered program to counter the perception of breastfeeding as aberrant behavior. The first level is a blanketing of the city with visual images of breastfeeding, including a subway poster campaign, TV public service announcements, and engagements for Steering Committee members on talk shows. The second level is individualized support, information, and referrals provided by counselors to callers on an information line. Data will be collected and follow-up on a sample of those calls will be conducted. The third level is written information mailed to callers, community groups, and lay health advocates.

One interesting phenomenon about the Steering Committee is that we have learned how to make a little money go a long way. The funding for the committee projects has come from very small contributions from the New York State Department of Health, the New York City Department of Health, the Columbia University School of Public Health—Center for Population and Family Health, the Health Education Fund, the New York Community Trust, and the Division of Maternal and Child Health—DHHS. All of the organizations represented on the committee allowed staff to provide significant amounts of time for task group efforts and for Steering Committee meetings which we held approximately every 2 months for the past 2½ years.

Recently we saw the end of a long gestation. The Committee conducted for approximately 200 persons an invitational workshop wherein the materials that had been developed by the task groups were presented, shared, and discussed. We were fortunate to have Dr. Lawrence as our keynote speaker and Jane Brody, the personal-health columnist for the *New York Times,* to provide some of her personal insights on the breastfeeding of twins.

Where do we go from here? The public information campaign will be launched in the early fall. Further dissemination of materials and completion of an evaluation design and its implementation are on the agenda. Concomitantly, the State Health Department is revising its hospital code in order to facilitate maternity patients' ability to breastfeed.

In conclusion then, I think the Steering Committee in New York City is an example of government and the public and private sectors working together with professional organizations, voluntary organiza-

tions, and individuals to try to put together a comprehensive, interrelated, multidisciplinary approach to promotion of breastfeeding. We have just gotten off the ground, and I hope to have another forum at a later date to let you know what our impact has been.

Breastfeeding Promotion in Three Rural Indigent Populations

John E. Alden, M.S., C.N.M.

Breastfeeding in an Indigent Rural County in Florida

Jackson County, Florida is predominantly rural and has a population of approximately 40,000. The two largest communities contain 12,000 and 5,000 persons. About 30% of families in this agriculture-based economy have annual incomes below levels established for federal assistance programs. Approximately one-quarter of the county residents are Blacks, and the remainder are Caucasians of English-speaking origin. The indigent population is primarily Black.

Many families in this poor rural society are comprised of younger mothers raising children in their mothers' (or parents') homes, as in a matriarchal society. Young mothers receive considerable child-care support from their mothers, grandmothers, and sisters.

Until the past decade, breastfeeding has been commonly practiced. Supplementation has been usual even during the first few months, but bottle-feeding from birth appears to have become common with the availability of formula through assistance programs such as WIC. Most young women now having children were breastfed as infants.

Breastfeeding Promotion Project

In 1979 a focused effort to promote breastfeeding among the low income rural population began. The program was coordinated by the primary care provider (a nurse-midwife) with the special assistance of the public health nutritionist and support of the clinic and hospital nursing staffs. The project consisted primarily of modification of patient-teaching

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practices during the prenatal period and of patient management during the intrapartum and postpartum periods.

The project was conducted through the county health department in the context of a maternity-care program for low-income families. Approximately 20% of mothers delivering in the community hospital received their obstetrical care through the Low Income Clinic Program.

Data Collection

The basic means of data collection was to have mothers and infants return to the clinic frequently "to see how you and the baby are doing." It was not difficult to get them to return at least once a week during the first month and subsequently at least monthly. During these visits, the infant was generally weighed and perfunctorily examined. The mother was questioned about feeding and supplementation, her well-being, and the baby's activity. Either the woman was encouraged to show how the baby fed or the baby was "tested" with a bottle or finger to evaluate the sucking pattern. By this means, the evaluators could be reasonably sure that the baby was being predominantly breastfed. Women's statements about feeding were generally consistent with the babies' responses. For the purpose of this study, the infant was no longer considered to be breastfed if he/she received more than 8 ounces of supplemental feeding a day (for the first week, 4 ounces).

Data collection at each visit included the number of weeks through which the woman continued to breastfeed predominantly and some anecdotal information (comments, reasons for stopping, problems, etc.). Data were updated with each contact.

If the woman did not return to the clinic, attempts were made to contact her by telephone, public health nurses, or relatives. If satisfactory contact could not be made, she was assumed to have discontinued breastfeeding.

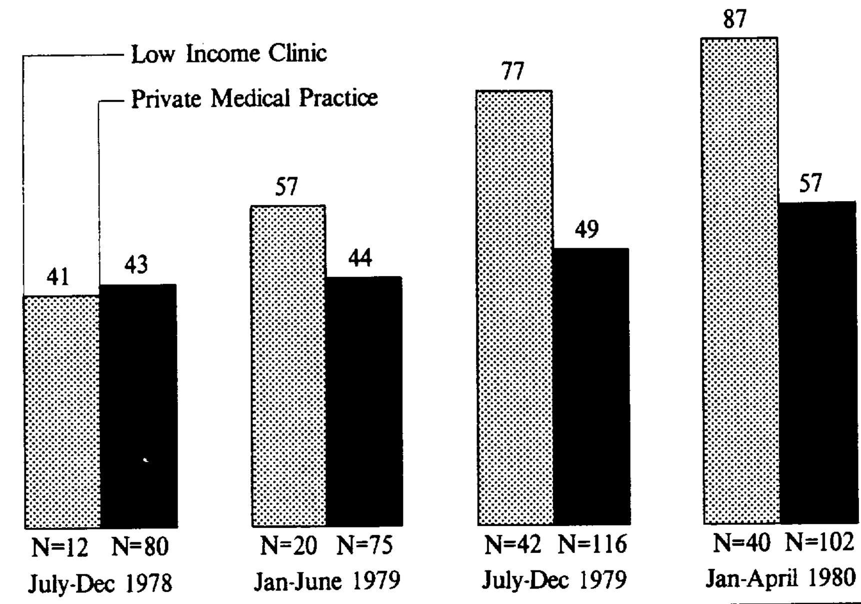
Discussion of the Project

Initiation of Breastfeeding. Figure I presents data for the percentage of women initiating breastfeeding. Shown are rates for women who received maternity care through the public low-income clinic and by private physicians. During the 6-month period before the project began, breastfeeding rates for the two groups were similar. During the term of the project, the percentage of women initiating breastfeeding among the low income clinic (project participants) more than doubled. The increase in breastfeeding by other women in the community occurred after the project began providing breastfeeding education to prepared childbirth groups, nurses groups, and the community at large.

The first increase during January–June 1979 over the control period (July–December 1978) appeared to occur after a more consistent encouragement to breastfeed. The increases after July 1979 occurred as a more well-developed teaching program, distribution of selected written materials, and use of films were adopted.

FIGURE 1- Percentage of Women Initiating Breastfeeding of Newborns Delivered by Private Physicians vs. Those Cared for in Low Income Clinic

(Community Hospital - July 78 through June 80)



Over the term of the project, a progressive improvement in the duration of breastfeeding was observed at all intervals. During the control period, half of the women initiating breastfeeding discontinued the practice during the first week, with none continuing through 16 weeks. During the last 6 months, almost half of the study participants breastfed through 16 weeks. (Table I)

Of 23 women known to discontinue breastfeeding between 4 and 16 weeks during 1979, only 5 did so upon returning to work or school. The majority expressed dissatisfaction with breastfeeding or the demands it placed on their lives.

The most easily discernible difference between women who continued breastfeeding and those who did not was their family situation. Not surprisingly, most of the women who continued were those in stable marital relationships. Few women who were single, divorced, or in periods of marital conflict continued. Returning to work or school was a more frequent (though not universal) occurrence among single mothers.

Subjective Evaluation of Influencing Factors

Prenatal Instruction. Of all factors considered in promoting selection of breastfeeding, unhurried discussion of infant feeding appeared most productive for this group. Many women seemed to want to breastfeed

but were inhibited by stories they had heard or anxieties they were harboring.

The primary-care provider is generally a person with whom the woman is developing a trust relationship and seems the ideal person to provide counsel on breastfeeding. Additionally, during prenatal care visits, the woman is a captive audience. Prenatal care should include, whenever possible, the woman's significant others. Most husbands reticent about breastfeeding usually responded readily to open discussion. This form of breastfeeding education also encouraged the woman to feel free to call the care provider if problems were encountered.

Table I

Percentage of Women Continuing to Breastfeed through Selected Intervals After Delivery

(Low-Income Clinic—July 1978 through June 1980)

Duration	July–December 1978	January–June 1979	July–December 1979	January–June 1980
1 week	50	62	81	88
(N=)	6	10	34	35
4 weeks	33	62	79	75
(N=)	4	10	33	30
8 weeks	25	44	63	68
(N=)	3	7	26	27
12 weeks	8	38	38	56
(N=)	1	6	16	22
16 weeks	0	25	36	48
(N=)	0	4	15	19

Considerable effort was made toward defining the breast as a nutritive organ rather than as a sexual one. A successful technique was to take time during the prenatal physical exam to "explore" with the woman the anatomy of the breast in relation to infant feeding.

Most women appreciated films about breastfeeding. "Promotional films" were shown prior to delivery and "how-to" films were reserved for after delivery when breastfeeding was started. Within this lower socioeconomic group, written material was of less value; many did not read it.

Hospital Management. The primary-care provider may insure that hospital management of the mother and infant promotes breastfeeding. Most important aspects (*not* commonly practiced by hospital maternity departments) are early and frequent (demand) feedings, avoidance of supplementation, and avoidance of mother-infant separation. During the hospital stay, "hospital rounds" were generally made twice each day, ideally when the infant was with the mother. During these visits, previous

teaching was reinforced, and anticipatory guidance and encouragement were provided.

Post-Hospital Management. Women were given appointments for a follow-up visit within a few days of hospital discharge. This early visit provided early problem intervention for many women. Of women breastfeeding at one week, 91% continued through at least one month (during the last year of this study). Most breastfeeding problems developed in the first few days at home.

Although formula companies provided free formula samples upon discharge from the hospital, these samples were not distributed to breastfeeding mothers. Sterile water was provided for "emergency" supplementation until professional assistance could be obtained.

Community Follow-Up Two Years After Discontinuance of Breastfeeding Project

As demonstrated in Table II, the discontinuance of the special breastfeeding promotion project was accompanied by a prompt decline in the number of women initiating breastfeeding. Within 2 years, breastfeeding initiation rates were similar to pre-project levels. Careful analysis of this observation was not possible.

Table II

Percentage of Women Initiating Breastfeeding (Community Hospital—1978 through 1982)

1978	1979	1980	1981	1982
43%	50%	60%	48%	46%

(Breastfeeding Promotion Project)

Breastfeeding Promotion on the Papago Indian Reservation (Arizona)

The Papago Reservation's community is a rather closed, traditional Indian society. The reservation population is approximately 10,000 persons, with very few non-tribal members. The largest community contains 3,000 persons, and the nearest large non-Indian community (Tucson) is 60 miles distant. The native language is used in commerce. Many problems common to Indian reservations exist, including high infant morbidity and mortality and other nutrition-related problems—probably originating in alteration of traditional dietary practices.

Elements of the Papago Breastfeeding Education Project

In 1981, the U.S. Department of Agriculture granted funding for a breastfeeding demonstration project on the Papago Reservation. The

project functioned with the assistance of an advisory board made up of representatives of the Indian Health Service, WIC, tribal programs, Meals for Millions Foundation, and other interested individuals. Overall function and administration of the project was local and native.

The project developed high quality audiovisual aids to increase community awareness and understanding of breastfeeding. The theme of this material focused on breastfeeding as "the Papago Way." Native lay women were recruited, trained, and paid as "breastfeeding helpers," both to assist the new mother and infant directly and to act as liaison for her with other services. A free nursery for breastfeeding babies was established in a location central to school and major work places so that new mothers could, with the cooperation of employers, feed their infants during the day. The project also sought to develop rapport with and improve services from the health-care system.

Outcome

As noted in Table III, a marked increase in breastfeeding initiation was occurring in the time immediately preceding the grant funding of the project. This change occurred as individual program efforts developed and became coordinated.

Table III

Breastfeeding Initiation and Duration
(Papago Reservation—1979 through 1983)

	1979	6/81	7/81–6/82	4/83–9/83
Percentage of New Mothers Initiating Breastfeeding	23	44	59	49
Percentage Breastfeeding at				
6 weeks			50	48
4 months			33	42
Percentage Utilizing Formula Supplementation (Age: Birth to 4 months)			21	37

Summary of Papago Breastfeeding Project

With this multi-level approach, improvements in breastfeeding initiation and duration were noted. While the percentage of mothers initiating breastfeeding has decreased somewhat following the ending of the USDA grant-funded program, the percentage of infants breastfeeding during the first months of life remains similar to that during the program. Formula supplementation during breastfeeding has increased. The factors contributing to the apparent post-project declines are not fully under-

stood; however, decreased direct support of the breastfeeding mother may be an influential factor.

Breastfeeding on the Fort Peck Indian Reservation (Montana)

Description of Reservation

Unlike the Papago Indian Reservation, the Fort Peck Indian Reservation is not homogeneous. The reservation population is approximately 12,000; the largest community has fewer than 4,000 persons. The reservation is the assigned home of two unrelated and, historically, sometimes antagonistic tribes. The reservation was opened to homesteading in 1911, and currently, less than one-half of the residents are tribal members. Intermarriage with non-Indians and members of other Indian tribes is common. The native languages are used infrequently and are generally unfamiliar to younger tribal members.

Largely agriculture-based, the local economy is augmented by oil production, federal-agency salaries, and tribal light industry (receiving minority-preference federal contracts). Unemployment is relatively high. Women of child-bearing years comprise a substantial portion of the work force.

The health-care needs are met by both the Indian Health Service and private medical practices. Two small hospitals have limited services; referral and transport to outside specialists and facilities are common.

The Recent Practice of Breastfeeding

As anticipated from the rapid assimilation into a non-Indian society, many traditional ways have been lost. Cultural and family disruptions have brought about major changes in child-care practices, including mothering and feeding of infants. Breastfeeding has been infrequent for two generations. Traditional family ties have been altered, and women are increasingly dependent on their male partners for breastfeeding support. Native male attitudes toward breastfeeding as well as other aspects of child care reflect the relatively greater role alteration of the aboriginal male produced by assimilation. Many males are strongly opposed to breastfeeding.

Breastfeeding Promotion on the Fort Peck Indian Reservation

It is the policy of the Indian Health Service to encourage breastfeeding. The tribal WIC program reaches almost all pregnant women (WIC reaches approximately 80% of eligible families in Montana). Few Indian families have contact with prepared childbirth programs, nor is there an active breastfeeding mother support group (such as La Leche League). Almost all pregnant women receive some prenatal care, although often less than optimal. Approximately 60% of pregnant women receive maternity care from one provider (the author), who pro-

vides prenatal, inpatient obstetrical, and postpartum care. A limited amount of commercially produced written material is available.

During the course of prenatal care, breastfeeding is discussed at least twice, literature is distributed, and a short film is shown. The pregnant women are encouraged to talk with other women who they know have breastfed. The WIC program staff tells all pregnant women that breastfeeding is best for the baby and encourages them "at least to try." The outpatient nursing staff encourages breastfeeding. The inpatient nursing staff is generally supportive, and the inpatient hospital routine is generally conducive to breastfeeding. The infant is usually allowed only sterile water as a supplement, and formula samples are not sent home with the mother. Post-hospital discharge follow-up is within two or three days and generally one week later. Telephone or personal consultation is always available.

Montana rates of breastfeeding initiation fit the general characteristics of urban vs. rural, educational, and economic patterns. With promotional efforts, the Fort Peck Reservation—among those served by the Poplar Community Hospital/Indian Health Service (PCH/IHS) program—has a percentage initiating and continuing breastfeeding among the highest in the state, even with the previously mentioned negative factors.

Summary

Results of breastfeeding promotion efforts in these three rural areas indicate potential for success in increasing both initiation and duration of breastfeeding. Data available following the ending of the promotion projects suggest that infant-feeding practices will tend to revert to practices similar to those before promotion.

Two programs (Florida and Arizona) were among populations less affected by cultural change—where breastfeeding was recently practiced and where indigenous support was present. In the Montana community (Fort Peck Indian Reservation—PCH/IHS), both of these factors are lacking, and breastfeeding promotion has made slower progress.

Breastfeeding mothers in rural areas encounter several problems. Often these women lack frequent contact with other new mothers, and thus basic information and peer support are less available than in urban areas. The media (audiovisual and written) are limited and not always in accord with the culture. While many breastfeeding promotion efforts take place outside of the formal health-care system, groups such as La Leche League and prepared childbirth programs are less frequently available in rural areas. Although some assert that the free infant formula available through the WIC program acts as a disincentive, WIC program personnel actively encourage breastfeeding. When promotional efforts address these rural problems, the incidence of breastfeeding can dramatically increase.

The San Diego Lactation Program: A Teaching Hospital-Based Resource to Promote Breastfeeding

Audrey J. Naylor, M.D., Dr.P.H.

The transformation of maternal blood into milk and successful delivery of this complex nutritional and immunologic substance in the correct quantity and quality to assure infant growth and development, though "natural," is not simple. As with other complex physiologic functions and behaviors, both lactation and breastfeeding are at risk for a variety of problems which can and often do lead to early weaning. This risk can be greatly reduced when perinatal health care professionals understand the complexities of breast function and suckling and when they are trained to apply this understanding to the clinical management of breastfeeding.

During the past 30 years, while other areas of medical and nursing education underwent vast revisions in response to medical advances, attention to lactation and breastfeeding declined. Obstetrics taught students how to inhibit lactation and speed the postpartum involution of the breast, while pediatrics concentrated on the fine points of providing infants with an artificial formula. The breast became a topic discussed primarily in pathology classes and surgical clerkships. Students and house officers were taught details about how to eliminate its basic function either temporarily or permanently, but learned little about how to encourage and enhance its normal processes, or how to prevent, diagnose, or treat deviations from normal function.

During the past 5 to 10 years, the basic science information provided for students of the health professions about lactation and breast milk has significantly increased; however, instruction regarding clinical evaluation and management of breast function is rare. Many perinatal health care providers enter practice unprepared to assist the nursing mother and often give advice and carry out procedures leading to breastfeeding problems and failures.

The San Diego Lactation Program

Until September 1977, training programs available at the University of California, San Diego Medical Center (UCSDMC), and Mercy Hospital and Medical Center, an academically affiliated teaching hospital, were typically deficient in this area. While 50% to 65% of new mothers were initiating nursing, less than half continued beyond 8 to 10 weeks. To promote breastfeeding while simultaneously providing appropriate clinical teaching opportunities, the San Diego Lactation Program was launched.

The Lactation Program was designed with multi-departmental guidance. The consortium of departments contributing to the early planning included Reproductive Medicine (OB/GYN), Pediatrics, and Community and Family Medicine, as well as Nursing and Social Service. Within a short time, the Program developed its own distinct identity and now functions independently and essentially like other academic subspecialty

services within the teaching-hospital setting. In July 1983, the Program's base of operations was moved to nearby Mercy Hospital and Medical Center. Both the UCSDMC and Mercy Hospital are now used as teaching resources.

The core service and teaching team has always included a board-certified member of the pediatric faculty, a certified pediatric nurse practitioner, and a part-time nutritionist. A faculty obstetrician and a medical social worker are readily available on a consultation basis. Direction for the Program is jointly provided by the pediatrician and the pediatric nurse practitioner. Both have become full-time, highly skilled subspecialists.

Six distinct components of the Program are definable: 1) prenatal guidance; 2) skilled immediate postpartum assistance; 3) 24-hour telephone consultation service; 4) evaluation of lactation progress and problem-solving in a special Lactation Clinic; 5) Intensive Care Nursery consultation; and 6) provision of educational programs for community doctors and nurses. Each component offers an opportunity for clinical experiences for health professional trainees.

Prenatal Guidance

Prenatal guidance provides the basic foundation for successful lactation. As one of the initial and essential steps in developing the Program, several hours of inservice education regarding all aspects of lactation and breastfeeding were provided for both professionals and non-professionals on the clinic staff.

Following this training, the clinic staff actively recommended breastfeeding as the preferred feeding method for infants. In addition, breast examinations were more carefully performed, sound preparation explained, and non-commercial patient-education materials provided. Lactation became an even more significant aspect of the nutritional counseling. A 2-hour class for expectant parents in the prenatal education series reviewed the advantages of human milk and breastfeeding and clarified the anatomy and physiology of lactation. In addition, basic issues of the techniques of nursing were covered in this series.

Postpartum Assistance

Regardless of the extent and quality of prenatal service, lactation and breastfeeding may not progress well if the postpartum care is poorly managed. The Lactation Program also provided the nurses from the postpartum and nursery units with a review of the reasons for breastfeeding, anatomy and physiology, and sound techniques to encourage normal lactation physiology. Following the training, procedures were gradually instituted which allowed normal newborns to nurse within the first 30 minutes after delivery, and on demand thereafter. Rooming-in became the usual, rather than unusual, arrangement. Routine use of formula, water, bottles, pacifiers, and nipple shields was discontinued. In addition, rather than being discharged with an inappropriate sample pack of infant

formula with its implicit message of doubt, all nursing families began to receive a discharge "gift" of careful counseling and the number to call the Lactation Program's telephone consultation service or Helpline.

Telephone Consultation Service

The telephone consultation service is an essential component of the Program; in spite of good preparation, skilled postpartum help, and thorough counseling at discharge, nursing problems arise from time to time. Rapid solutions are often needed if infant well-being is to be maintained and breastfeeding continued. The 24-hour telephone service is available to any breastfeeding family, regardless of their source of medical care. Program staff members answer questions, solve acute nursing problems, see mother-infant couples if needed, and provide a significant, always-available support system in response to about 130 calls per month. Community health professionals also seek consultation via this service.

The Lactation Clinic

While students and house officers have opportunities to observe and participate in all of the preceding facets of the Program as they rotate through their clinical assignments, the fourth component, the Lactation Clinic, is the Program's major teaching resource.

Breastfeeding mother-infant couples are given appointments to be seen in the Clinic within 7 days of hospital discharge and whenever problems occur. Forty to fifty patients are seen each week. Lactation progress is evaluated by use of a specially designed history and thorough infant examination. Maternal breast examinations are routinely done, breastfeeding carefully observed, and both maternal and infant weight changes documented. Advice and treatment are given as needed, and appropriate nutrition for successful lactation is discussed. Social service intervention is offered whenever indicated.

Medical and nurse practitioner students as well as residents in pediatrics and obstetrics all rotate through this service. Each assigned trainee receives 16 hours of clinical instruction from the Program's experienced staff.

Students and residents gain an appreciation for the complex physiology of lactation, the multi-determined and learned nature of successful breastfeeding, the biologic partnership of a mother-infant couple, and the family's influence on nursing. They become comfortable with maternal breast examinations and learn the importance of carefully observing nursing technique. They acquire physiologically sound methods of preventing and treating common breastfeeding problems, such as let-down inhibition, engorgement, nipple abrasion, clogged ducts, and mastitis. They are taught about the causes and treatment of nipple confusion and abnormal suckling patterns and learn how to approach the diagnosis and treatment of slow-weight gain and reluctant nursers without immediately recommending weaning or supplementing.

The Lactation Clinic component of the Program is not designed as a high-volume experience. Teaching and demonstrating the important de-

tails of normal breastfeeding take time. In addition, the psychophysiologic sensitivity of lactation does not always respond well if a mother feels rushed. If there are problems, solutions are frequently found only when careful attention is paid to feeding techniques, maternal feelings, activities and nutrition, other aspects of general health, and family adjustments and interrelationships. Rarely are such solutions quickly found, especially in the teaching setting. However, long-range gain for both families and trainees is well worth the initial extra time invested.

Intensive Care Nursery Consultation

Breastmilk is the preferred nutrient for most of the preterm and critically ill infants admitted to the intensive care nurseries of both hospitals used by the Program. Nursing staffs of these units have been taught how to instruct parents about techniques necessary for the development and maintenance of lactation, effective methods of pumping and expressing milk, proper breast care, and maternal nutrition. Instruction is also given in safe methods of storage and transport of milk. When the infant is sufficiently developed and well enough to begin nursing, parents are assisted in retraining the baby to breastfeed. The Lactation Program staff members consult on complex problems.

Community Education

The impact of the Lactation Program as a training resource for health professionals has been extended beyond the students and postgraduate trainees served by UCSDMC and Mercy Hospital. Physicians and nurses throughout the local, national, and international community have increased their awareness of the importance of breastfeeding during the past decade. Many of these health-care providers have recognized the need for a better understanding of the basic physiology of lactation and for current information on successful management of breastfeeding. The Lactation Program staff has responded to increasingly frequent requests for training from such professionals. At the Program's home base in San Diego, one- or two-day workshops are provided for large groups from time to time. Additionally, intensive professional certification courses involving 40 hours of carefully supervised clinical experiences, combined with 40 hours of seminars and didactic classes, are offered to small groups of physicians and/or nurses from perinatal specialities. Teaching conferences and consultations are also provided, on invitation, for hospitals and other health-care institutions across the United States, and have reached several thousand health care professionals.

In August 1983, the Program extended its influence to developing countries where the American model of separate postpartum and nursery care as well as routine use of artificial feeding is common in teaching hospitals. To date, 8 physician-nurse teams (19 trainees) have completed 4 weeks of intensive lactation management training in San Diego and are now launching clinical training programs and lactation clinics in their own teaching hospitals in Kenya, Thailand, Indonesia, the Philippines,

Guatemala, and Costa Rica. The San Diego Lactation Program is proud to be participating in this American export.

Summary and Conclusions

This report has described the San Diego Lactation Program, a teaching-hospital-based program in operation since September 1977. The Program functions as an academic subspecialty and is co-directed by a pediatrician and a pediatric nurse practitioner. Though important services are provided for breastfeeding families, the Lactation Program is primarily a teaching resource for health care students and postgraduate trainees from the perinatally oriented disciplines.

If breastfeeding is to be seriously promoted in this country and if infants of families from all walks of life are to receive the many benefits of human milk and breastfeeding, then skilled services from knowledgeable health professionals are essential. In order to assure the availability of such professionals, clinical learning opportunities concerning lactation and breastfeeding must become an unquestioned, standard unit of medical and nursing education and of postgraduate training in the perinatal specialties.

Because of the complexity of both the physiology of mother and infant and their interactive behavior, such clinical training deserves the same degree of attention, support, and careful direction as given to any other complex subspecialty. It should be under the direction of knowledgeable and experienced medical faculty with primary training in one of the perinatal specialties. Teaching-hospital-based lactation programs such as this can provide ideal clinical learning opportunities for health professionals and can add a major contribution to the successful promotion of breastfeeding for all infants and mothers.

BREASTFEEDING: NEW YORK STATE'S INFANT HEALTH STRATEGY

David Axelrod, M.D.

I bring greetings from Governor Cuomo and his wife, Matilda, both of whom are very interested in the subject of maternal and child health. The Governor is a strong proponent of initiatives to improve the health of infants, children, and lactating women, as exemplified by his successful support of the addition of $15 million to this year's budget for nutritional assistance to high-risk populations, many of whom are young mothers and their children. Mrs. Cuomo has been a tireless worker on behalf of child health programs in both the public and voluntary sectors.

Our society needs to do more to promote child health, particularly among the poor, the racial minorities, and adolescent mothers. Ours is a time and an environment that seems to have turned its back on the needs of children. We need greater understanding in the White House, in Congress, and in statehouses throughout this country that the future of our nation is dependent on the physical health and development of our children. Their needs *cannot* be made to wait.

I believe a nation which fails to commit itself to protect the health and development of its children and the women who bear them is a nation flirting with social disaster, a nation which has no sense of destiny in weighing the true determinants of national strength and purpose. It is neither cliche-ridden nor simplistic to say that children are our most precious national resource. And it is time we directed our national and local resources in such a way to prove that we are truly committed to serve the future of our country.

Our best defense as a nation lies not in weaponry, but in a strong, healthy, and resilient society, which we cannot have unless we do a better job of bearing, rearing, and educating our young. And so we cannot do, unless we address the problem of unwanted adolescent pregnancy, unless we recognize that many mothers, their unborn fetuses, and their newborn infants are being inadequately nourished; and unless we recognize that, despite all our scientific advances, we still have a long way to go to achieve our goals in reducing perinatal mortality and morbidity.

Seventy years ago, one of every ten infants born in this country died before age one. Last year, the infant mortality rate in the U.S. was the lowest ever achieved—just over one death per 100 live births. But, before letting out a loud cheer to celebrate this accomplishment, we should not forget that the infant mortality rate of Blacks is almost twice that of Whites in our country. In some ghetto areas, the infant mortality rate is equivalent to that of some Third World countries.

Nearly two-thirds of the infants who die before their first birthday have one thing in common, low birthweight, which makes them more susceptible to disease and developmental defects. All too commonly, low

birthweight babies are born to immature, poorly nourished, unwed adolescent mothers. These mothers and their children, if they survive their common ordeal, usually end up on the welfare rolls, with little prospect of ever leading independent lives.

I cite these issues because I believe they are critical to our common goal of encouraging more mothers to breastfeed their young. A glance at the data on breastfeeding rates gives a rosy picture—between 1971 and 1981, the percentage of postpartum women discharged from U.S. hospitals who were breastfeeding their children increased more than twofold, from about 25% to over 57%. Indeed, a survey of breastfeeding practices by mothers discharged from hospitals in most areas of New York State mirrors the national experience. Here in Rochester, for example, 60% of the maternity patients at Strong Memorial Hospital reportedly breastfeed their infants.

But it is when we look to hospitals serving poor, minority clientele that we discover a different picture. In these hospitals, the hospitals of the Health and Hospitals Corporation in New York City, hospitals serving the Crown Point and Bedford-Stuyvesant neighborhoods of Brooklyn, and hospitals in Harlem or the South Bronx, one discovers that the percentage of mothers breastfeeding their infants is more likely to be 10% or 15%. In the case of the Harlem Hospital Center, only 5% of mothers breastfeed.

Our misbegotten marriage with medical technology is not always consistent with our goals for more breastfeeding mothers. Let me point out that some of our leading medical centers are not doing an adequate job of promoting breastfeeding practices for mothers who come under their care. Their statistics in this regard are little better than those of the public hospitals in New York City.

Obviously, we need to do more than simply encourage and educate mothers to breastfeed their young; we need to inculcate belief in the advantages of breastfeeding among our doctors, nurses, and hospital administrators.

While we are still gathering evidence for the population being served by the federal WIC program, early returns are not encouraging. Only about 15% of this high-risk population are breastfeeders. This evidence suggests failure to reach the audience that stands to benefit the most from breastfeeding their young.

We in New York State have decided to do something to remedy this gap in our infant health strategy. We have discovered that despite extensive documentation of the physical and psychological benefits of breastfeeding for both mothers and infants, health-care providers in New York State are not being appropriately informative or helpful to those who stand to gain the most from breastfeeding. Indeed, if anything, the approach in many hospitals has been to encourage artificial feeding methods at the expense of breastfeeding promotion.

In order to turn this situation around, we in the State Health Department, in addition to supporting model legislation to require hospitals to inform patients properly of the infant feeding options available to

them—including breastfeeding—have drafted new regulations governing the responsibilities of hospitals with respect to maternity patients who wish to breastfeed their infants. We anticipate that these regulations will be adopted later this month by the State Hospital Review and Planning Council.*

Under these proposed new regulations, hospitals will be required to provide instruction and assistance to each maternity patient who either chooses to breastfeed or is undecided about the feeding method for her infant. Each hospital with a maternity service will be required to designate at least one person who is thoroughly trained in breastfeeding physiology and management to be responsible for presentation of an effective breastfeeding instruction program. Among the other policies and procedures that the hospitals will be required to carry out are:

1. prohibition of the application of standing orders for antilactation drugs;
2. positioning of the infant for breastfeeding immediately following delivery, unless contraindicated;
3. provision for the infant to be fed on demand;
4. restriction of supplemental feedings to those indicated by the medical condition of the infant or the mother; and
5. restriction of distribution of discharge packs of infant formula to an individual order by the attending physician or at the request of the mother.

The education program, which is to be presented as soon after admission as possible, must include information on:

1. the nutritional and physiological aspects of human milk;
2. lactation, including care of breasts, frequency of feeding, problems associated with breastfeeding;
3. dietary requirements for breastfeeding;
4. sanitary procedures to follow in collecting and storing human milk; and
5. sources for advice available to the mother following discharge.

In order to facilitate implementation of these new regulations, we in the Health Department intend to develop a curriculum to enhance the skills and knowledge of maternity staffs in those hospitals that do not currently have supportive programs for breastfeeding mothers.

These regulations also call for the modification of existing standards that emphasize procedures and allocation of space for hospital preparation of infant formulas and for the deletion of regulations that require bacteriologic monitoring of the feeding unit associated with prepackaged, presterilized, commercially-prepared formulas. Hospitals should realize some cost savings as a result of these two changes.

We believe these proposed regulations are indicative of our commitment to increase the number of mothers who provide their infants with the immunologic, bonding, and other benefits associated with breastfeeding.

We look upon these regulations as an integral part of our strategy to improve maternal and child health in New York State and to continue

* These regulations were adopted in June 1984.

our progress in reducing infant mortality and developmental disability. In a state where the chief executive has tied his entire political philosophy to the concept of Family, we are sworn to the belief that nothing is more essential to the promotion of close ties between mother and child than breastfeeding.

THE LAY VOLUNTEER IN THE MOTHER-TO-MOTHER PROGRAM OF LA LECHE LEAGUE

Viola Lennon

One of the most interesting aspects of La Leche League is we never meant to found it. We were all busy young mothers in 1956 and never dreamed of starting a worldwide organization. None of us had the vision to see an organization now in 44 countries, having 14,000 qualified leaders in these 27 years.

It all started with a phone call from an old friend, Edwina Froehlich—a person who was a great help to me with breastfeeding of my children. She invited me to a meeting to discuss breastfeeding and mothering. If she had not mentioned mothering, I would never have accepted her invitation. I had little trouble with breastfeeding, thanks to the support and information she had given me. However, mothering interested me. I wasn't sure just what it really meant.

In our first meeting we shared our ideas about breastfeeding, its importance, some of the problems in getting started with lactation, and our real joys in the breastfeeding relationship.

One meeting led to others and mothers came. They wanted to know more about breastfeeding and mothering, and we soon found we had started reviving the lost art of breastfeeding. When we grew into too large a group, we broke into several groups. Soon, I was leading a meeting in Chicago.

We then developed an outline for our organization and started to write a short version of what would eventually be *The Womanly Art of*

Breastfeeding. I remember not being very enthusiastic about writing a book. Who needs a book?

When an article appeared in the *Readers Digest* entitled "They Teach the Joys of Breastfeeding," we received hundreds of letters. I was called and asked to answer a few letters and agreed. Soon we were receiving letters by the stack.

In time, I remember one of the husbands suggesting a national conference. Imagine having mothers and babies travel to a convention! The idea seemed radical to me, but it happened. Eight hundred people arrived for the conference.

We continued to grow because we had uncovered a natural need. I will always believe that most mothers want what is best for their children, and they knew intuitively breastfeeding was best and would lead them most quickly to a discovery of mothering and all it entails. We had the help of several doctors and other professionals who made suggestions, stimulated our thinking, and lent us their expertise. Just as at these meetings, we need each other—professionals and mothers—to give each mother the solid base she will need.

The discussion in this Workshop about the indecent exposure issue reminds me of an incident that happened to one of my daughters. The girls have earned some of their college expenses by waitressing. One day, one of the other waitresses approached my daughter with the statement, "You will never guess what the lady in station 17 is doing."

My daughter knew what the woman was doing. The waitress continued, "Wouldn't you think she would nurse the baby in the bathroom?" My daughter confided to me that years ago she would have said nothing. In those early days the children had problems describing their mother's involvement. Now, breastfeeding has come out of the closet, and my daughter responded, "No one else in this restaurant is eating lunch in the bathroom."

Now back to the story. We just kept on growing and soon we had a few State meetings and a State Coordinator. Then Canada and New Zealand joined us, and we changed to areas.

The usual followed—starting to employ a few people, setting up an official office, writing a constitution. Many of you in the voluntary sector know the steps.

We started out as a breastfeeding support system. Like all of you who have your vision focused on the ultimate health and happiness of families, we made startling discoveries. Breastfeeding is important. A positive birthing experience adds immeasurable support to a mother's confidence, but she needs all this and more to complete her education as a parent for the lifelong job of raising a family. We together must give parents this belief in themselves. That whole process is what La Leche League is all about.

La Leche League is a much broader oganization than we, the founders, first anticipated. La Leche League is first a breastfeeding information and support network, usually based on the mother-to-mother approach.

La Leche League is really the only organization that speaks to the needs of the baby and is a spokesperson for the baby.

La Leche League International is a witness to the importance of

motherhood, a model for mothering. LLLI is also a comfortable place to grow in mothering. The mother who becomes attentive to the real needs of her infant and is sensitive to the rhythm of a little body soon learns real discipline is loving guidance. The mother who sees growth in her infant through her own milk soon begins to take a real interest in her own and her family's diet.

La Leche League International is becoming a worldwide resource for minority, employed, and professional mothers.

The ingenuity displayed by employed mothers will always fascinate me. Their determination to breastfeed makes me pause in respectful admiration. They come home for lunch for two. They pump their milk on coffee breaks. By prior arrangement, some mothers bring their babies to work.

The WIC program and La Leche League are cooperating in offering breastfeeding information and support to the clinic mother. We had often wondered if our mother-to-mother approach and our materials would work for this group of mothers. Happily it does work, if our leaders develop a real sensitivity to cultural differences in any group. In Chicago we have had several seminars on Black culture to sharpen our own insights. We also offer many of our materials in Spanish. In the Watts district in California, our inner city program is thriving and our membership has real interest in other cultures.

For the pregnant professional, we are planning a series of lectures on breastfeeding complete with a package of information and an appropriate charge. This scheme is a departure from our meeting series, but we realize that some women will not attend a La Leche League Series meeting. We are not locked into any one format. Our philosophy is paramount. The eighties present new life-styles, and we mean to be as supportive as possible—always depending on you good professionals for guidance and cooperation.

We need you, but you need us. When a new mother is confronted by a crying, seemingly unmanageable infant, she doesn't need a diagram of the construction of the breast. She needs an experienced nursing mother. When there is a medical problem, the diagram may point to the solution, and a doctor's experience is vital. We never give medical advice.

The following story is true and says what we really are. One day an overwrought and tired new mother called me. She was having problems with breastfeeding. Since she lived close by, I suggested that she drop in. She did—and started asking questions. Martin Lennon was 3 months old and behaving just his age. I nursed him and we talked. I put him on my lap, then I put him on a blanket on the floor as I made some coffee. Finally I noticed my visitor was not paying any attention to my answers. She was watching and finally blurted out, "Do you think that child is normal?" Remember, this was my son! I said "yes" and she seemed to smile and relax. "I guess I don't have any problems. I just didn't know!"

There it is: La Leche League.

BREASTFEEDING AND THE MEDIA

Robert Bazell, NBC News

After I was asked to speak at this conference of distinguished participants, I read a press release that said I would be talking about what television is doing to promote breastfeeding. I then went to our computer to see what NBC News has done on the subject of breastfeeding. In researching the 7 years since tape has replaced film as the primary video storage element, I found that NBC News had done 7 pieces on breastfeeding, 3 of them in a period of a few days in 1981. Using these pieces as a framework, I would like to talk about how news is made, and why something becomes newsworthy. Breastfeeding, although it involves crucial health issues, is unfortunately "old hat." It is not news. It is true that the news media certainly stresses educating the public, but we in the media don't always function as if that were our primary role.

Let me enumerate the NBC News stories on breastfeeding in chronological order. The first was aired on June 8, 1977. There was a report of a Senate hearing in which some environmentalists showed that toxic substances had been found in human milk. How will such a story be treated? We must remember that the network evening news program is 22 minutes and 40 seconds long after the commercials. Frequently a story is sandwiched between a commercial touting a headache remedy and another selling a hemorrhoid remedy, and conveying health information in that perspective is difficult. Furthermore, a typical story on the evening news is 90 seconds long, including the sound bites (the 15–18 second quotation from the subject of the story) as well as the 1¼ minutes of reporter's commentary. This amount of space/time doesn't allow for much of a balanced perspective on two sides of a complicated issue. There is usually time for only one impression to be conveyed in this visual medium, and in the story in point, probably the one idea that came across was that there was something dangerous in mother's milk. The public takes away the idea that there is something to worry about.

Why did we do that story? It was startling, and therefore it was news—and viewers paid attention. Breastfeeding was suddenly suspected as potentially harmful to children; thus it became newsworthy.

The decisions concerning news content are made by relatively few people and almost all of them are men. Certain subjects simply evoke squeamishness. A story on the benefits of breastfeeding unfortunately seems to be considered by some as unfit material for the evening news. The subject is a visual one, and showing a picture of a woman nursing her baby, no matter how tastefully done, makes some people nervous. Those who decide what will be shown seem to prefer to do a story on another health topic—almost any other.

The second story aired by NBC in this 7-year period was in January 1978. Jane Pauley on the "Today Show" interviewed Dr. Jean Lockhart of the American Academy of Pediatrics. The Academy had just come

out with a recommendation strongly in favor of breastfeeding. The presentation was a one-on-one interview and did not involve showing pictures. This type of presentation, 4 to 6 minutes long, does give more of an opportunity for questions and answers and explanations. I believe such a format is better for conveying information, and I am surprised that there have not been more presentations of this kind. There is the conviction that health issues are important, and breastfeeding is certainly one of these issues. This interview also reinforced the concept of the voice of authority. The physician or the medical organization will make us pay attention to an issue—in this case, breastfeeding. When the American Academy of Pediatrics highlights an issue, people listen. Even so, the press and the public are ambivalent toward physicians and the medical establishment as authority figures. On one hand, we look to them as experts with all knowledge; on the other, there is enormous skepticism running through the country. In this context, breastfeeding, or the return to breastfeeding, first started as a popular movement and then received the establishment's blessing through scientific research. There are both the popular and the establishment currents at work, and we in the media always wonder which current we should swim with.

The next story to appear on NBC was on the nightly news on January 26, 1979, and I am sure it is familiar to you. Linda Eaton, a fire fighter in Iowa City, was dismissed from the fire department because she insisted on the right to nurse her baby in the firehouse. Now a story like this one gets on the news because it's quirky, and in fact it does raise some very crucial issues like the questions of breastfeeding and women working and women's rights. Even though this case was regarded as bizarre, it could have been a focus to discuss those issues. I think that one of the reasons it got so much attention was that she was a fire fighter. If she had been a secretary and had been fired for insisting on bringing her child to the office, there would have been a small paragraph in a newspaper someplace. It was only because she was a fire fighter, a job which obviously is commonly male, that the story received so much attention. That is the reason some stories become news. I hope that some people go beyond seeing it as more than just a weird story about a woman in a firehouse, and see the real issue. But certainly when I look back over the way the scripts were written, or even the way newspapers (which have much more space) treated it, I don't think it was treated in a way to bring out the substantive issue.

The next time that a story about breastfeeding appeared on NBC was two years later in May 1981. There were three stories in a period of a few days. Officials in the Agency for International Development threatened to resign because the Reagan administration did not support the World Health Organization's infant formula code. Television news sed the issue very quickly and then just dismissed it. If I am listing the lts of television, this is the area where we fail the most. Middle-class omen and men who make decisions about breastfeeding don't need a gthy discussion on the "Today Show." If they are educated or if they ll consult their doctors for the right information, they will get the inrmation. But the issue of infant formula sales in Third-World countries

and formula promotion in poverty areas of the United States is a crucial news issue, and it is one that has been almost ignored by both newspapers and television. It only came up in this one instance because two men threatened to resign. It happened, and then it was just forgotten. There was never an in-depth report. There was never a "why is it so important?" The reasons are astounding in terms of the implications for nutrition, the implications for birth control in those countries, and all those things which you know so well. We should have done 20 news stories or documentaries about breastfeeding, because the issue really matters. But it was not done. We did not cover it because American television would much rather cover a story about the sex life of gorillas.

The last story on the list illustrates another reason why things get on the air. On December 6, 1982, in Boston, 150 women donated breastmilk to save the life of an infant whose mother couldn't produce enough. That's wonderful! That is a nice heartwarming story, and got on the air for that reason . . . not because it instructs people about anything, not because it informs us about the issues, but because it is a "Gee whiz, aren't those people nice" story.

There you have the limitation of our coverage. I think it should be different.

One of the fascinating things on the subject of breastfeeding is its lack of media history. I always associate breastfeeding with bricking up the fireplace. After World War II, many people bricked up their fireplaces because why in the world would you want to have a fireplace in your living room anymore with all the new technology? Who would want to see an old-fashioned thing burning? Now we are rediscovering that it is a good thing.

REFLECTION ON BREASTFEEDING

Rabbi Judea B. Miller

Some participants asked if there were any references in the Bible to nursing and lactation. I want to point out that aside from the most obvious bonding and nurturing references to the mother mentioned in one portion of the service, Moses is described as a nursing father. He carried Israel through the desert like a nursing father. And when I see the young fathers today holding their children and sharing in the nurturing and raising of children (as in my generation they did not do), I can understand what was meant by Moses as a nursing father.

In Jewish tradition, a woman is not ordained (according to our Orthodox brethren), not because she is unworthy of ordination, but just the opposite. There is a hierarchy of values, and from those *mitzvot* or commandments that have to do with time and place, a woman is automatically exempt. She can take them on, but she is exempt from the responsibility of fulfilling them. Because of a higher order of priorities, her responsibility is to be available to nurse and nurture the children. Of course, women don't nurse children all their lives. After they finish their nursing responsibilities, they can become rabbis or priests, or anything else they care to be.

A Jewish child, like every other, is introduced to the world with a whack. That is quite an introduction, but at least we grow up knowing that there are loving, nurturing arms and breasts to receive us into a world that is sympathetic and hospitable. Let me recall to those of you who know Hebrew that one of the words for God in the Bible is *El Shaddai.* The word *shaddai* has the same root as *shaddayim,* which means breasts. God is compared to a nurturing, nourishing mother, taking care of believer and unbeliever alike.

One last thought is that according to the laws of *kashrut,* you shall not boil the kid in its mother's milk. And from that law, the rabbinical tradition builds up our whole system separating milk from meat. The thought behind it is not merely one of taboo, but (long before the days of Freudian psychology) one of symbolism and of metaphor. It seems insensitive and brutal to eat flesh and then immediately to drink milk that was given out of love. The giving of the milk is the height of human compassion. In Jewish thinking the highest order of priorities for a woman and for a man, like the nurturing father Moses, is the care and nurture of the young. God could not be everywhere. That is why God created mothers; that is why God created parents.

WORK GROUP RECOMMENDATIONS

INTRODUCTION TO WORK GROUPS

Each interdisciplinary work group of approximately 12 persons was assigned to examine in detail one of 8 specific issues related to human lactation and breastfeeding. Each work group included participants with special knowledge of the issue being addressed as well as participants with unique perspectives on the issue by virtue of their discipline, work setting, cultural and ethnic orientation, and organizational affiliation. Each work group had as its core a nurse/nurse-midwife, a nutritionist/dietitian, a pediatrician, and an obstetrician. Each work group focused on a different topic that was well delineated. The tasks of the work groups were to identify issues, prioritize and discuss them, and then to generate recommendations and develop strategies to address them.

Although the broad scope of information and the range of views and perspectives exchanged in the work groups cannot be covered adequately in this document, some of the more urgent issues, needs, and strategies are synthesized and presented in capsule form. To provide a convenient framework for follow-up discussion and action, the deliberations and recommendations were categorized into common themes and are reported under the following 6 headings:

1. World of Work
2. Public Education
3. Professional Education
4. Health-Care System
5. Support Services
6. Research

CATEGORY 1: WORLD OF WORK

A national breastfeeding promotion initiative directed to all those who influence the breastfeeding decisions and opportunities of women involved in school, job training, professional education, and employment is needed.

DEFINITION OF THE ISSUE

Many barriers currently exist at work and school which can negatively influence a woman's decision to breastfeed and/or her breastfeeding experience. These barriers include:

- Lack of information on the part of the lay public (including women themselves), employers, health providers, and other support persons to whom the mother may turn for assistance and/or advice.
- Logistic elements such as how, when, how often, and where to nurse her baby or to empty her breasts when separated from the baby and to store milk for later use.
- A social, psychological, and political climate which significantly separates the worlds of work and home and their related roles. The working breastfeeding mother often receives negative messages about her efforts, specifically, that she is attempting to combine mutually incompatible roles and threatening the decisions others have made to keep the worlds of work and home separate and unrelated to one another.

In addition, adequate data necessary to direct effective promotional efforts to working women and to those who influence them are not available. Also lacking are the appropriate support systems, e.g., prenatal care, paid maternity leave, and flexible work arrangements, which are essential for the success of programs designed to promote breastfeeding by working mothers.

SUGGESTED STRATEGIES

1. Develop a Public Health Service initiative which would help to insure the rights of all mothers to make and implement an informed choice about infant feeding. This effort should be targeted (but not limited) to employers, unions, educational institutions, health care providers, and social service agencies. Particular attention should be directed to employers of certain job categories, e.g., domestic employees, in which minority and low-income women are often over-represented. The initiative should include at least the following:
   a. Development and distribution of informational packets for prospective breastfeeding mothers, major employer groups, health professionals, and agencies serving women and infants. These packets should specifically address logistical and support elements relating to employment/school and breastfeeding.
   b. Collection and dissemination of current information about existing programs for employed breastfeeding mothers.
   c. Allocation of funds for:
      - data collection on populations potentially affected;
      - studies of employed breastfeeding women;

- evaluation of program components;
- projects to demonstrate how to facilitate breastfeeding for working women, including some with emphasis on minority and low-income women.

d. Exploration of legislation related to federal, state, and local tax incentives for those who successfully implement breastfeeding programs in work/school settings.

2. Examine institutional policies which interfere with culturally appropriate choices of infant feeding in work/school and other institutional settings.
3. Encourage the development and/or accessibility of appropriate support services in the world of work, e.g., prenatal care, social and nutritional services, paid maternity leave, child care, and alternate types of work arrangements such as flexitime and job sharing.

CATEGORY 2: PUBLIC EDUCATION

Public education and promotional efforts should be undertaken through the education system and the media. Such efforts should recognize the diversity of the audience; should target various economic, cultural, and ethnic groups; and should be coordinated with professional education.

DEFINITION OF THE ISSUE

Information and education about lactation and breastfeeding as a normal process, a part of everyday life, and the preferred method of infant feeding are not universally available. In those instances where educational programs do exist, they frequently lack sensitivity to cultural differences, life styles, and socioeconomic levels. Often messages and information about breastfeeding and lactation conveyed to women, families, care providers, community officials, and the public are conflicting and not based on fact. The resulting confusion often leads to the perpetuation of myths, attitudes, laws/regulations, and other barriers which impact negatively on the initiation and/or continuation of breastfeeding.

SUGGESTED STRATEGIES

1. Issue to the national media a Surgeon General's public policy message emphasizing the positive aspects of breastfeeding and reporting the annual progress made toward the 1990 national objective related to breastfeeding.
2. Develop, implement, and evaluate a public-education campaign to encourage the development of attitudes and behaviors which support breastfeeding. Such a campaign should target women of child-bearing age, their supporters, and the community at large, with highest priority given to lower-income/less-educated women. Important elements include:
   a. An on-going media campaign which utilizes public service announcements, features, display ads, posters, printed materials, and role modeling to portray breastfeeding as a community norm and a part of everyday life.
   b. A mechanism to exchange and share educational materials developed in various parts of the country.
   c. A coordinated effort of organizations concerned with prenatal care to achieve the universal provision of education and counseling on breastfeeding and other goals of the public education campaign.
   d. Materials developed and tested for applicability to specific target groups.
3. Develop an educational campaign for public officials to identify and address community attitudes and to remove and prevent laws restricting the practice of breastfeeding in public (e.g., public nudity, indecent exposure). Organizations of elected officials (e.g., national associations of attorneys general) and legislators should be utilized.
4. Integrate breastfeeding information early and throughout the educational system through a cooperative effort of State Departments of Health and State Departments of Education. Such an effort should include:
   a. Development of model education curricula and materials;
   b. Integration of breastfeeding information into existing curricula for science, family life education, home economics, and health.
5. Use the Healthy Mothers/Healthy Babies Coalition as a clearinghouse for educational materials related to breastfeeding.
6. Encourage community support for breastfeeding by health-care systems, businesses, religious organizations, volunteer organizations, and the media. These efforts should focus on:
   a. Removal of physical and attitudinal barriers to breastfeeding, e.g., providing an appropriate place and fos-

tering postive public attitudes by provision of educational materials;

b. Development of support systems to nurture nursing mothers such as support groups, telephone hotlines, and the utilization of existing community resources, e.g., churches, sororities, and ethnic community organizations.

7. Collect information and data to monitor changes in attitudes and behavior related to breastfeeding.

CATEGORY 3: PROFESSIONAL EDUCATION

It is imperative for all health care professionals to receive adequate didactic and clinical training in lactation and breastfeeding and to develop skills in patient education and the management of breastfeeding.

DEFINITION OF THE ISSUE

Education of professionals in this important aspect of maternal and child health care is too often inadequate, ineffective, and—in some situations—unavailable. A national plan for the education of professionals in lactation and breastfeeding does not exist. Current concerns are related to the following aspects and issues of educational programs:

- The need for appropriate curricula which recognize the diversity of sociocultural and economic groups in the population as well as the roles/responsibilities of various health professionals;
- The inadequate funding for the preparation of faculty to direct and provide training related to lactation and breastfeeding;
- The unavailability of educational programs and resources, including faculty and funds, to support the education of practicing professionals;
- The lack of appropriate involvement of accreditation and standard-setting bodies to assure the competence of health professionals and others involved in education and counseling related to lactation and breastfeeding.

SUGGESTED STRATEGIES

1. Charge the Healthy Mothers/Healthy Babies Coalition to establish an interdisciplinary sub-committee to develop strategies for the education of professionals regarding lactation and breastfeeding; provide the Coalition with the necessary funding and administrative support.
2. Encourage the federal Maternal and Child Health agency to provide leadership for education of professionals, including guidelines for curriculum, evaluation, and accreditation.
3. Encourage state, county, and municipal health departments to include breastfeeding and lactation in in-service training programs.
4. Encourage local health professional societies, universities, and perinatal outreach programs to give priority to continuing education regarding breastfeeding and lactation to practicing professionals.
5. Request the Department of Health and Human Services and non-profit foundations to provide additional funding for programs for faculty development and for education of health professionals in breastfeeding and lactation.
6. Include training modules on breastfeeding in curricula of health care professional students (particularly in medicine, nursing, and nutrition) to cover contemporary scientific knowledge, influence of social factors, practical techniques, and roles in multi-channeled promotion programs.
7. Stimulate national professional societies to educate their members regarding breastfeeding and lactation through policy statements, articles published in their journals, and continuing education programs.
8. Encourage editorial boards of professional journals to accept for publication appropriate articles dealing with scientific knowledge, influence of social factors, and practical techniques regarding breastfeeding and lactation.
9. Include questions on breastfeeding/lactation on certification exams for health professionals serving families in the perinatal period, e.g., nurses, nurse-midwives, dietitians, nutritionists, physicians.
10. Develop guidelines concerning training and accreditation of lay lactation advisors in relation to selection criteria of trainees; details of practical and theoretical training; examination system; nomenclature.
11. Develop accreditation guidelines for health care facilities that specifically include a requirement of staff education in lactation and breastfeeding.

CATEGORY 4: HEALTH-CARE SYSTEM

The health-care system needs to be better informed and more clearly supportive of lactation and breastfeeding.

DEFINITION OF THE ISSUE

How best to support and encourage lactation and breastfeeding as the natural and preferred method of infant feeding is a major overall issue of the health-care system. Concern for lactation and the promotion of breastfeeding are not always reflected in the practices of the health-care team and in the policies of health-care institutions. Support for breastfeeding needs to be conspicuous in primary care, prenatal care, and postpartum care provided in a wide variety of ambulatory-care settings as well as labor, delivery, postpartum, and infant care provided in hospital settings. The current organization and delivery of maternal and child health services and attitudes of health-care team members frequently negate support for breastfeeding. The problem is compounded by the significant numbers of health-care providers who are not adequately educated about the process and advantages of lactation in human reproduction and in infant health.

Achievement of the goal to increase the incidence and duration of breastfeeding will require thorough education of all members of the health-care team. The result should be a clearer recognition of support for lactation and breastfeeding as an important and valuable component of family-centered maternity/newborn care. Furthermore, the application of this knowledge will require on the part of all members of the health-care team a positive attitude, based upon the conviction that lactation has specific and significant advantages for both mother and baby. Accordingly, all providers and facilities should adopt a posture of advocating lactation as the natural and preferred means of infant feeding. This attitude should include institutional policies clearly supportive of lactation and breastfeeding.

At the present time, some of the federal programs serving women and children include disincentives to breastfeeding. The federal government should address these barriers and become committed to the elimination or modification of such policies.

Elements important for the promotion of breastfeeding in the various phases and settings of health care are detailed in Appendix C.

SUGGESTED STRATEGIES

Recommendations and strategies are outlined according to the interaction of the individual with the various levels of the health-care system.

National Level

1. Assign the Division of Maternal and Child Health the responsibility to determine national policy related to lactation and breastfeeding and to convene periodically a national group to advise on and monitor national policy on breastfeeding.
2. Improve the support for lactation in the Women, Infants, and Children (WIC) Program, including the possible formation of task forces at both federal and state levels to examine ways in which WIC can develop incentives to promote breastfeeding, eliminate existing disincentives, and increase the flexibility of the program in certain aspects such as cultural foods.
3. Request professional organizations including the American Hospital Association, the American College of Obstetricians and Gynecologists, the American Academy of Pediatrics, the American Academy of Family Physicians, the American College of Nurse-Midwives, the American Dietetic Association, the American Nurses Association, and others to develop policies and activities which more clearly support breastfeeding.
4. Request the Joint Commission on Accreditation of Hospitals to develop guidelines for hospital policies which will promote fully informed choice about infant feeding and which will support a mother's decision to breastfeed, e.g., rooming-in and feeding on demand.
5. Explore the potential for third-party coverage for lactation counseling and breastfeeding support through the Health Care Financing Administration, the National Association of Insurance Carriers, and other appropriate groups/agencies.

State Level

6. State health departments working cooperatively with state professional societies and voluntary agencies, regional perinatal programs, hospitals, and others should establish state task forces to review state laws and regulations with a view to eliminating laws/regulations which inhibit breastfeeding and make recommendations regarding 1) policies, procedures, and standing orders of hospitals and ambulatory settings; 2) implementation of recommendations of this Surgeon General's Workshop; 3) staff education; 4) continuing education; 5) education materials on breastfeeding; 6) funds for support of demonstration projects; and 7) incentives for women to initiate and continue breastfeeding.
7. Encourage state health departments and regional perinatal centers to become resources for training and consultation and to serve as models for the promotion and support of breastfeeding.

8. Develop a model for a continuum of postpartum care involving immediate follow-up with integration of medical and social support to avoid the present fragmentation of services.

Regional Level

9. Encourage regional perinatal centers to become regional resources for training and consultation regarding breastfeeding and models for promotion and support of breastfeeding. These centers would relate to each hospital's breastfeeding coordinator, stimulate and initiate research, provide centralized information and referrals, and provide direct services to high-risk populations, as appropriate.
10. Make equipment and facilities of the regioanl perinatal centers available for teaching purposes throughout the region.

Local Level

11. Encourage and assist hospitals to:
    a. Explore the development of facilities for parents of hospitalized infants;
    b. Designate breastfeeding coordinators to serve patient needs and to be the contact with regional lactation resources;
    c. Provide materials, equipment, and facilities for rooming-in;
    d. Meet other needs of breastfeeding mothers;
    e. Provide information about La Leche League and other such support groups;
    f. Create special programs supportive of breastfeeding for high-risk groups such as pregnant adolescents;
    g. Recognize the marketing value of an effective lactation program.
12. Organize in the community a continuum of postpartum care which will facilitate immediate follow-up and referral, including medical and support services, as the matrix for breastfeeding support.

CATEGORY 5: SUPPORT SERVICES

The successful initiation and continuation of breastfeeding will require a broad spectrum of support services involving families, peers, care providers, employers, and community agencies and organizations.

DEFINITION OF THE ISSUE

It is essential to have a model of care which focuses on the strengths of the family, respects the variations found within different cultural/ethnic and economic groups as well as life styles, offers a continuum of care for the mother and child throughout the reproductive cycle, and effectively utilizes community resources to support breastfeeding. Yet, far too often, many of these attributes are missing. Even those mothers and families who may have received appropriate education and counseling for breastfeeding prior to and during hospitalization, do not always have access to the follow-up support necessary to cope with problems and questions frequently arising after discharge. Although health-care providers may do a good job of promoting an informed choice about infant feeding, the important involvement and support throughout the process by the family members, peers, employers, and community resources may be lacking and unrecognized.

SUGGESTED STRATEGIES

1. Encourage cooperation and referral between breastfeeding support groups and providers of health and social services.
2. Provide for culturally appropriate peer-support groups who can offer assistance and counseling for such lifestyle conflicts as breastfeeding in public and/or while working.
3. Explore the availability of insurance coverage and other sources of funding for support services and for materials and supplies to facilitate breastfeeding, especially for mothers and infants with special needs, e.g., infants in day care and mothers with chronic illness.
4. Advocate for infant-care centers which provide breastfeeding facilities in the workplaces, schools, and other locations serving "working women."
5. Develop support services in the community which help to nurture nursing mothers, e.g., telephone hotlines, community or public health nursing follow-up, and volunteers who are experienced in breastfeeding.
6. Seek commitment from national voluntary organizations to stimulate support for breastfeeding among their membership. Include

voluntary organizations which reach various cultural/ethnic populations, economic groups, and women of different ages.

7. Collect information about successful models of support for initiation and continuation of breastfeeding and disseminate this knowledge nationwide through the Healthy Mothers/Healthy Babies Coalition.

CATEGORY 6: RESEARCH

An intensified national research effort, including a broad range of research studies, is needed to provide data on the benefits and contraindications of breastfeeding among women in the United States. Research is also needed to evaluate strategies/interventions and to determine progress in achieving goals related to the promotion of breastfeeding.

DEFINITION OF THE ISSUE

Basic studies, clinical studies, evaluation of information studies, and prospective, longitudinal studies related to breastfeeding are all needed to improve the information base, establish policy, improve and target strategies, and assess program effectiveness. Areas of concern which need to be investigated are:

- Epidemiologic studies on the outcome of breastfeeding in comparison to other types of feeding among diverse groups of American women;
- Infant outcome with respect to morbidity, physical growth, and both physical and behavioral development of the child;
- Physiology and pharmacology of the lactation process, including better data on the medical contraindications to breastfeeding;
- Behavioral and social-scientific aspects of lactation in particular segments of our society, including barriers to initiation and continuation of breastfeeding, resistance of health care providers, and need for—as well as effectiveness of—support services for lactating mothers.
- Evaluation of strategies designed to motivate and foster a change in breastfeeding behavior.
- Cost-benefit research which would provide a scientific basis for development of national policy on breastfeeding.

SUGGESTED STRATEGIES

1. Develop a national data base on initiation and duration of lactation.
2. Initiate multi-center studies that focus on the physiologic, pharmacologic, medical, psychosocial, and cultural aspects of breastfeeding.
3. Encourage and support longitudinal and cross-sectional studies.
4. Improve coordination among federal agencies with responsibilities for research relating to breastfeeding and among federal, state, and local governments in order to provide a unified approach to research questions.
5. Request the Public Health Service, including the National Institutes of Health, as well as the U.S. Department of Agriculture, to increase funding support for research related to breastfeeding.
6. Develop a multi-cultural task force responsible for collecting available interdisciplinary research on cultural differences related to lactation and breastfeeding and for disseminating research findings to health care providers.
7. Establish a national clearinghouse on research findings, demonstration projects, and baseline data related to breastfeeding and human lactation.
8. Design and implement a national evaluation effort to determine the degree to which strategies recommended at this Workshop have been implemented and goals have been achieved.

SUMMARY OF WORKSHOP RECOMMENDATIONS

Ruth A. Lawrence, M.D.

Common themes emerge from all the work groups. Many of the groups made similar recommendations focusing on the same issues, but perhaps from different perspectives.

The importance of endorsement of the positive aspects of breastfeeding by federal agencies, professional organizations, and voluntary groups ran throughout the reports. We need to insure an informed and free choice for all women with regard to feeding their infants. In order to remove or prevent the passage of laws detrimental to breastfeeding, public officials should be educated about the normalcy of breastfeeding. In other words, let us insure the right to breastfeed.

We need to establish breastfeeding as the community norm; in order to accomplish this goal, we need universal education—early and continuous. An unceasing effort should be directed to educating all segments of society, levels of the education system, and cultural subgroups.

A professional information base should be determined and standards established for training all health-care professionals. In addition, professional education for specific health-care areas should be developed in order to train consultants within the health-care structure to understand human lactation and to facilitate breastfeeding.

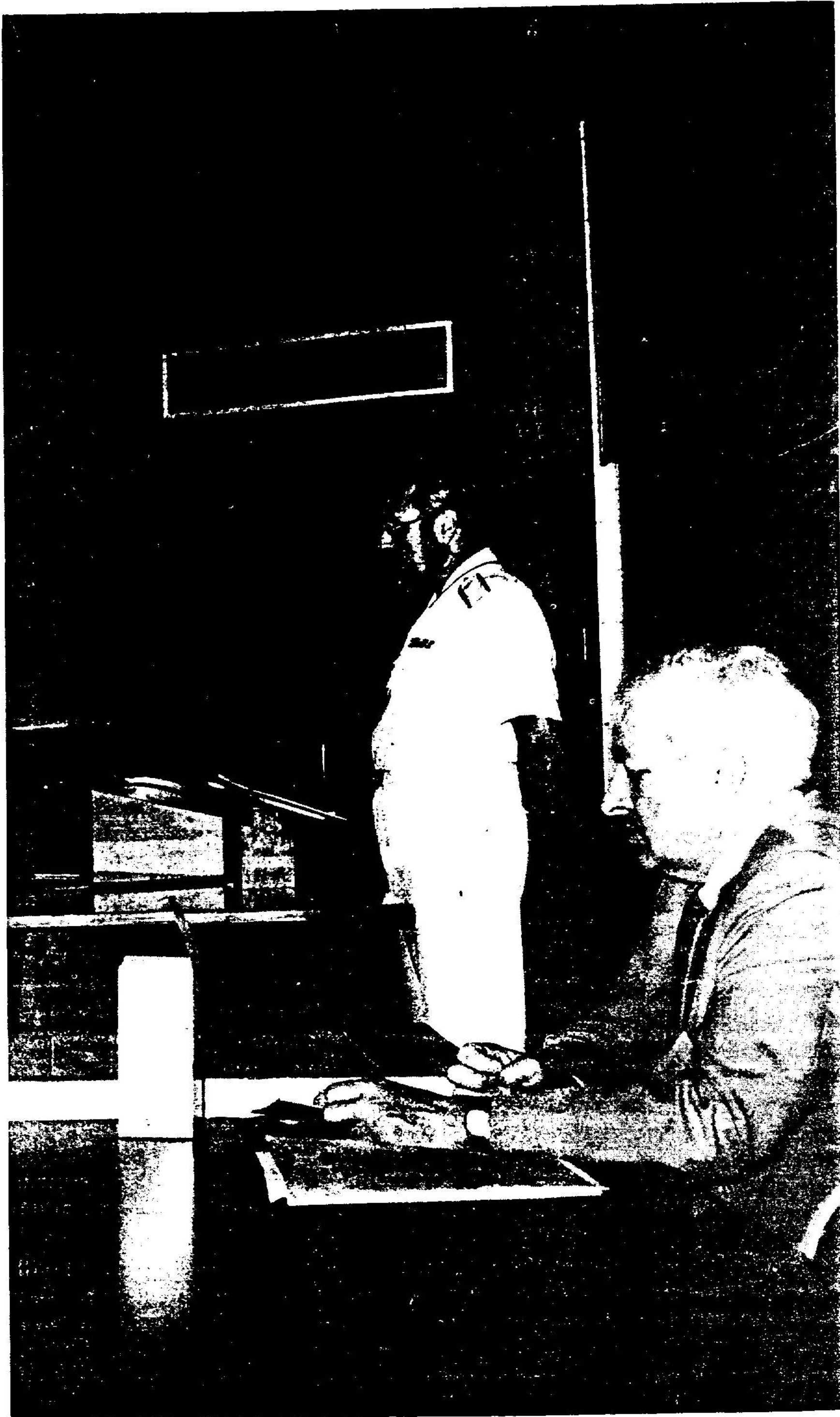
The health-care system should deal with breastfeeding issues within the continuum of comprehensive perinatal care. Support for breastfeeding families should be available from health-care facilities and from community-based resources.

With respect to employment, the opportunity should be available for women to continue breastfeeding when working or when completing their education or training.

All of these efforts should be sensitive to cultural values and should be initiated and implemented with the involvement of members from the targeted cultural groups.

With respect to research, the needs are great and the potential unlimited. We need a national data base on the initiation and the duration of lactation. Multicenter, longitudinal, and cross-sectional studies are needed to investigate benefits and contraindications of breastfeeding and to evaluate strategies and interventions to promote it. Interagency coordination of projects would insure a unified approach to research questions and timely dissemination of research findings.

In summary, we need to continue to communicate among ourselves and also to involve other colleagues to begin to implement these recommendations in our own programs, regions, and states. We all stand ready to assist the Surgeon General in this effort. We realize it cannot all be done in Washington. Thus, it will be the responsibility of each of us to initiate efforts from our own vantage points to enhance and magnify the national effort to make breastfeeding the norm.



RESPONSE OF THE SURGEON GENERAL

As previously noted, participants in this Surgeon General's Workshop were selected for their expertise and for representation of professional organizations, voluntary organizations, and government agencies with an interest in breastfeeding. Diverse groups have joined together in focusing on breastfeeding and human lactation—a topic considered as top priority by the Office of the Surgeon General. The Recommendations presented this afternoon become a national statement, synthesized and promulgated by the Office of the Surgeon General with the active involvement of the many organizations that you represent. This shared approach has been a major factor in the continuing success of the two previous workshops. The report of each has been a national, not a federal, statement.

The first report, *Report of the Surgeon General's Workshop on Maternal and Infant Health*—published in January 1981—reviewed the status of perinatal health at that time and outlined social strategies for improvement. Professional and voluntary organizations and state and local governments have utilized the report for policy and program initiation. The report became the basis for the Healthy Mothers/Healthy Babies Coalition and its subsequent activities.

The second report, *Report of the Surgeon General's Workshop on Children With Handicaps and Their Families*, was published in February 1983. From this report many ensuing activities serve as examples of the effectiveness of this approach:

- The scope of the problem has been further defined by the Vanderbilt Policy Study on Chronic Illness in Children;
- Standards for regionalized, comprehensive care are being developed through a diabetes project at Michigan State University and a program of projects for juvenile rheumatoid arthritis throughout the nation;
- Several efforts involving insurers from both the public and private sectors to improve the financing of care for these children has been ongoing since the Workshop. Professional organizations have collaborated in this activity;
- Three projects in Illinois, Louisiana, and Maryland are focusing on moving ventilator-dependent children from institutional settings to home or home-like settings through the use of multidisciplinary teams;
- A network project for agencies serving disabled children is providing consultation, technical assistance, and resource sharing in approximately 20 states.

We expect no less from the report of this Workshop.

Now, in response to your specific recommendations, please remember that the one hour between your presentations and my response is insufficient to reply in the depth and breadth your efforts deserve.

Some of your recommendations are the responsibility of other cabinet departments; that doesn't mean we won't address them. Some recommendations are impossible without legislation. While I will not ignore these concerns, neither can I make any promises. Finally, it is inevitable that some of your recommendations overlap those coming from other groups.

Several themes seem recurrent. One is the establishment of breastfeeding as the norm. The issuance of the Workshop Report by the Surgeon General will, in effect, reply to this recommendation by providing a basis for promotion by professional and voluntary organizations.

A second theme is universal education. We can and will encourage formal education of professionals through curricula of health providers via the Bureau of Health Professions and of the public through the media: magazines, newspapers, radio, and TV.

We can and will encourage continuing education for health providers in practice. We will ask state Maternal and Child Health (MCH) agencies to work with local chapters of professional organizations to accomplish this goal.

When it comes to education of public officials, I suggest that legislative and regulatory approaches and models like those in New York State we heard about last night be made available to people in a position to do something about the issue.

In reference to the workplace, the Division of Maternal and Child Health and I will, through this Report and other means available to us, emphasize the problems in the workplace and address the issue by every avenue open to us through private industry and public employers. We will inform them about the concerns raised by the Workshop participants. I will continue to enunciate in public addresses the challenges facing employers and possible solutions. In the long run, legislation is necessary to accomplish some of your goals. I promise that your concern will be communicated.

We will attempt to develop a continuum of postpartum care which involves immediate follow-up, and to encourage public health agencies to adopt promotion and support of breastfeeding as standard practice. We will continue to work with professional organizations (providers and hospitals) to promote breastfeeding in the private sector.

I am enthusiastic about the details enunciated in the recommendations. The best way I know to express your concerns is to transmit specific recommendations to the Assistant Secretary for Health and appropriate agencies and to ask for a response.

Please remember that mine is a quick response to a number of issues with high priority in your work groups. My office and the MCH staff will carefully consider your written and oral reports and attempt to come up with a more detailed and appropriate response.

We are grateful for your participation in this Workshop and are

counting on your commitment to share your recommendations and to promote them within your organizations.

The Report will be sent to selected groups of those people able to effect the recommended changes—for example, members of Congress, staff members of appropriate House and Senate committees, and appropriate members of agencies and of the private sector. I give you my personal assurance that your suggestions and recommendations at this Workshop will receive the attention of the Office of the Surgeon General. We will:

- Disseminate this Report widely;
- Follow through on your recommendations where possible—even when they cross departmental lines;
- Keep you informed of the results of this Workshop;
- Be responsive to your concerns.

Sancta maria

EXCERPT FROM CLOSING REMARKS

Frank Young, M.D.

We at the University of Rochester are very proud of the contributions of Dr. Lawrence in the development of a lactation cluster and in the subsequent plans for a Surgeon General's Workshop at this university. As members of the university, it is our pleasure to participate in this conference with other organizations and agencies devoted to Maternal and Child Health. We appreciate the opportunity it has given us to learn, and I have been pleased by the Workshop's focus on education. The educational experiments that have been suggested by this group will take months, even years to accomplish. For myself, as a bacteriologist who deals with a process of cellular division—a process occurring every 22 minutes—I recognize impatience. An experiment in bacteriology can be accomplished in a few hours. The experiments and learning processes of this conference will take far longer, and you—the participants—will be able to show the required patience. I challenge you to continue your efforts to see how public education, both in the media and in traditional academic settings, will serve our very important objectives.

As a corollary to the educational aspect of this conference, you can be proud of the Workshop's focus on the recognition that education must be universally directed. As your deliberations reinforced, we are not dealing with a particular segment of society. We are a diverse society with many needs and contributions. In this diversity, we recognize the partnership of the professional, the government, and the individual. You, the participants of this conference, represent this partnership through your varied backgrounds, agencies, and areas of expertise. You came to the conference with the responsibility of honestly and soundly exploring the topic of breastfeeding and human lactation, not to serve your own egos, but to serve mankind. You have met your responsibility.

Madonna and Child
School of Burges
Flemish, 15th c.
colored drawing

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APPENDIX A

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APPENDIX C

KEY ELEMENTS FOR PROMOTION OF BREASTFEEDING IN THE CONTINUUM OF MATERNAL AND INFANT HEALTH CARE

1. Primary-care settings for women of childbearing age should have:
   - a supportive milieu for lactation
   - educational opportunities (including availability of literature, personal counseling, and information about community resources) for learning about lactation and its advantages
   - ready response to requests for further information
   - continuity allowing for the exposure to and development over time of a positive attitude regarding lactation on the part of the recipient of care.

2. Prenatal-care settings should have:
   - a specific assessment at the first prenatal visit of the physical capability and emotional predisposition to lactation. This assessment should include the potential role of the father of the child as well as other significant family members. An educational program about the advantages of and ways of preparing for lactation should continue throughout the pregnancy.
   - resource personnel—such as nutritionists/dietitians, social workers, public health nurses, La Leche League members, childbirth education groups—for assistance in preparing for lactation
   - availability and utilization of culturally suitable patient-education materials
   - an established mechanism for a predelivery visit to the newborn care provider to insure initiation and maintenance of lactation
   - a means of communicating to the in-hospital team the infant-feeding plans developed during the prenatal course.

3. In-hospital settings should have:
   - a policy to determine the patient's infant-feeding plan on admission or during labor
   - a family-centered orientation to childbirth including the minimum use of intrapartum medications and anesthesia
   - a medical and nursing staff informed about and supportive of ways to facilitate the initiation and continuation of breastfeeding (including early mother-infant contact and ready access by the mother to her baby throughout the hospital stay)

- the availability of individualized counseling and education by a specially trained breastfeeding coordinator to facilitate lactation for those planning to breastfeed and to counsel those who have not yet decided about their method of infant feeding
- on-going inservice education about lactation and ways to support it. This program should be conducted by the breastfeeding coordinator for all relevant hospital staff.
- proper space and equipment for breastfeeding in the postpartum and neonatal units. Attention should be given to the particular needs of women breastfeeding babies with special problems.
- the elimination of hospital practices/policies which have the effect of inhibiting the lactation process, e.g., rules separating mother and baby
- the elimination of standing orders that inhibit lactation, e.g., lactation suppressants, fixed feeding schedules, maternal medications
- discharge planning which includes referral to community agencies to aid in the continuing support of the lactating mother. This referral is especially important for patients discharged early.
- a policy to limit the distribution of packages of free formula at discharge only to those mothers who are not lactating
- the development of policies to support lactation throughout the hospital units (e.g., medicine, surgery, pediatrics, emergency room, etc.)
- the provision of continued lactation support for those infants who must remain in the hospital after the mother's discharge.

4. Postpartum ambulatory settings should have:
   - a capacity for telephone assistance to mothers experiencing problems with breastfeeding
   - a policy for telephone follow-up 1–3 days after discharge
   - a plan for an early follow-up visit (within first week after discharge)
   - the availability of lactation counseling as a means of preventing or solving lactation problems
   - access to lay support resources for the mother
   - the presence of a supportive attitude by all staff
   - a policy to encourage bringing the infant to postpartum appointments
   - the availability of public/community-health nurse referral for those having problems with lactation
   - a mechanism for the smooth transition to pediatric care of the infant, including good communication between obstetric and pediatric care providers.

APPENDIX D

SELECTED READINGS

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