INFANT FEEDING PRACTICES OF MIGRANT FARMLABORERS IN NORTHERN COLORADO

by

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Thesis submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

MASTER'S OF SCIENCE

in

Human Nutrition and Foods

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February, 1989

Blacksburg, Virginia

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(ABSTRACT)

The infant feeding practices and associated environment of 49 infants (6-23 months) of migrant farmlaborers in Northern Colorado were investigated during the summer of 1987. Information was collected on 1) breastfeeding practices, 2) introduction of foods and liquids, 3) nutrition and health practices and inadequacies, 4) home living environment, 5) health history, and 6) demographics. Data on the sources of food and nutrition information was collected regarding the 1) utilization of community food and nutrition programs and 2) input of relatives.

A review of data results indicates that a number of nutrition education needs exist among migrant farmlaborers concerning the feeding of their infants. Recommendations are made to help meet the nutrition education needs of migrant parents in Northern Colorado.

ACKNOWLEDGEMENTS

I am deeply indebted to many people who assisted me with this study. Special thanks are in order for the migrant families who gave up their valuable time to answer the survey questionnaire and to those who afterwards shared more about their lives.

Without the assistance of the Colorado Migrant Health Program, this project would not be in existence today. I thank the Migrant Health Program personnel for their support, encouragement, and assistance in completing my research. Particularly helpful in the development and execution of this project were , the migrant research consultant; , the head of the Migrant Health Program; and , the migrant nutrition consultant. also spent many hours proofing the final product, and for this I am deeply grateful.

I wish to thank the entire 1987 staff at Weld County's Summer Migrant Head Start Program for their cooperation with this study. Special thanks to the community outreach workers -- , , , , and -- who sought out prospective interviewees and who laid previous ground work through completion of Head Start enrollment forms. I would especially like to thank the Health staff headed by and also , the director of Head Start, for allowing me the opportunity to do the study and for their willingness to discuss the results.

I am particularly indebted to , my research assistant. spent many hours with the migrants in their homes

and many hours with me in the car. I appreciated so much her selflessness and her genuine concern for the migrant families she interviewed. She made the summer exciting and kept me going through the midst of morning sickness at night. Without her this project could not have been done.

To my dear friends who offered encouragement and spent time proofreading, I offer you my deep appreciation. Thank you,

, , , ,

, and . were very generous with their computer and copy machine; I give you tremendous thanks. Special thanks goes to my dad, , for all his instruction and assistance with my many graphs.

To my committee members, Mary Rojas, Ryland Webb, and Ann Hertzler, I give great thanks in seeing me through. Special thanks to Ann for keeping me on target and giving me the pushes I needed.

Finally, I would like to thank for sparking my interest in nutrition education. And I express my heartfelt thanks to and for their help through the tough times of graduate school, and for permitting the flame to continue burning.

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CHAPTER I

INTRODUCTION

Background Information

Migrant laborers are vital to the agricultural productivity and economy of the United States. Yet despite their importance, migrants are among the most exploited and neglected population group in the United States. This is evident in the extremely low incomes of migrant families, which is a poor compensation for long, hard hours of labor under extremely hazardous conditions (Cavenaugh, Lynch, Porteous, and Gordon, 1977; Smith, 1986).

In attempts to earn wages to last through the year, migrant families travel almost continuously from one growing region to another. They pack their few possessions, the basic utensils for survival, and travel with family members in crowded trucks, campers, or old cars. They often lack sufficient food and other necessities. Crowded and unsanitary living conditions are common (O'Brien, 1983; Cavenaugh et al., 1977).

Migrant workers typically travel from their home base areas in three major streams. The East Coast stream includes most of the states along the Eastern Seaboard. The Mid-continent or Central stream is traveled mostly by Mexican-Americans and flows northward from Texas through the Midwestern and Western states. The West Coast stream moves within California and north to Oregon and Washington. Occasionally, families may travel east to west and cross over into another stream (Cavenaugh et al., 1977; O'Brien, 1983).

In the United States, Hispanics make up the largest group of

farmlaborers, with blacks the second-largest. The other racial/ethnic groups represented include Anglo, Native American, Filipino, Canadian, and people from the West Indies (Cavanaugh et al., 1977). The migrant population that travels to Northern Colorado is predominantly Hispanic followed by American Indian and Anglo (Littlefield and Stout, 1987).

Characteristics of Hispanics and Mexicans Below the Poverty Threshold

In March 1987, there were 18.8 million Hispanics in the civilian noninstitutional population of the United States. Approximately 11.8 million were of Mexican origin and 2.1 million were from Central and South America. The Hispanic population has increased 30 percent from the 1980 census. The educational attainment of Hispanics has improved since 1982 but still lags behind that of non-Hispanics. Hispanics continue to earn less than non-Hispanics. Hispanic families continue to have less total money income than non-Hispanic families. The poverty rate of Spanish-origin families in 1986 was almost three times as high as that of non-Hispanic families (U.S. Bureau of the Census, 1987).

In 1986, the total Mexican population in the United States completed a median of 10.7 years of school with 43.7 percent graduating from high school. In comparison, the total U.S. population completed 11.9 median years of school, and 49.7 percent were high school graduates (U.S. Bureau of the Census, 1988).

The figures are even lower for those of Mexican origin below poverty level. In 1986, Mexican householders below poverty level

completed a median of eight years of school, with 36.3 percent completing less than eight years, and only 21.6 percent had graduated from high school (U.S. Bureau of the Census, 1988).

In 1986, the national average poverty threshold for a family of four was $11,203. That year almost one-quarter (24.7 percent) of Hispanic families were below poverty level, compared to 9.9 percent of the nation's non-Hispanic families. An even greater percentage (28.4 percent) of Mexican families in the United States were below poverty level. Over 70 percent of Mexican children, under age six from families with a female householder and no husband present, were below poverty level (U.S. Bureau of Census, 1988).

Migrant Population Characteristics

The below poverty level Hispanics and Mexican origin families seem wealthy in comparison to migrants. According to a USDA survey, in 1983, migrant farmworkers earned an annual average income of $5,921, with farmwork accounting for $4,638. The median total family income of migrant farmworker families fell significantly below poverty level--$9,000 compared to the poverty threshold of $11,000 for a family of four. In addition, 48 percent of migrant farmlaborers had less than a ninth-grade education (Select Committee on Hunger, 1986).

Migrants served by Weld County's Summer Migrant Head Start Program in 1987 made even less money than that reported in the USDA's 1983 survey. According to Health and Human Services statistical data for 1987 (Santana, 1987), migrant families served by Weld County's Summer Migrant Head Start Program had a median total family income of

less than $6,000, and almost one-quarter of the families served made less than $3,000 annually. The mean education level of the children's primary caretaker was also lower than that reported by the Select Committee on Hunger (1986); 80 percent had less than a ninth grade education.

Migrant Nutrition and Health Conditions

Migrant farmworkers are subject to third world health and sanitary conditions. According to the Select Committee on Hunger's Factsheet (1986), the incidence of malnutrition among migrants is higher than any other subpopulation in the United States. The infant mortality rate for migrants is 125 percent higher than the national average. The life expectancy of a migrant farmworker is only 49 years while the national average is 75 years. The rate of parasitic infection among migrants is estimated to be 11 to 59 times higher than that of the general population.

Major nutrition related problems of migrant farmworkers and their children were identified in the 1986 Migrant Health Nutrition Opinion Survey of patients served at 65 Migrant Health Centers across the nation conducted by the National Migrant Referral Project in cooperation with the Georgetown University Child Development Center. The problems included anemia in all age groups, underutilization of the food stamp program, a high incidence of gastrointestinal disorders and infections among the children, as well as poor housing and cooking conditions (Select Committee on Hunger, 1986).

Additional health and nutritional problems among migrant farmworker children include below-average height, upper respiratory

infections, skin infections, chronic diarrhea, vitamin A deficiency, and baby bottle mouth syndrome (where the upper four central teeth rot from constant contact with a nipple containing a sugar liquid) (Select Committee on Hunger, 1986; Schneider, 1986).

The inhumane conditions and plight of migrant infants and children were addressed by Steve Allen (1966) in his book, The Ground is Our Table. He recounted Fred Van Dyke's address before the Stockton Council of Churches about a migrant farmworker's parked car with three young children in it. The youngest child, an infant, was screaming from pain. Suffering from diarrhea, he had been soiling himself all day without being cleansed or changed, and the flesh on the lower part of his body was raw. The next oldest was burning with a high fever. The oldest child, a five or six year old, was unconscious and near death. The parents were picking crops in a nearby orchard. Van Dyke said something had to be done. Five years later, a baby left in a car while his parents worked in the same field choked to death on his own vomit.

Migrant infants and children are truly a high risk population in terms of nutrition and health. The extreme poverty, high mobility, and detrimental living environment make them and their parents a group immensely in need of supplemental services to provide immediate and basic needs (Cavenaugh et al., 1977).

Migrant Head Start Center

The Migrant Head Start Center is one program that exclusively addresses the needs of migrant infants and children. Eligibility criteria for enrollment in the Summer Migrant Head Start Program

include the following: A child must be under the age of compulsory school attendance, come from a family who meets poverty guidelines, and a minimum of 51 percent of the family's income must be agricultural related.

The objectives of the Head Start Program are to provide comprehensive health, dental, educational, nutritional, social and other services primarily to economically disadvantaged preschool children and their families and to involve parents in activities with their children so that the children will attain overall social competence. Parents are provided with their children's health and educational developmental records so that continuity of services is achieved as they migrate. Outreach to the parents assures that a majority of their food/nutritional needs are met by linking with community food/nutrition programs such as Food Stamps, Commodity and Supplemental Food Program (CSFP), and the Special Supplemental Food Program for Women, Infants and Children (WIC), as well as private organizations such as food banks within the local communities (Shannon, 1986; U.S. Dept. of Health and Human Services, 1984a).

Benefits of Migrant Head Start Program

The Head Start program is considered one of the nation's most popular domestic initiatives (Besharov and Hartle, 1987). Growers and farmers reap the benefits of Migrant Head Start programs in various ways. The work force becomes stabilized as families travel where Head Start services are available. Parents are also able to work without worrying about their children. Thus, Head Start Centers provide a benefit to the growers and farmers that most employers do

not have (Shannon, 1986).

Purpose and Importance of this Study

The Head Start Performance Standards' Nutritional Component 1304.3-10 mandates that nutritional services "shall set forth and organize a nutrition education program for staff, parents, and children." The program "shall assure families receive education in the selection and preparation of foods to meet family needs, guidance in home management and help in consumer education so that they can fulfill their major role and responsibility for the nutritional health of the family." (U.S. Dept. Health and Human Services, 1984, p.46).

According to Sanjur (1982), prior to establishing a nutrition education program to improve food habits, a readiness to understand others' culture, to recognize the good in the culture and know the reasons behind its development must exist. To aid in understanding the Hispanic culture, the review of literature provides information about Hispanic cultural beliefs associated with infant feeding including the treatment of folk illnesses. Other areas addressed include breastfeeding and bottlefeeding, the introduction of liquids and solids, nutrition inadequacies, and the utilization of food programs.

The purpose of this study was to provide descriptive information about infant feeding practices and associated environment of migrant farmlaborers in Northern Colorado and to note areas of concern to be addressed by the nutritional services at the Head Start Center and other agencies serving migrants.

CHAPTER II

LITERATURE REVIEW

Early Infant Feeding Studies

An historical account of the early infant feeding practices of those of Mexican origin may be found in volumes written by Fray Bernardino de Sahagun, an early Franciscan friar. Sahagun recorded early accounts of the Aztec way of life beginning in 1547. A good mother was described as one who breastfed, and breastfeeding was considered important for the growth of the child. Sahagun also recorded the Aztec belief that "small children should be quickly weaned, quickly given food" to avoid stammering and lisping (Vargus, 1979, p.88).

Aztec mothers who could no longer produce milk were to follow a number of treatments. In Vargas' (1979) historical look at breastfeeding practices of the Aztecs, he gleaned the following from Sahagun's Book X regarding the nursing mother who no longer produced milk. Mothers were to drink infusions of various roots or herbs in specified amounts combined with a liquid such as wine. The mother might also bathe in the infusion. Additional treatments involved eating worms or the roasted penis of a dog, numerous sweat baths, and avoiding avocados. When the milk did come in, it was thought the infant would get diarrhea, and, therefore, the child was given a small portion of the infusion to purge him or her.

Vargas (1979) also cited other Aztec remedies for lactation problems from a document written by Martin de la Cruz in Nahauatl and translated into Latin by Juan Badiano in 1552. The remedies included

frequent consumption of herb and fermented drink concoctions, potions made from grain and drunk while bathing, and a boiled grain beverage to drink after bathing.

According to Sahagun, the Aztecs used herbs for other treatments besides lactation problems. Herbs were also used to treat diarrhea. Mothers of nursing infants drank tzipipati tea, which they knew would be passed on to the infant (Vargas, 1979).

Kelly (1966) and Clark (1970) record more recent observations of Mexican nursing mothers' diets to stimulate or enhance lactation as well as treat infant illnesses.

A number of researchers (Clark, 1970; Gladney, 1976; Marquez and Pacheco, 1964) have reported the practice of La Cuarenta, a 40-day postpartum diet observed by Mexican-Americans. While observing the diet, women avoid hot chiles, pickles, vinegar, tomatoes, spinach, pork of all kinds, and most fruits, especially bananas, citrus fruit, and other sour fruits. Beans could be eaten if prepared without hot chiles or used sparingly by nursing mothers, as too many beans were considered bad for the baby's stomach (Clark, 1970). Unfortunately, the cultural and ethnic pressure to adhere to the La Cuarenta diet may cause the nursing mother to have a Vitamin C deficiency.

The ideal postpartum diet, according to Clark's (1970) findings, consisted of foods thought to assure adequate lactation and rich milk. The foods included chicken either fried or in soup, toasted crisp tortillas, eggs, toasted bread, milk, cooked cereals such as oatmeal, rice, or atole (a thin gruel of corn or other cereal prepared with milk and choilote), chocolate, and panes dulces

(Mexican sweet yeast rolls).

Kelly (1966), in her Northern Mexico study, also noted similar foods as well as beer were used to stimulate lactation. If the mother had no milk, the baby was given a bottle containing half cow's milk and half herb tea, such as manzanilla (camomile), salvia or hierba buena (mint).

Treating Infant Folk Diseases, Diarrhea, and Constipation

The Hispanic use of herbs in treating illnesses has been well documented in literature. Andersen and associates (1986) found 21 percent of the Hispanic population in the Southwestern United States use herbs and other home remedies to treat episodes of illness, compared to 12 percent usage by the total population. In their study, one-third of all Hispanics believed that illness can be better treated by home remedies than by prescribed medicine, compared with 24 percent for the total U.S. population.

Mexican-American migrant workers' understanding of the cause and treatment of certain illnesses is guided by their folk beliefs (O'Brien, 1983). The preservation of Spanish and Hispanic-American folk beliefs, according to Martinez and Martin (1966), is due to the sociocultural isolationism experienced by people of Mexican origin in the Southwest. Andersen and associates (1986) suggest that low education levels is a factor in maintaining traditional health beliefs and health practices.

Researchers (Barrett, 1979; Baca, 1969) have reported the importance of respect for and understanding of cultural values that influence health beliefs in order for the health professional to

provide more effective care (Barrett, 1979). Health professionals need to realize that when the scientific preventive health measures and treatment of illness they teach are incompatible with the folk medicine, persons are apt to reject that which is foreign and contrary to their own tradition (Baca, 1969). This is true of both the Hispanic as well as the Native American (White, 1977).

Many references in literature describe the etiology, symptoms, and treatment of Mexican folk diseases. Fallen fontanel, "mal ojo," and "empacho" are three folk diseases said to affect infants and young children that have diarrhea as a symptom and are, therefore, of particular concern to the nutritionist.

Fallen fontanel or "caida de mollera" generally occurs with the greatest frequency in patients under six months. Mexican-Americans believe fallen fontanel is the result of too vigorous bouncing or dropping which causes the anterior fontanel to cave in. Another belief is that the rough removal of the nipple out of the infant's mouth causes the fontanel to be sucked down into the palate. The parietal or frontal bone of the cranium falls and the palate may protrude, inhibiting the child's ability to suck or eat. Other reported symptoms are crying, diarrhea, the fallen soft spot, sunken eyes, and vomiting (Baca, 1969; Martinez and Martin, 1966; Abril, 1977; White, 1977; Barrett, 1979).

Treatment for fallen fontanel varies. First a finger or thumb is inserted in the child's mouth and the palate is supposedly pushed back into place. Next, or sometimes simultaneously to the palate pushing, the child is held over a pan of water so the tips of his

hair barely touch the water. Finally, a poultice, usually made from fresh soap shavings, is applied to the depression. Others may apply warm salted olive oil to the fontanel depression. Abril (1977) also noted procedures are generally performed separately on three consecutive days. All three of the steps do the same thing and may be done independently; however, if done together, the treatment is thought to be more effective (Martinez and Martin, 1966; Abril, 1977)

Barrett (1979) listed additional remedies in treating fallen fontanel. Some spoon-feed the infant during the illness and place salt into the soft spot for three days. Others place a few drops of water on the soft spot and suck with the mouth on the soft spot for a few minutes. The child is then turned upside down, held at the ankles and hit firmly on the feet three times.

Health professionals should watch for dehydration signs in children with fallen fontanel, as normal feeding may not be resumed by some until the fontanel has raised to a normal position (Barrett, 1979). Fallen fontanel is one of the more difficult problems for the health professional, because cultural belief about the cause and treatment of the symptoms is very strong in each generation. Health professionals and other personnel serving migrants should encourage the family to seek medical attention for the infant with fallen fontanel as soon as possible and to accept medical intervention, including hospitalization, if necessary. In too many cases, when the family finally does seek medical attention, the clinical symptoms of dehydration are already apparent (Abril, 1977).

Another folk disease with diarrhea as a symptom that may affect

infants and young children, as well as adults, is "empacho". "Empacho" is believed to be caused by eating poorly digested foods or uncooked foods (e.g. masa (dough)) that stick to the digestive tract or bread that is too hot. Overeating, eating against one's will, or disliking the food, and dairy products, particularly an excess of cheese and eggs consumed by infants, are also thought to be contributing factors (Barrett, 1979; Abril, 1977; White, 1977; Martinez and Martin, 1966).

Some diagnose empacho by feeling the calves of the legs for bundles of knots along the nerves. If such lumps are found in the calves, the abdomen is palpated; if a large hard ball is felt in the stomach, then empacho is present (Abril, 1977). Others let an egg yolk roll on the stomach, believing that the empacho is located where the yolk breaks (Lujan-Bevacqua, 1982).

The signs and symptoms of empacho include anorexia, acute digestive distress, distention, stomachache, diarrhea, vomiting and sharp pains, restlessness, and lack of passing of stools (White, 1977; Lujan-Bevacqua, 1982).

Kelly (1965) in her study of the Mexican folk diseases listed empacho as colic. She found the treatment to be crushed hierba buena leaves plus water and a little bit of sugar. Other researchers (Barrett, 1979; Martinez and Martin, 1966) have recorded a variety of additional treatments believed to cure empacho. These include giving the patient fluids (e.g. salt water) and special ritual massages followed by pinching or snapping the skin on the back between ribs and kidney areas. Others attempt to dislodge the bolus of food from

the wall of the stomach by grasping the skin on the back with both hands. The procedure is repeated three times until the telltale "pop" is heard signalling dislodgement of the empacho. The treatment commences with a purgative and/or tea for three mornings before breakfast. The tea may be made from estafiate (larkspur), hojos de sen (sena leaves), manzanilla (camomile), or from ashes of the food that caused the empacho (Martinez and Martin, 1966). In addition, caster or olive oil is sometimes used in treating empacho (Barrett, 1979; Martinez and Martin, 1966).

Lujan-Bevacqua (1982) listed remedies not included by other researchers. An informant reported placing a small drop of asoge (mercury) in the infant's mouth and believed that the swallowed mercury would unbind the empacho and allow elimination through the rectum. Others reported massaging the infant with egg yolk.

Another folk disease effecting infants is "mal ojo" (evil eye). The condition is thought to be caused by a person looking admiringly or covetously at a child of another. Signs and symptoms of mal ojo include unusual crying, restlessness even during sleep, vomiting, diarrhea and fever. Families vary in their treatment of mal ojo but most use an unbroken or raw egg. The egg is passed or rubbed over the patient's body while a prayer is said. Others place a plate containing a broken egg under the sleeping child's bed in attempt to help draw out the evil force. In the morning, the child is awakened and given three drinks of water and the Lord's Prayer is said. In New Mexico and Southern Colorado another form of treatment requires the person who inflicted the mal ojo to take a mouth full of water

(or salt water) and transfer it into the mouth of the sick child (Barrett, 1979; Abril, 1977; White, 1977; Lujan-Bevacqua, 1982).

Other references involving Mexican or Mexican-American home treatment of infant gastrointestinal disturbances aside from folk diseases are also cited in literature. Kelly (1966) reported the practice in Northern Mexico of treating diarrhea, "which sometimes accompanies teething," with a decoction made by boiling in water small roots of carrots and onions, hierba buena, stick cinnamon and cumin seed. One half cup of the liquid is given to the infant before each meal three times a day.

Yerba buena (spearmint) has also been cited for use in treating infant diarrhea (Lujan-Bevacqua, 1982; Abril, 1977) as well as colic and intestinal influenza (Abril, 1977) among Mexican-Americans and Mexicans. Lujan-Bevacqua's thesis (1982) of her interviews of Mexican-Americans in New Mexico lists specific remedy amounts and preparation with the use of sweeteners for other herbs besides yerba buena, including romero (rosemary), plumajillo (yarrow), pague (fetid marigold) and poleo (brook mint). Poleo is considered fresco (cooling) and can be given when diarrhea is accompanied by a fever (Lujan-Bevacqua, 1982).

Other treatments for diarrhea include drinking pejejo de papa (potato peeling) broth made with one cup of potato peelings and two cups of water until the diarrhea subsides. A poliadas (flour with cinnamon sugar) gruel or gravy mixture is yet another reported treatment for infant diarrhea among Mexican-Americans (Lujan-Bevacqua, 1982).

Infant and children's stomach and intestinal pains have been reportedly treated with manzanilla (camomile) and other herbal teas such as alhucema (lavender), cilantro, coriander, Anis estrella (star anise), yerba mansa (Anemopis californica), and pague (fetid marigold) (Lujan-Bevacqua, 1982; O'Brien, 1983; Gladney, 1976; Castillo, 1981).

Mexican and Mexican-American home remedies for infant constipation have received less attention in literature. Known treatments include linseed, (Castillo, 1981) and agua con algo dulce (sweetened water). Agua con algo dulce is a mild remedy used to alleviate constipation in infants and children; it is made of water sweetened with honey, corn syrup, or sugar (Lujan-Bevacqua, 1982).

The Hispanic utilization of home remedies in treating infant illnesses has been well documented in literature. The home remedy treatments of Mexican folk illnesses, diarrhea, and constipation in infants vary among Hispanic families. Health professionals need to recognize the differences and effectiveness of treatments. When beneficial to the health of the infant, traditional home remedies should be incorporated into the treatment of illnesses.

Breastfeeding Trends Among Migrants

Few studies have focused on factors determining the incidence rates and/or duration rates of breastfeeding among agricultural migrants in the United States. In many third world countries breastfeeding declined between 1940 and the mid-1970's (de la Torre and Rush, 1987; Neville and Neifert, 1983). Dewey (1983) found in her longitudinal study (1953-78) in Southern Mexico a decline in the

proportion of infants exclusively breastfed from 69 percent to 48 percent. In addition, the percentage of infants breastfed 12 months or more declined from 73 percent to 45 percent.

Researchers (Arango, 1984; Koop and Brannon, 1984) have reported that in the general U.S. population, the post 1972 period held a reversal of the trend which began its dramatic decline in the 1930-40's. In 1972, 22 percent of newborn infants in hospitals were breastfed. By 1980, 55 percent of newborns were breastfed and in 1983, 61.4 percent of newborns were breastfed. Breastfeeding for women of Hispanic origin nationwide decreased from 73 percent, prior to 1950, to 19 percent in the early 1970's. However, the number of Hispanic infants breastfed at birth rose to 54.1 percent in 1983 (Arango, 1984; Koop and Brannon, 1984).

Although Martinez and Dodd's (1983) survey data showed both an increase in the incidence and duration of breastfeeding in the U.S. since 1971 among all demographic genre and at all infant ages surveyed, other researchers report the increased breastfeeding trend does not appear to have occurred among Hispanics of Mexican origin living on the U.S. - Mexico border or among those of lower socioeconomic status. Smith and Mhango (1982) studied findings from the 1979 Center for Disease Control (CDC), Family Planning Evaluation Division household survey of reproductive aged women living in 51 selected U.S. counties on the U.S. - Mexico border (TX, NM, AZ, AND CA). Responses were compared among Anglo and Hispanic women of Mexican origin. Results indicated that Anglo women were following the national trend of increased breastfeeding while Hispanics were

not.

Other researchers' data support the decreased breastfeeding trend. In Acosta, Aranda, Lewis and Read's 1974 study of 147 Mexican-American preschool children in a Tijuana border town, San Ysidro, California, only 29 percent had been breastfed at birth and 18 percent were breastfed at two months.

In 1981, data from the CDC Pregnancy Nutrition Surveillance System of 6,Ø27 pregnant women at their first postpartum visit indicates 38.4 percent of the women were breastfeeding. Whites and Native Americans did so with greater frequency, both over 46 percent, while Hispanics did so less frequently (26.7 percent at all ages) (CDC, 1984).

Rassin and associates (1984) also observed a lower incidence of breastfeeding among Mexican-Americans in their 1981 study of women giving birth at the University of Texas Medical Branch, which serveda low socioeconomic population. The incidence of breastfeeding at birth for Anglo-Americans was over 43 percent while that of Mexican-Americans was almost 23 percent. Both Rassin and associates (1984) and Jones (1987) support the observance that the increased national trend in breastfeeding is not particularly evident in lower socioeconomic groups and suggest the importance of ethnicity in the decision to breastfeed has probably been underestimated.

Furthermore, Rassin and associates (1984) claim the mail surveys which document the increased incidence in breastfeeding contain several flaws. One of the flaws pertaining to migrants is that attempts to weight the nonrespondent data may not have accurately

reflected the breastfeeding incidence among members of lower socioeconomic groups whose lack of telephones and permanent addresses precluded involvement in the study.

Larson, Dodds, Massoth, and Chase (1974) and Littlefield (1981) observed a low incidence of breastfeeding among Mexican-American migrants. Larson et al. (1974) in their study of the nutritional status of children of Mexican-American migrant families in the Lower Rio Grande Valley of Texas, a homebase area for migrants, reported 33 percent of the mothers breastfed during the first week of life, and 22 percent of the infants received some breast milk at two months of age. Littlefield (1981) in her study of the health and nutritional status of Mexican-American farmworkers' children in Colorado found 20 percent of the migrant children had been breastfed.

Dewey et al.'s (1984) data of the infant feeding practices of migrant families in six California communities indicated a decrease in the incidence and duration of breastfeeding after families had moved to the United States.

In contrast, Kokinos and Dewey's (1986) study of infant feeding practices of migrant Mexican-American families in Northern California documented an increase in the incidence of breastfeeding among migrants. The incidence of breastfeeding of their study population was close to that of the general U.S. population.

Researchers have reported both an increasing trend and a decreasing trend in breastfeeding among the general Hispanic and the Mexican-American migrant farmworking populations. The predominate reported trend is that Hispanics, of Mexican origin including

Mexican-American farmlaborers and those of lower socioeconomic status, have not followed the national increased trend of breastfeeding.

Breastfeeding versus Bottlefeeding

Along with investigation of breastfeeding trends, researchers have sought to discover factors influencing the choice of early infant feeding. Research of migrant infant feeding practices is limited. Therefore, to gain insight in factors influencing infant feeding choices, it is helpful to review studies of both developing and developed nations, as migrants traditionally come from one and settle in the other or travel between the two.

The most frequent reasons general European and U.S. women choose to breastfeed is that they consider breastfeeding to be the best or most healthy feeding for the child, the most healthy for the mother and child, or the most natural thing to do. Other reasons mothers choose to breastfeed include breastfeeding helps the mother and child get used to each other or is a fine thing to do, is easy and convenient, the baby comes on better, better milk, closer relationship with the baby, cheaper, and influenced by medical/nursing staff, friends, relatives, or husband (Florack, Obvermann-de Boer, Van Kanpen-Donko, Wingern, and Kromhout, 1984; Jones, 1987).

In contrast to the general European and U.S. population, the most common reason given for breastfeeding among women in rural Mexican communities was its economic advantage, while concern for the infant's health was mentioned only half as often (Lillig, 1977).

Reasons for not breastfeeding among the Mexican mothers included insufficient milk, no breastmilk, breast problems, inconvenience, and refusal of infant to suckle breast (Lillig, 1977).

Evan's (1976) study of an Asian immigrant population in England lists psychological factors as well as economic factors that contributed to their decision to bottlefeed. The majority of displaced mothers chose not to breastfeed because they were frightened (feared insufficient milk), misinformed about breastmilk, apathetic, considered it unfashionable, or they intended to work.

Mothers in the general U.S. and European populations elected to bottlefeed due to insufficient milk or poor milk supply, disadvantages of breastfeeding, the convenience or ease of bottle feeding, somatic complaints, bad experiences with previous babies, the illness of a child, or due to a doctor's advice. Mothers also maintained they had breastfed long enough or needed to return to work (Florack et al., 1984; Jones, 1987). Additional reasons why mothers chose to bottlefeed in Jones' (1987) study included embarrassment, the experiences of others, physical repulsion, medical reasons, difficult development of the infant, insufficient help, anxiousness, inverted nipples, avoidance of jealousy, desire to observe the baby's liquid consumption, desire to share feedings with their husbands, and influences of friends/relatives, husband, or medical/nursing staff.

Mothers in Southern Mexico listed somewhat similar responses when asked why they chose to bottlefeed their children in Dewey's (1983) infant feeding practice study during the mid-70's.

Respondents in her study listed the following reasons for bottlefeeding: Mothers had insufficient breastmilk; mothers desired to fatten their children; children liked the bottle; mothers were ill; health care providers recommended bottlefeeding; children disliked or refused breast; bottlefeeding was more convenient; and mothers were influenced by neighbors.

Lillig (1977) investigated the influence of advertising for breastfeeding and commercial formulas and milks in Mexico. She concluded that because mothers who breastfed as well as those who bottlefed were equally exposed to formula advertisements, advertising per se did not appear to be influential in the feeding decision.

Lillig (1977) also investigated significant others who may have influenced the respondents' feeding decisions. She found respondents were possibly influenced by their mothers, mothers-in-law, attending midwife, and/or physicians. In Kokinos and Dewey's (1986) migrant infant feeding survey, mothers reported receiving advice regarding breast or bottlefeeding from either health care providers, family, or friends. In their study, children of mothers advised to bottlefeed were less likely to have been breastfed.

Factors influencing the reported decline in breastfeeding in developing countries have been investigated. Several researchers have noted an inverse relationship between development and breastfeeding. In a comparison of Mexican mothers from an area of a large agricultural development project and those outside the area from a rural village, Dewey (1983) found that mothers inside the project area were more likely to bottlefeed than those outside the

development project, and when they breastfed they did so for a shorter duration. Graitcer et al.'s (1984) study of breastfeeding and weaning practices in Haiti indicated that there are urban and rural differences in the practices. The median weaning age for children in Port-au-Prince is 12 months and in rural areas 18 months. Misra (1977) found similar differences in her study of infant feeding practices in two Indian villages. Women in the village nearer to urban centers were more likely to cease breastfeeding sooner than their more remotely rural counterparts. Jelliffee (1977) concurs with these findings and blames the decline in breastfeeding among developing countries on modernization and the lack of appropriate information regarding the technique or benefits of breastfeeding from physicians or nurses.

Other authors feel the decline in weaning age among infants from developing countries is an increase in workload rather than urbanization (Nardi, 1984). Nardi found women in a Western Samoa rural village chose to breastfeed for shorter periods of time as they became more involved in the cash economy.

Studies of factors influencing the infant feeding decisions of migrant farmlaborers are limited. Dewey et al. (1984) felt the decline of incidences and duration of breastfeeding among migrant farmlaborers in their California study may have been due to the employment of mothers outside the home, the greater availability and promotion of infant formula in the United States, and a lack of support for breastfeeding. In the de la Torre and Rush (1987) study of the breastfeeding practices of Mexican origin agricultural

migrants, the authors found nontraditional practices such as out-of-home child care, birth control, and alcohol had a negative impact on the probability of breastfeeding, and working women were less likely to breastfeed.

In contrast to other studies, Kokinos and Dewey's (1986) data showed an increased incidence of breastfeeding among migrant Mexican-American mothers. They attributed the increased incidence to a number of factors including the respondents' characteristics. The survey sample included many recent immigrants, and the majority of mothers migrated annually back to Mexico where the incidence of breastfeeding is greater than in the United States. In addition, they felt the high WIC participation rate of the respondents may have positively influenced the incidence of breastfeeding.

Kokinos and Dewey's study (1986) also differed from previously mentioned studies regarding the role of employment in the selection of feeding choice. They found employment of the mother at the time of birth was not significantly associated with reduced breastfeeding. However, employment was more likely to affect the duration of breastfeeding and the use of supplemental bottles. Infants born during the summer farming season were breastfed for a shorter time period than those born in the winter months. This was probably due to the difficulties of maintaining lactation during long work hours where mothers were separated from their children. Reasons mothers terminated breastfeeding in Kokinos and Dewey's (1986) study included insufficient milk, employment of mother, child refusing breast, child preferring bottle, and pregnancy.

In reviewing studies from developing countries, economics, urbanization, and involvement in the cash economy appear to be major factors in influencing feeding choice. In industrialized nations, factors influencing feeding choices vary greatly; however, the health of the child or the mother and insufficient milk are often cited as contributing factors.

Researchers report discrepancies regarding employment's role in infant feeding choices of migrant farmworkers. In Kokinos and Dewey's (1986) study of migrant farmlaborers, employment was not cited as a reason for breastfeeding initiation but rather affected the duration of breastfeeding and the use of supplemental bottles. However, de la Torre and Rush (1987) found working migrant farmlaborer mothers were less likely to breastfeed.

According to Arango (1984), low income and minority women are subject to economic and cultural barriers to breastfeeding. Barriers which may be applicable to migrants include a possible lack of information or misinformation due to the language or cultural differences from staff in the health care setting. Migrant mothers may lack support to breastfeed from family and community, because it is associated with traditional and "outdated" practices. Migrants may also experience the late initiation of prenatal care and limit prenatal breastfeeding education and preparation. In addition, an economic barrier affecting migrant breastfeeding mothers may be the need to return to work with little of the knowledge or support needed to make transition to part-time feeding.

Introduction of Liquids and Solids

A limited number of studies have documented the introduction of liquids and solids among Hispanics and Mexican-American migrant farmlaborers' children. Pardes-Rojas and Solomon's (1983) WIC population study (over one-half were Hispanic and all were below poverty level) revealed juice was generally the first nonmilk item introduced in the diet. Empty calories and more expensive foods such as chocolate and soft drinks were given to the child by their parents. Even babies under 6 months of age drank soda pop. The consumption of these food types increased significantly with age.

In Kokinos and Dewey's (1983) study of Mexican-American migrants, the mothers reported most children were fed infant formula before three months, while 15 percent had received cow's milk. Initial liquids and semisolids given to infants in a bottle within the first year of life included juice, rice water, cereal, tea, fruits, atole (thin gruel of grain and water or milk), and sweetened milk. Over one third consumed soft drinks and flavored drink mixes during their first year. Kokinos and Dewey (1983) reported it is common practice for Mexican-Americans to feed infant cereal mixed with formula or cow's milk using a bottle with the nipple slit widened. Another common practice among the study population was the use of both herbal and regular tea as a health remedy (Kokinos and Dewey, 1983).

Although the median age for introduction to solids was the recommended 4-6 months, almost half of the migrant children in Kokinos and Dewey's (1983) study received solids before four months. Cereal, fruits, vegetables and soup or broth were the most common

first foods.

Nutrition Inadequacies and Food Program Enrollment

Migrants are among the poorest of the poor in the United States. Maintaining adequate nutrition in the face of poverty is extremely difficult (Littlefield and Stout, 1987). In 1976, during a household migrant survey, migrant parents were asked what major problems they faced raising children in-stream; approximately six percent responded buying food (Cavenaugh et al., 1977).

Littlefield and Stout's (1987) study lends insight into periods in which Colorado migrants face hunger and access food programs that may alleviate the problem. In 1986, migrant families reported running out of money to buy food during the previous 12 months while in Colorado as well as at their homebase. Families reported eating less than they should at least three to four times a year because there was not enough food for the whole family, and they believed their health had been hurt by having too little food or the wrong kind of food. The majority of migrant families, when asked what they would do with an extra $10.00, responded they would purchase food. The results of Littlefield and Stout's (1987) survey indicate that the migrnts' struggles to provide food for their families have not diminished in the past decade.

Almost three-quarters of the migrant families surveyed in Littlefield and Stout's (1987) study had attempted to enroll in food programs, 65 percent were successful. Most of the families enrolled in the Food Stamp Program. Other program enrollment included WIC, CSFP, and Free Food.

CHAPTER III

MATERIALS AND METHODS

The purpose of this research was to describe the infant feeding and nutrition practices and associated environment among families of migrant farmlaborers in Northern Colorado during the summer of 1987. The information was used to identify areas of concern to be addressed by the nutritional services at the Head Start Center and other agencies serving migrants. The study was conducted in cooperation with the Weld County Migrant Head Start Center, which serves migrant families in Weld, Adams, and Boulder Counties, and the Colorado Migrant Health Program, which serves migrants throughout Colorado and provided partial funding for this project.

In order to determine infant feeding and nutrition practices, a survey questionnaire (Appendix A) was developed in Spanish and English to collect information on 1) breastfeeding practices, 2) introduction of foods and liquids, 3) nutrition and health practices and inadequacies, 4) home living environment, and 5) health history. Data on the sources of food and nutrition was collected regarding the 1) utilization of community food and nutrition programs and 2) input of family and relatives. Additional information on infants' health history and further demographic data were obtained from preexisting questionnaires used for Migrant Head Start enrollment during the summer of 1987, (Part B of the survey).

Nutrition/diet status indicators such as height/weight, hematocrit, and incidence of dental caries and rotting of the four central upper teeth were not utilized in this study for a number of

reasons. Height and weight measurements, used to determine over and underweight, were not utilized because the infants' measurements were taken by a variety of personnel, and methodology would therefore lack consistency. Hematocrits, used to determine iron status, were not taken for infants under nine months. Furthermore, low iron status (anemia) and baby bottle mouth syndrome were not present among the sample population infants aged 6 to 23 months. However, several migrant children over two and one-half, served by the Head Start, met the criteria for overweight, underweight, anemic, and baby bottle mouth syndrome. Therefore, nutrition/diet status indicators taken with consistent methodology would be appropriate if the children in this study were older.

Survey Instrument

Questions for the Infant Feeding Practices of Migrant Farmlaborers in Northern Colorado survey were developed for each category mentioned in the preceding paragraph. (Appendix A.) In order to establish content validity, the questions were developed from three main sources 1) previous studies/surveys involving infant feeding practices, 2) agency questionnaires, and 3) a review of literature. Content validity was enhanced by input of professional staff at the Colorado Migrant Health Program -- Margie Tate, nutrition consultant; Carla Littlefield, research consultant; and Chuck Stout, director of Colorado Migrant Health Program. The state director of the Colorado WIC Program also gave suggestions for the survey's development.

Questions for Part A of the Infant Feeding Practices of Migrant

Farmlaborers in Northern Colorado survey were primarily based on those used in the Hispanic Health and Nutrition Examination Survey, 1982-1984 (DHHS Publication No. (PHS) 85 1321); the Infant WIC Nutrition Questionnaire (Nutrition Services/WIC, Colorado Department of Health, Revised 6/86); the Colorado Migrant Farmworker Health Survey, 1986 (Littlefield and Stout, 1987); the Socio-Cultural Influences on the Health and Nutritional Status of Mexican-American Migrant Farmworkers' Children Questionnaire (Littlefield, 1981); and the Chihuahua Women's Survey (Meade, 1982). Questions from Part B of the infant feeding survey were taken directly from the 1987 enrollment questionnaires for Weld County Summer Migrant Head Start/Day Care Program.

Face validity of the survey was established through its development and during the pilot survey. In June of 1987, Part A of the survey was field tested with four migrant families who had children aged 6 months to 2 years enrolled in the Migrant Head Start program. The pilot interviews were conducted by the research assistant in either English or Spanish, depending on the interviewees' preference. The research assistant gave the standardized introduction to the families before she began. Three fathers were present during the interviews and two of the three actively assisted or directly responded to the questions. (Note -- Interviewers are described in the following section).

The pilot survey was utilized as a validation for sensitivity in understanding by the migrants. As a result of the piloting, a few mechanical modifications were made. In addition, some terms were

changed to account for the educational level of the survey population as well as different colloquialisms for "bottle."

Upon completion of the pilot testing the survey was sent to the Colorado Migrant Health Program to further ensure valid Spanish translation. The survey was then precoded where possible to facilitate keypunching.

Questions from Part B of the survey were obtained directly from preexisting enrollment records. Four outreach workers and their supervisor obtained the information during interviews that generally took over one hour. Interviews with families enrolling more than one child in the Migrant Head Start Program took longer.

The interviewer of Part A noted the extent to which the population responded honestly to survey questions and held high interest during the interview. Possible reasons for the honesty include the interviewer's approach to the survey, her assurance of confidentiality, and the interviewees' understanding that their participation would not personally gain or lose anything. Interviewees' consistent interest in the survey may be attributed to their genuine concern for their children as well as a welcomed visit and relief after a laborious day in the fields.

Face validity was further established in Part A of the survey in having only one individual survey the migrant families. This allowed for consistency and avoided researcher bias.

Interviewers

The research assistant for Part A of the Infant Feeding Survey was hired and trained by the researcher. The assistant was paid by

the Colorado Migrant Health Program. Her training consisted of extensively reviewing the survey instrument with the researcher, role playing interviews, and administering the survey instrument to noneligible migrant parents. The researcher simultaneously evaluated the interview and discussed areas needing improvement.

The research assistant was a migrant during her pre-adolescent years and was originally from Texas. She lived with her family in the Head Start service area and had previous administrative work experience with the migrant population. She was both bilingual and bicultural.

The research assistant had good rapport with the migrant families. When asking for their participation in the study, she was refused only once because the family was returning to its permanent residence that evening. And in several incidences the families presented her with gifts of food they had obtained free from their jobs. In some more needy situations she returned, at her own expense, and gave some families either food or household necessities.

Responses from Part B of the infant feeding survey were taken from the pre-existing Migrant Head Start enrollment records. Enrollment interviews for the 1987 Summer Migrant Head Start Program were conducted by four outreach workers and their supervisor. The five interviewers were full-time Migrant Head Start personnel and were well-versed in migrant enrollment. They were all bilingual and culturally sensitive to the migrants.

Sample Selection

A nonrandomized convenience sample was acquired through

periodical review of Migrant Head Start enrollment records to obtain the names and addresses of families with children who would be 6 to 24 months during the summer months. In cases where families had two children in the 6 to 24 month age group, information was obtained relating to the oldest child in the age group. If a child turned 24 months before the August starting date for interviews, her or his name was dropped from the list of eligible participants.

Ninety-two families were identified with at least one child in the 6 to 24 month range during the interview months. Three of those families were used in the pilot study. The researcher did not use the pilot study data in the final analysis.

Eligible families were solicited for participation in the survey by one of the four outreach workers, their supervisor, the researcher, or the research assistant either in their home or at the Head Start Center. The consent form was read aloud to the parents in Spanish or English and consenting parents signed two copies, one to keep in case of future questions regarding the study and the other given to the researcher for her permanent records (Appendix B).

The consent forms assured the families of confidentiality of responses and gave a brief description of the study and its benefits. The survey involved no risk to the individuals or their families, and they were assured that their refusal would in no way hinder services rendered by the Migrant Head Start. At the top of the consent form, the solicitor recorded times when the research assistant would most likely find the parents home from the fields and available for an interview.

Due to the transient nature of the migrant families, attempts were made to keep abreast of when families would be moving and when possible to interview them first. However, thirty-three families moved before they could be interviewed; of those, nine had previously consented to participate in the study. Three families (two of which had signed consent forms) were repeatedly attempted to contact but never home. One family still enrolled in the program had moved to an unknown location within the service area.

Fifty-two interviews were successfully completed. After the interviews, it was determined that two of the children were younger than the enrollment records indicated. One interview case was misplaced before keypunching. The total coded sample population size was therefore forty-nine and represented 55 percent of the target population of those with children 6 to 24 months and 25 percent of all families enrolled in the Migrant Head Start Program during the summer of 1987.

Interviews for Part A of the survey were conducted in 13 cities and towns within Weld, Boulder, and Adams counties.

Data Collection

Interviews for Part A of the survey were completed from August 24, 1987 through October 7, 1987. A bilingual/bicultural assistant administered Part A of the survey in the homes of the migrants. The researcher retrieved the data for Part B of the survey from the children's enrollment records at the Head Start Center. The information in Part B had previously been obtained by Migrant Head Start outreach workers. The enrollment interviews were conducted in

either the migrants' homes or at the Head Start Center. The outreach workers were bilingual and familiar with the culture of the program's participants.

Initial enrollment questionnaires, which contributed to Part B of the survey, took approximately one hour to complete. Part A took an average of 50 minutes to complete.

The research assistant asked probing questions on a limited basis when respondents did not reply with specific answers. For example, when respondents were asked what they would do with an extra $10.00, several replied they would purchase "things." The interviewer then asked probing questions to determine what the "things" were.

In order to avoid researcher's bias, the researcher waited outside while the assistant conducted Part A of the interview. Upon completion of the interviews, the researcher expressed her appreciation to the parents for their participation. She personally thanked the respondents and gave them a card and silk flower(s) for their home. In a few incidences, the research assistant drove herself to the interviewees' home.

In addition, the researcher, on a number of occasions, visited with the family upon completion of the interview in order to obtain further background information. Appendix D contains a case study of one family.

Analysis

Before the survey was administered, closed-ended questions -- yes/no responses, responses involving dates, numbers, and

frequencies -- as well as open-ended questions with predetermined lists were precoded. (The predetermined lists were obtained from previous studies.) Several open-ended questions which elicited a wide range of responses, e.g. food lists, nutrition information sources, etc., were coded after the fact. To maintain consistency, the researcher was the sole coder of the survey.

Data were sent to Boulder and entered into the computer by a professional keypuncher. A statistician used the Statistical Package for the Social Sciences to obtain tabulations and frequencies for data analysis.

Javelin software version was utilized for the production of graphs (Javelin Software Corporation, 1985).

Limitations

There are several limitations to this study. The information involving the migrant living environment in Northern Colorado is geographically confined to three counties -- Adams, Boulder, and Weld. The infant feeding practice information was obtained from a select group of working migrants who had children aged 6 to 23 months enrolled in the Weld County Migrant Head Start Program during the summer of 1987 and may not apply to parents who have not accessed the Head Start's services.

Missing cases represent areas where the mother could not supply the information or the responses were not listed in the children's records (Part B). Omissions in Part B of the records may have been due to assumptions by the outreach workers that anticipated items were subsumed elsewhere.

Operational Definitions

Infant

The oldest offspring between the ages of 6 and 23 months of migrant farmlaborer parents who had enrolled their children in the 1987 Summer Migrant Head Start Program in Greeley, Colorado.

Migrant Farmlaborers

Families who receive at least 51 percent of their income from agriculture-related work and establish a temporary place of residence for this occupation and have been so employed within the past 24 months.

Migrant Central Stream

Mid-continent route traveled mostly by Mexican-Americans which flows northward from Texas through the Midwestern and Western states.

Hispanic

Individuals or families who identify themselves as Mexican-Americans, Chicano, Mexican, Hispanic or any Spanish equivalent.

Kickapoo Indians

Individuals or families who identify themselves or speak Kickapoo. (Appendix C gives a more detailed description of the Kickapoo.)

CHAPTER IV

RESULTS

Family Characteristics

Age and Sex

Parents of forty-nine infants participated in the infant feeding survey. During the initial Migrant Head Start enrollment interview (Part B of survey), the sample population children [49% female (24) and 51% male (25)] were between the ages of 2 and 21 months with a mean of 12.8 months (median 13 months) (Table 1). The same children were between 6 and 23 months with a mean of 14.4 months (median 15 months) during the Infant Feeding Survey, Part A (Table 2).

At the time of the Infant Feeding Survey, the children's mothers ranged from 18 to 39 years in age with a mean of 25.5 years (median 25). The children's fathers were slightly older; their mean age was 29.7 years (median 28). (Five cases were missing because mothers were unable to supply information regarding the infants' fathers.)

Marital Status

The majority of children [79.6%] (39) lived in families where the mother was married and the father was present. Twelve percent (6) had families where the mother was single or never married. In some cases, the mother was living with the child's father although they were not married. None were widowed or divorced, but some were separated. Table 3 describes the marital status of the mother.

Number of Siblings

Surveyed children had from Ø to 7 siblings with a mean of 2.1 siblings.

TABLE 1

CHILDREN'S AGE DURING HEAD START ENROLLMENT INTERVIEW
(SURVEY PART B)
N=49

Age (Months)	Number of Children	Percentage	Cumulative Percentage
2	1	2.0	2.0
3	1	2.0	4.1
4	2	4.1	8.2
5	3	6.1	14.3
6	1	2.0	16.3
7	1	2.0	18.4
8	1	2.0	20.4
9	2	4.1	24.5
10	3	6.1	30.6
11	2	4.1	34.7
12	5	10.2	44.9
13	4	8.2	53.1
14	5	10.2	63.3
15	3	6.1	69.4
16	1	2.0	71.4
17	4	8.2	79.6
18	4	8.2	87.8
19	4	8.2	95.9
20	1	2.0	98.0
21	1	2.0	100.0
Total	49	100.0	

TABLE 2

CHILDREN'S AGE DURING INFANT FEEDING SURVEY
(SURVEY PART A)
N=49

Age (Months)	Number of Children	Percentage	Cumulative Percentage
6	5	10.2	10.2
8	4	8.2	18.4
10	3	6.1	24.5
11	3	6.1	30.6
13	4	8.2	38.8
14	4	8.2	46.9
15	3	6.1	53.1
16	6	12.2	65.3
17	2	4.1	69.4
18	2	4.1	73.5
19	4	8.2	81.6
20	2	4.1	85.7
21	4	8.2	93.9
22	2	4.1	98.0
23	1	2.0	100.0
Total	49	100.0	

TABLE 3

RESPONDENTS' MARITAL STATUS, NUMBERS AND PERCENTAGES
N=49

	Number	Percentage
Married	39	79.6
Never Married/Single	6	12.2
Separated	4	8.2
Divorced	Ø	Ø
Widowed	Ø	Ø
	49	100.0

Socioeconomic Characteristics

Annual Income

Participants in the Summer Migrant Head Start Program were required to show written documentation of income to determine enrollment eligibility. The migrants were required to report their family's income for 24 months prior to the enrollment interview. The family was considered eligibile if, for 12 consecutive months, their income met poverty guidelines and a minimum of 51 percent of the family's income was agriculture related. (See Table 4 for a distribution of the migrant families' income.)

The 1987 poverty threshold guidelines varied with family size. The threshold for a family of three was $9,300, $11,208 for a family of four, $13,104 for a family of five, $15,000 for a family of six, $16,908 for a family of seven, and $18,804 for a family of eight.

At least 51 percent of the family's income had to be agriculture related in order to meet the summer enrollment mandates for migrant farmlaborers' children.

This population had a mean family income of $4,520 and a median of $4,100. The range was $760 to $9,920. Families with one to three children had a mean income of $4,411; families with four to five children had a mean income of $3,826; and families with six to eight children had a mean income of $6,314.

Employment Status

During the Infant Feeding Survey, twenty-nine percent (14) of the mothers responded that their present employment status was full-time, fifty-one percent (25) part-time, and fourteen percent (7)

TABLE 4

1987 ANNUAL FAMILY INCOME,
NUMBERS AND PERCENTAGES
N=49

Income Level	Number of Families	Percentage	Cumulative Percentage
0 - 1,000	1	2.0	2.0
1,001 - 2,000	4	8.2	10.2
2,001 - 3,000	6	12.2	22.4
3,001 - 4,000	12	24.5	46.9
4,001 - 5,000	9	18.4	65.3
5,001 - 6,000	5	10.2	75.5
6,001 - 7,000	6	12.2	87.8
7,001 - 8,000	3	6.1	93.9
8,001 - 9,000	1	2.0	95.9
9,001 - 10,000	2	4.1	100.0
TOTAL	49	100.0	

responded they were unemployed. Six percent (3) identified themselves as homemakers.

Education

The mean education of the children's mothers was 6.6 years with a range of Ø to 14 years. (Two cases missing were missing because responses were not recorded in the children's files.) The fathers' mean education level was somewhat lower, at 5.5 years with a range of Ø to 12 years. (Eight cases missing were missing because responses were not recorded in the children's files.)

Nationality

Ninety-four percent (46) of the children were born in the United States and four percent (2) were born in Mexico. (One case was missing because information was deleted from permanent records.) Sixty-five percent (32) of the mothers interviewed were born in Mexico, thirty-three percent (16) were born in the United States, and one mother (2.Ø%) was born in Guatamala. The fathers' birthplaces were somewhat similar. Sixty-three percent (31) were born in Mexico, thirty-three percent (16) were born in the United States, and one father (2.Ø%) was born in Guatemala. (One case was missing because the mother was unable to supply information about the infant's father.)

Ethnic Background

Although ninety-four percent (47) of the respondents identified themselves as Hispanic in the Head Start Interview, eight percent (4) of the children came from families that either identified themselves as Kickapoo Indians and/or spoke Kickapoo. (The Kickapoo

families permanent residences were located in Mexico or Texas. See Appendix C for an historical discription of the Kickapoo Indian.) Four percent (2) of the children came from families that either identified themselves as from Guatemala or spoke Mayan. (In one of the families, the parents were born in Guatemala and in the other the parents were born in Mexico.)

Permanent Residence

Children's families were predominately from the central migrant stream as indicated by their permanent residence. The majority [59.2%] (29) of permanent residences were located in Texas, while twenty percent (10) were located in Mexico, six percent (3) in Colorado, four percent (2) in Arizona, and two percent in each of the following states: Florida (1), California (1), New Mexico (1), and Oklahoma (1). (One case was missing because response was not recorded in child's records.)

Language Skills

The majority of respondents [81.6%] (40) reported Spanish was the primary language spoken in the home. Only two percent (1) reported English was the primary language and another two percent (1) had no preference between speaking English or Spanish. Eight percent (4) spoke Kickapoo and four percent (2) spoke Mayan in the home.

Sixty-five percent (32) of the respondents preferred to receive printed material from the Head Start Center in Spanish, twenty percent (10) preferred the material in English, and eight percent (4) had no preference. (Three cases were missing because responses were

not recorded in the children's files.)

Home Living Environment

Housing in Northern Colorado

The housing arrangements and conditions varied among the surveyed families in Northern Colorado. Thirty-five percent (17) lived in trailers, 20.4% (10) in houses, 20.4% (10) in labor camps (labor camps were typically small, 1-2 bedroom, multiple family dwellings with community bathroom facilities), 16.3% (8) in apartments, and the remaining 8.2% (4) lived in other housing which included Quonset huts, a motel room, and temporary emergency housing (townhouses). Eighty-eight percent (43) of the respondents reported that their housing in Northern Colorado was rented (Six cases were missing because the information was not recorded in children's files.) At the time of the survey, most of the respondents' families [61.2%] (30) lived in Weld County, 26.5% (13) lived in Boulder County, and 12.2% (6) lived in Adams County.

All of the Colorado residences had electricity, a working refrigerator, and a working stove. Ninety-four percent (46) of the residences had running water and ninety-two percent (45) had hot water.

Potential health problems, such as the presence of insects and rodents and the lack of functional kitchen cabinet doors, in Northern Colorado were reported by approximately one-third of the survey population. See Table 5 for a description of potential home health and safety problems.

TABLE 5

PROBLEMS INVOLVING HOME LIVING ENVIRONMENT AT PERMANENT RESIDENCE AND IN COLORADO, NUMBER AND PERCENTAGES
N=49

	Permanent Residence		Colorado	
	Number	Percentages	Number	Percentages
No Electricity	4	8.2	Ø	Ø
No Working Refrigerator	5	1Ø.2	Ø	Ø
No Working Stove	2	4.1	Ø	Ø
No Running Water In House	6	12.2	3	6.1
Rats *	--	--	3	6.1
Insects *	--	--	15	3Ø.6
Non-Functioning Or No Kitchen Cabinet Doors *	--	--	1Ø	2Ø.4

*Questions were asked in reference to present housing only.

Housing at Permanent Residence

Conditions also varied at permanent residence sites. The majority of families [75.5%] (37) lived in houses, 8.4% (4) lived in trailers, 8.4% (4) lived in apartments, and 4.1% (2) lived in labor camps. (Two cases missing.)

Forty-five percent (22) of the housing at permanent residences were rented and 24.5 percent (12) were owned. (Fifteen cases were unreported because the information was not recorded in children's permanent records.)

Several families had permanent residence homes without electricity, a working refrigerator, a working stove, and/or running water. Over one-quarter of the families (13) did not have hot water in their homes. Table 5 lists the number and percentages of families whose homes lacked electricity, working refrigerator, working stove, and/or running water.

Nutrition

Nutrition Inadequacies

Over half of the respondents (30) indicated they would purchase basic needs - food or clothing - with an extra $10.00. Other respondents (15) said they would purchase disposable diapers, gasoline for their vehicles, household items (including rodent and insect poison), or necessary items for their children or infants (non-specific). However, eight percent (4) of the respondents stated they would save the extra $10.00. Figure 1 summarizes the responses according to percentages.

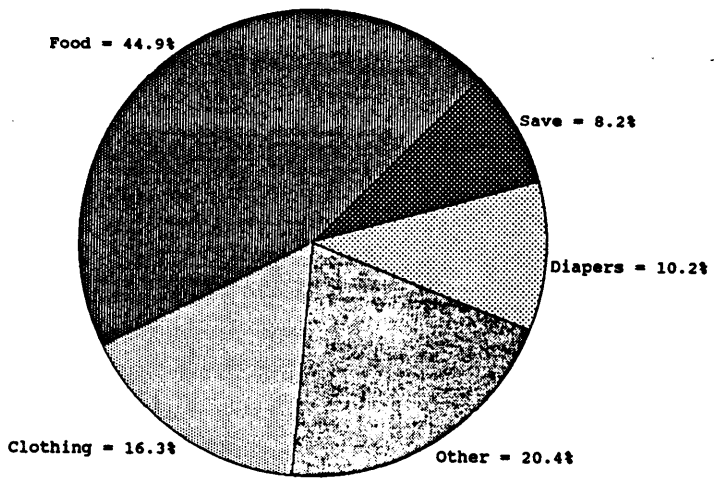

Figure 1. What Respondents Would Do With an Extra $10.00.

The four respondents who indicated they would save the extra $10.00 had a wide range of annual family income. Two single mothers (no husband present) of two and three children respectively, whose annual incomes were lower than all other respondents, ($760 and $1,020) desired to save the extra money. The other two respondents desiring to save the extra money had annual family incomes of $7,970 and $9,920. They and their spouses had four and two children, respectively.

One-quarter (12) of the respondents reported that they or their family had run out of money to buy food over the past twelve months. Eleven respondents (one case missing - no response given) indicated their families did not eat a meal due to insufficient funds -- a mean of 11.64 days per year. Table 6 shows the distribution of days that families went without a meal during the previous twelve months.

Twenty-nine percent (14) of the respondents reported having had to borrow money for food or ask for food from friends or relatives.

Four percent (2) of the respondents reported that their children ate less than they should at least three to four times a month because there was not enough food for the whole family. One mother indicated this occurred at least once or twice a week. However, an additional three other mothers (6.1%), reported that their children's health had been hurt by having too little food or the wrong kind of food. The question elicited the respondents' personal perceptions and may not necessarily be based on scientific evidence such as a diseased state.

Mothers who breastfed did not report any problems with their

TABLE 6

DAYS IN THE PAST TWELVE MONTHS FAMILY DID NOT EAT A MEAL DUE TO LACK OF MONEY, FREQUENCIES AND PERCENTAGES
N=49

Number of Days	Frequency	Percentage
3	4	8.2
6	1	2.Ø
7	1	2.Ø
14	2	4.1
15	1	2.Ø
3Ø	2	4.1
NA*	37	75.6
Total	48	98.Ø

Missing cases: 1

*NA = Nonapplicable. Respondents who did not report their families missing meals due to a lack of money during the previous 12 months.

children eating less than they should because there was not enough food for the whole family. Nor did mothers believe their personal health had been hurt by having too little food or the wrong kind of food.

Food Program Access

A majority of the respondents [75.5%] (37) reported enrolling in food programs during the previous 12 months. Table 7 lists the families' access to various food programs during the 12 months prior to the survey. Most of the families had enrolled in the Food Stamp Program, in the WIC program, and/or accessed food banks or received free food. Less than half reported receiving food from the Commodity and Supplemental Foods Program.

Sixty-nine percent (34) of the respondents reported attempting to enroll in food programs in Colorado. All of the migrant families were successful in their enrollment endeavors. Table 8 lists the food programs migrants accessed while in Colorado. Most of the migrant families who accessed food programs in Colorado enrolled in the Food Stamps Program, while fewer enrolled in the Colorado's WIC program, the Commodity and Supplemental Food Program, and in food bank or free food programs such as the Salvation Army or Rocky Mountain Services.

Nutrition Information Sources

A majority of respondents [59.2%] (29) reported receiving information or advice regarding the feeding of their child from relatives and/or non-relatives. Ten percent (5) reported receiving feeding information or advice from relatives. Three respondents

TABLE 7

FOOD PROGRAM ENROLLMENT OVER THE PAST TWELVE MONTHS, NUMBERS AND PERCENTAGES
N=49

	Number	Percentage
Food Stamps		
Yes	37	75.5
No	12	24.5
Total	49	100.0
WIC Program		
Yes	29	59.2
No	20	40.8
Total	49	100.0
Commodity Supplemental Foods		
Yes	22	44.9
No	27	55.1
Total	49	100.0
Food Bank/Free Food		
Yes	25	51.0
No	24	49.0
Total	49	100.0

TABLE 8

COLORADO FOOD PROGRAM ENROLLMENT
NUMBERS AND PERCENTAGES
N=34

	Number	Percentage
Food Stamps		
Yes	24	70.6
No	10	29.4
Total	34	100.0
WIC Program		
Yes	13	38.2
No	21	61.8
Total	34	100.0
Commodity Supplemental Foods		
Yes	13	38.2
No	21	61.8
Total	34	100.0
Food Bank/Free Food		
Yes	15	41.2
No	19	58.8
Total	34	100.0

received information or advice from their mothers, one from her mother-in-law, and one each from an aunt, sister(s), and cousin. Twenty-seven percent (13) reported receiving information or advice from WIC program personnel, twenty-five percent (12) from health professionals in a clinic or hospital setting, four percent (2) from the Head Start personnel, and two percent (1) from Supplemental Foods and Food Stamps personnel. Some respondents reported receiving nutrition information or advice from more than one source. Figure 2 breaks down the non-relative sources of infant feeding information or advice into more detail.

Of the respondents (29) who received information or advice regarding the feeding of their children, the vast majority [96.6%] (28) reported following the advice or information received. The mother who chose not to follow the advice from the Head Start Center and a health clinic claimed she was unable to do so due to lack of funds.

Most of the respondents (28) reported receiving the feeding information and advice in the United States. However, one respondent reported receiving information from her mother and mother-in-law in Mexico.

Respondents were also asked what other sources of information or advice they had received regarding the feeding of their children, for example, reading material. Four percent (2) responded that they followed the information they had received in hospital pamphlets provided in the United States.

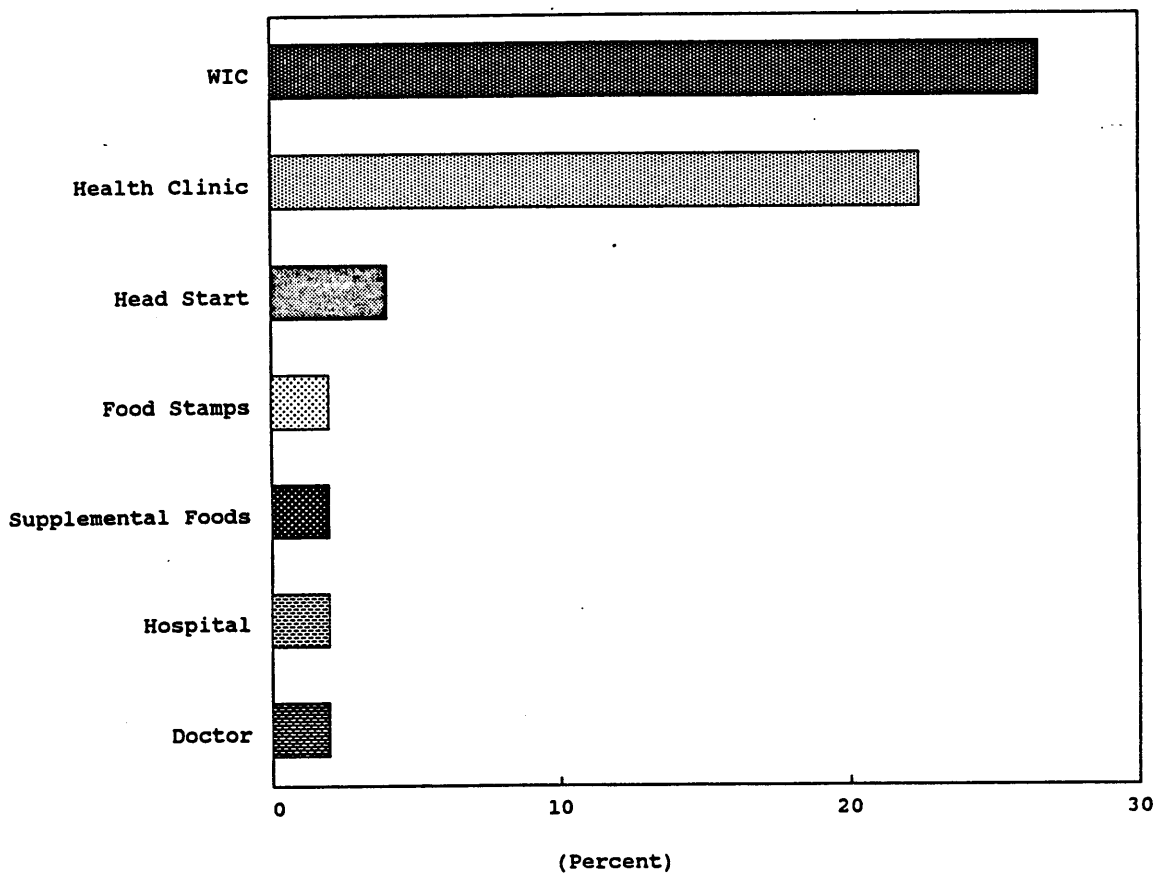

Figure 2. Sources of Infant Feeding Information or Advice (Health Professionals and Non-Relatives) Percentages, N=49

Breastfeeding Practices

One-third of the children (16) were breastfed at birth. The median age infants (14) had completely stopped breastfeeding was four months. Two children, aged six and thirteen months, were still breastfeeding at the time of the survey. At six months, fourteen percent (7) of the children were still breastfeeding. At one year, four percent (2) of the children were breastfeeding. Table 9 lists the age distribution of the breastfed infants by months.

Mothers (16) elected to breastfeed their children predominantly because they felt it was better (7) or healthier (5). Other reasons for choosing to breastfeed included their beliefs that breastfeeding was easier (1), their child was sick less (1), they just wanted to (1), breastmilk is more filling (1), and their baby was happier (1). Four mothers responded they did not know why they decided to breastfeed.

Mothers (14) who had completely stopped breastfeeding their infants at the time of the survey did so for a variety of reasons. Four did so because they no longer produced milk. Three stopped breastfeeding because of work and another three stopped because the mother was taking medication. Two mothers stopped because their babies preferred not to breastfeed. One mother felt that breastfeeding did not provide enough food for her infant. And one mother ceased breastfeeding because she felt her 22-month-old son was old enough to stop.

Researchers have investigated the belief that women consume a variety of food or drink in order to improve the quantity or quality

TABLE 9

BREASTFED INFANTS
NUMBERS AND PERCENTAGES BY MONTHS
N=49

Month	Number	Percentage
birth	16	32.7
one	15	30.6
two	14	28.6
three	13	26.5
four	9	18.4
five	8	16.3
six	7	14.3
seven	6	12.2
eight	4	8.2
nine	4	8.2
ten	4	8.2
eleven	3	6.1
twelve	2	4.1
thirteen	2	4.1
twenty-two	1	2.0

Note - Two children, aged six and thirteen months, were still breastfeeding.

of their milk (Kelly, 1966; Clark, 1970; Meade, 1982). In this study, one-half (8) of the breastfeeding mothers responded that they specifically used dairy products to increase the quantity and/or quality of their milk. Almost one-third (5) of the breastfeeding mothers consumed grain products, thirteen percent (2) ate fruit or drank juice, and thirteen percent (2) ate soups or stews to increase the quantity and/or quality of their milk. One mother ate beans to improve her milk. One-quarter (4) of the breastfeeding mothers used nothing special or ate all foods to increase the quality and/or quantity of their milk. None of the mothers indicated that they used herbs and medicines to increase the quantity and/or quality of their breastmilk. Table 10 lists the perceived effects of the foods and liquids used to increase the quantity and/or quality of breastmilk according to usage.

Researchers have also studied food aversions of breastfeeding mothers (Marquez and Pacheo, 1964; Clark, 1970; Gladney, 1976; Meade, 1982). The author of this study found thirty-one percent (5) of the breastfeeding mothers avoided some foods and liquids because they believed their breastmilk would be affected or damaged. Alcohol and beans were the most common avoidances. Table 11 lists foods and liquids breastfeeding mothers avoided and the rationale for avoidance.

Reasons for Not Breastfeeding Infants

Sixty-seven percent (33) of the mothers responded that they were not currently breastfeeding their babies nor had they breastfed them. baby. However, in examining the responses, two mothers (6.1% of the

TABLE 10

FOODS AND LIQUIDS MOTHERS USED TO INCREASE THE QUANTITY AND QUALITY OF THEIR MILK
NUMBERS
N=16

	Number
Increases Quality and Quantity	
Milk	2
All foods	1
Cheese	1
Chocolate	1
Fruits and Juices	1
Rice and Milk	1
Increases Quantity	
Beans	1
Cereal with milk	1
Cheese	1
Chocolate	1
Fruits	1
Maizena	1
Meats	1
Milk	1
Oatmeal	1
Orange Juice	1
Rice	1
Stews	1
Increase Quality	
Milk	3
Cereal and Milk	1
Oatmeal	1
Soups	1

TABLE 11

FOODS AND LIQUIDS AVOIDED BY BREASTFEEDING MOTHERS
N=5

Case #	Foods and Liquids	Purpose of Avoidance	Effect of Avoidance
23	Bologna	decreases quality of milk	--
35	Alcohol	decreases quality of milk	"bad for baby"
35	Beans	decreases quality of milk	"baby gets colic"
35	Chili	decreases quality of milk	"baby gets a rash"
37	Soda	decreases quality of milk	"milk is not as rich"
40	Beans	decreases quality and quantity of milk	"caused colic"
43	Beer	decreases quality and quantity of milk	--

non-breastfeeding mothers) responded that their reason for not breastfeeding was that the baby became sick with breastmilk. A possibility exists that the mother in one case may have been referring to an older sibling. However, in the second case there were no siblings. The statistics for the number of infants who were breastfed at birth may be slightly underestimated.

Almost one-third (11) of the non-breastfeeding mothers chose not to breastfeed because of work. Twelve percent (4) of the non-breastfeeding mothers chose not to breastfeed because their babies did not want to take the breast. In one case, the mother responded her baby preferred formula. Three mothers chose not to breastfeed because their infants were hospitalized from 25 days to one month after birth. Two mothers chose not to breastfeed because they believed their milk was not good. One mother thought her milk was too watery and another mother was told by a doctor that her milk was not very good. One mother stated her breast dried up immediately following the birth of her infant. Additional reasons mothers gave for not breastfeeding included one mother being too frightened to breastfeed, breastfeeding was too time consuming, too much trouble, inadequate supply, did not want to, and a personal dislike of breastfeeding. One mother chose not to breastfeed because of medication given after the birth of her baby.

Bottle Feeding Practices

When asked about their babies' bottle feeding practices, ninety-six percent (47) of the respondents reported that their infants drank liquids at some point from a bottle. Two children

went from the breast to a cup.

Respondents reported the majority of their infants (27) consumed iron-fortified formula in the bottle. Sixty-one percent (30) of the infants drank whole milk in a bottle, six percent (3) evaporated milk, two percent (1) water, two percent (1) breast milk, two percent (1) formula without iron, two percent (1) powder, and none consumed condensed milk in a bottle.

Respondents who gave their infants either formula or evaporated milk were asked to describe their bottle preparation and, when appropriate, to show the formula containers to the interviewer in order to determine adequate mixing techniques. Forty-five percent (21) of the respondents prepared the bottle with the appropriate ratio of water to formula or evaporated milk. Two percent of the respondents (1) over mixed by adding too much formula. For various reasons, e.g. the infant was no longer consuming formula, fourteen respondents were not able to provide sufficient information to determine adequate mixture.

Of the thirty-six respondents who described their bottle preparation, the majority (27) used bottled water and the remainder (9) used tap water.

Respondents were also asked when they would like to take their child off the bottle. (In some cases, the child was already off the bottle.) Twenty months was the mean age mothers wanted to take (or had taken) their child off the bottle. The median and mode were both 18 months and the range was 12 to 36 months. Three mothers responded they did not know when they wanted to take their child off the

bottle. Their children were 11 to 13 months at the time of the interview. Two children went directly from the breast to the cup.

One common nutrition-related health problem of migrant children is baby bottle mouth syndrome (Schneider, 1986). Baby bottle mouth syndrome is the rotting of the four central teeth caused from constant contact with a nipple containing a sugared liquid. In order to determine the number of children possibly at risk for the syndrome, respondents were asked if children took a bottle to bed at night. Most of the children (36) did take a bottle to bed. While in bed, infants drank milk in their bottle most often, followed by formula and juice. Figure 3 shows bottle contents given to infants while in bed.

Liquids in Diet

Respondents were also asked about the introduction of specific liquids in their children's diets. The incidence and distribution of the specific liquids along with the mean and median age of introduction may be found in Table 12. All of the infants drank water generally the day of birth. Juice and milk were commonly given to infants within their first year. Sweetened beverages, e.g. Kool-Aid, soda pop, Jello water, and/or sugar water, were consumed by a majority of the children. With the exceptions of sugar water and Jello water, sweetened beverages were introduced later than milk and juice. Respondents were also asked if they gave their infants any other liquids not mentioned. Several volunteered that they gave herbal teas, manzanilla (camomile) and cinnamon, to their infants between the ages of two and four months.

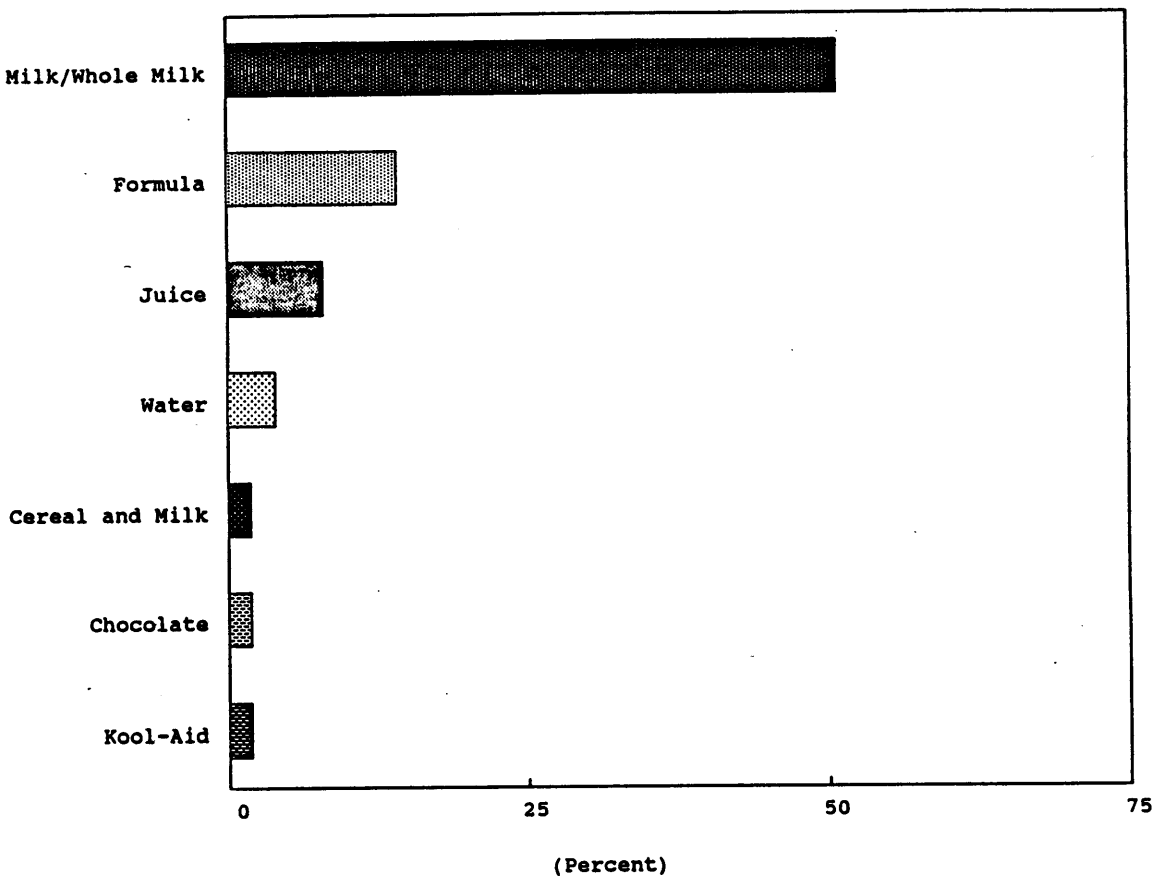

Figure 3. Bottle Contents When Child Is in Bed
Percentages, N=49

TABLE 12

INTRODUCTION OF LIQUIDS IN INFANTS' DIETS
MEAN, MEDIAN, AND RANGE BY MONTHS
AND INCIDENCE OF CONSUMPTION
N=49

Liquid	Mean (months)	Median (months)	Range (months)	Frequency
Water	1.2	1day	1day-14mo	49
Juice	5.5	5.5	1day-12mo	46
Milk	7.8	10.0	1day-12mo	36
Kool-aid	9.8	8.5	4-15	33
Soda Pop	9.1	9.0	4-18	31
Sugar water	4.4	2.0	1day-12mo	10
Jello water	7.2	8.0	3-12	5
Manzanilla	3.0	3.0	2-4	2
Cinnamon	2.0	2.0	2	1

Cup Information

At the time of the infant feeding survey, seventy-one percent (35) of children were reported to drink from a cup. Children who did not drink from a cup had a mean age of 9.2 months, median age of 8 months, and ranged from 6 to 17 months. Three of the children who did not drink from a cup were over twelve months -- 13, 14, and 17 months.

Solid Foods in Diet

A large majority (43) of the children were fed solid foods at home. The six children who were not fed solid foods at home had a mean age of 11.3 months, median age of 8 months, and ranged from 6 to 19 months. Two of the children were 6 months and one each 8, 11, 18, and 19 months.

Mothers were asked questions regarding the feeding methods of their children. Of the forty-three infants who ate solids at home, almost all (42) were given solids by a spoon, sixty-one percent (26) of the children ate alone, fifty-eight percent (25) preferred to eat with their fingers, and forty-four percent (19) of the children who ate solid foods used utensils to feed themselves.

Of the children who ate solid foods, most (41) were reported to eat table foods, ninety-five percent (41) ate homemade mashed or blended foods, seventy-seven percent (33) ate infant cereal in a jar or box, and sixty-one percent (20) ate infant strained or junior foods.

Interviewees were asked to identify the first solid foods they gave their children and the month they were first introduced.

Infants began eating solid foods at a mean age of 6.6 months with a median of 5 months and mode of 3 months. The earliest introduction to solid foods at home was 21 days. The latest introduction of solid foods at home, by those currently eating solids, was 12 months.

Over one-quarter (13) of the children were eating solid foods at home prior to four months. Over half (29) of the children were eating solid foods at home prior to six months.

Table 13, Parts I and II, lists the first solid foods introduced at home according to food groups. In responding to the question about the first kind of solid foods given to their children, some respondents listed several foods in the same food groups. In order to avoid duplication and weighting of responses, the major category headings, e.g. Fruits, contain only the first food introduced in that category. However, the individual foods listed under each food group contain the cumulative responses.

Parents were also asked about their infants' eating habits, e.g. food avoidances, special diets, and appetite changes. None of the children were reported to avoid specific foods for medical, religious, or personal reasons. (One case was missing because response was not recorded in permanent records.) None of the infants were reported to be on a special diet. One child was reported to have had an increase in appetite during the month prior to the interview.

Non-Food Consumption

Parents were asked about their children's consumption of non-food items in order to determine possible pica behaviors. Pica

TABLE 13, PART I

INTRODUCTION OF SOLIDS IN INFANTS' DIETS
MEAN, MEDIAN, AND RANGE BY MONTHS
AND FREQUENCY BY FOOD GROUPS
N=49

Food Item	Mean	Median	Range	Frequency
Animal Proteins & Fats	7.1	7.0	2-13	35
Bacon	3.0	3.0	3	1
Beef	7.5	7.5	7-8	2
Chicken	7.0	6.5	2-13	20
Cottage Cheese	6.0	6.0	6	1
Egg	5.3	4.0	3-9	7
Fish	7.0	7.0	7	1
Ground Beef	10.4	11.0	8-13	7
Hot Dogs	12.0	12.0	12	1
Liver	4.0	4.0	4	1
Meats	6.4	5.0	3-12	5
Grains or Cereals	6.5	6.0	3-15	23
Bread	9.0	9.0	9	1
Cereals	6.8	6.0	3-15	13
Pastas	7.0	6.0	4-12	7
Rice	6.6	6.0	5-11	5
Fruits	6.8	6.0	.7-12	36
Apples	6.2	6.0	3-9	5
Bananas	5.2	5.0	.7-11	15
Fruit Cocktail	12.0	12.0	12	1
Fruits (Non-Specfic)	7.4	6.5	3-12	16
Grapes	8.5	8.5	7-10	2
Oranges	7.8	7.5	5-11	4
Peaches	9.0	9.0	9	1
Pears	4.5	4.5	3-6	2
Tomatoes	12.0	12.0	12	2

TABLE 13, PART II

INTRODUCTION OF SOLIDS IN INFANTS' DIETS
MEAN, MEDIAN, AND RANGE BY MONTHS
AND FREQUENCY BY FOOD GROUPS
N=49

Food Item	Mean	Median	Range	Frequency
Legumes	6.1	6.0	3-12	7
Beans	8.3	7.0	6-12	3
Bean Juice	3.0	3.0	3	1
Chili Beans	9.0	9.0	9	1
Peas	3.0	3.0	3	2
Vegetables	6.1	5.0	.7-14	35
Cabbage	12.0	12.0	12	1
Carrots	6.2	5.0	3-14	9
Celery	4.0	4.0	4	1
Green Beans	7.0	7.0	7	1
Lettuce	12.0	12.0	12	1
Potatoes	6.4	6.0	4-9	9
Squash	3.0	3.0	3	1
Sweet Potatoes	3.0	3.0	3	1
Vegetables (Non-Specific)	5.1	5.0	.7-12	19
Miscellaneous				
Chicken (Noodle) Soup	5.3	5.0	3-7	4
Cookies	5.0	5.0	5	1
Gerber Baby Food	3.0	3.0	3	2
Soft Foods	DK	-	-	1
Stews	9.0	9.0	9	1

is an eating disorder inwhich an individual consumes non-food items. Pica behaviors have been found to be associated with low plasma zinc and low iron status (Pipes, 1985). Two children in this study were reported to eat ice. One child consumed ice twice a month. The other child consumed both ice and paint chips with unknown frequency, according to his mother.

Diarrhea

Eighty percent (39) of the respondents reported that their infant had had diarrhea. Forty-three percent (21) reported that their children had diarrhea less than once a month. Ten percent (5) reported their children's diarrhea occurred once a month, sixteen percent (8) occurred twice a month, and two mothers reported their children's diarrhea occurred four times per month. The diarrhea's duration was reported to last from seven hours to 10 days, with a mean of 3.5 days and median of 3 days.

When asked to describe their children's diarrhea, most respondents (31) indicated their child's diarrhea was watery or of a runny consistency. Other responses related to consistency included Jello-y or clear (3) and broken up (1). Several responses involved the diarrhea's color. Different responses included yellowish (18), greenish (7), brownish (2), green or black (1), and a variety of different colors (1). In addition, one respondent described her child's diarrhea as "with fever".

The 39 mothers of children who had had diarrhea were asked what they did for their children at the onset of diarrhea. One-third of the respondents (13) took milk out of their children's diet, one

decreased the amount of milk, and one decreased the amount of orange juice. Twenty-three percent (9) sought medical attention and five percent (2) gave prescribed medicine. Other initial treatments that respondents administered for their children's diarrhea included Pepto Bismol (7), rice water (4), manzanilla (2), Kaopectate (2), Donnagel (1), Pedialyte (1), Tylenol (1), "eating oil" (1), medicine (non-specific) (1), hierba buena (1), Jello water (1), and Gator-aid (1).

The 39 respondents were also asked what foods or liquids they gave their children when they had diarrhea. Fifty-six percent (22) of the mothers responded liquids only, ten percent (4) solids only, twenty-three percent (9) included both solids and liquids, three percent (1) responded nothing specific, and one mother (1) responded with only a medicine. (Two cases were missing because interviewer did not elicit a response.)

Juice was the most common liquid respondents gave their children with diarrhea. Thirty-one percent (12) of the respondents gave their children juices. Eight percent (3) specifically identified apple juice as the liquid they gave their children when they had diarrhea.

Over one-fourth (10) responded they gave their children rice water. One mother (2.6%) responded that she added cinnamon to the rice water. Thirteen percent (5) gave their children 7-up or Sprite, another thirteen percent (5) Pedialyte, eight percent (3) Kool-Aid, five percent (2) jello water, and five percent (2) gave liquids (non-specific). Three percent of the respondents gave their children at least one of the following liquids: Sugar water (1), water (1), Isomil (1), Gator-aid (1), hierba buena (1), manzanilla (1), or a

bottle with cereal and milk (1).

Solids that mothers gave their children with diarrhea included Gerber Baby Food (2), Jello (2), bananas (1), beans (1), carrots (1), cereal (1), cheese (1), ground beef (1), potatoes (1), rice (1), and salty crackers (1).

In answering the question, "What foods or liquids do you give your child when he or she has diarrhea?", five percent (2) responded that they gave their children Pepto-Bismol.

All respondents were asked to identify perceived causes of infant diarrhea. Twenty-seven percent (13) perceived infant diarrhea to be food related. Responses involving food included consumption of different foods, spoiled foods, greasy foods, dirty foods, foods (non specific), fresh foods, and foods not agreeing with the child or eating too much. Other perceived causes of diarrhea included teething (10), milk (4) either milk itself or a change of milk, water (3) in general or a change in water, heat (2), eating dirty things or junk lying around the floor (2), fallen fontanels (1), the flu (1), and stomach infection (1). Twenty-nine percent (14) responded that they did not know what caused infant diarrhea. (Six cases were missing because interviewer did not elicit a response.)

Constipation

Approximately one-third of the respondents (16) indicated their children had experienced constipation. Most (10) experienced constipation less than once a month. One infant had constipation once a month, another twice a month, and four infants were reported having constipation three times per month.

The reported range of average constipation durations was 1 to 14 days with a mean of 3.3 days and a median of 2 days. (One case missing. Respondent was unable to recall constipation's duration.)

Respondents' (N=16) descriptions of their children's constipation varied. Most respondents (7) indicated their children "could not go" or "had difficulties going to the bathroom". Other more common responses included child got fussy or cried when constipated (7) and feces were hard (5). Additional descriptions included the following: Child's rectum would bleed (1), stools were little round balls (1), child had gas (1), and the feces were yellow and dry (1).

Respondents were asked to list what foods and liquids they gave their constipated child. Most of the respondents (13) gave juice to their constipated child. The identified juices included orange juice (7), prune juice (4), apple juice (3), cranberry (1), pear (1), or pineapple juice (1).

Other liquids given to constipated children included water (3), oils -- "eating oil" (1), castor oil (1), and olive oil (1), liquids (non-specific) (1). Milk was identified by seven mothers in their responses. Two respondents said they gave their constipated child milk. However, another two respondents deleted milk from their constipated children's diet. Another decreased the quantity of milk in her child's diet and yet another warmed her child's milk.

Two respondents indicated giving their constipated children specific foods. One respondent gave soft foods to her constipated child, and the other gave mixed fruit.

One respondent volunteered that she sought medical attention for her constipated child.

The sixteen respondents were specifically asked if they gave their constipated children laxatives, herbs, enemas, or anything else. None of the children received laxatives or enemas and three received suppositories. The three responses included baby suppositories, suppositories for child, and prescribed suppositories. Three gave their constipated children herbs -- manzanilla (camomile) and hierba buena (mint) (1), hierb comino (cumin) (1), and non-specific herb. One respondent's child was given Kaopectate.

Dietary Concerns

Twenty-seven percent (13) of the respondents expressed various concerns about what their children ate. Dietary concerns are listed in Figure 4. The greatest concern was that their children would be healthier or healthy. The next greatest concern regarded their children's weight -- either to gain weight or to lose weight.

Over one-third of the respondents (18) reported that they had previously discussed with someone what their children should eat to be healthy. And over one-half (28) expressed a desire for someone to discuss with them what their child should eat to be healthy.

None of the children (Ø%) were reported to be on a special diet. Six percent (3) were given vitamin and mineral supplements at the time of the interview. According to responses in the Head Start interview, the supplements were reported to contain iron but not fluoride. Children's supplements were prescribed by a doctor (1) or were prescribed by a friend (1).

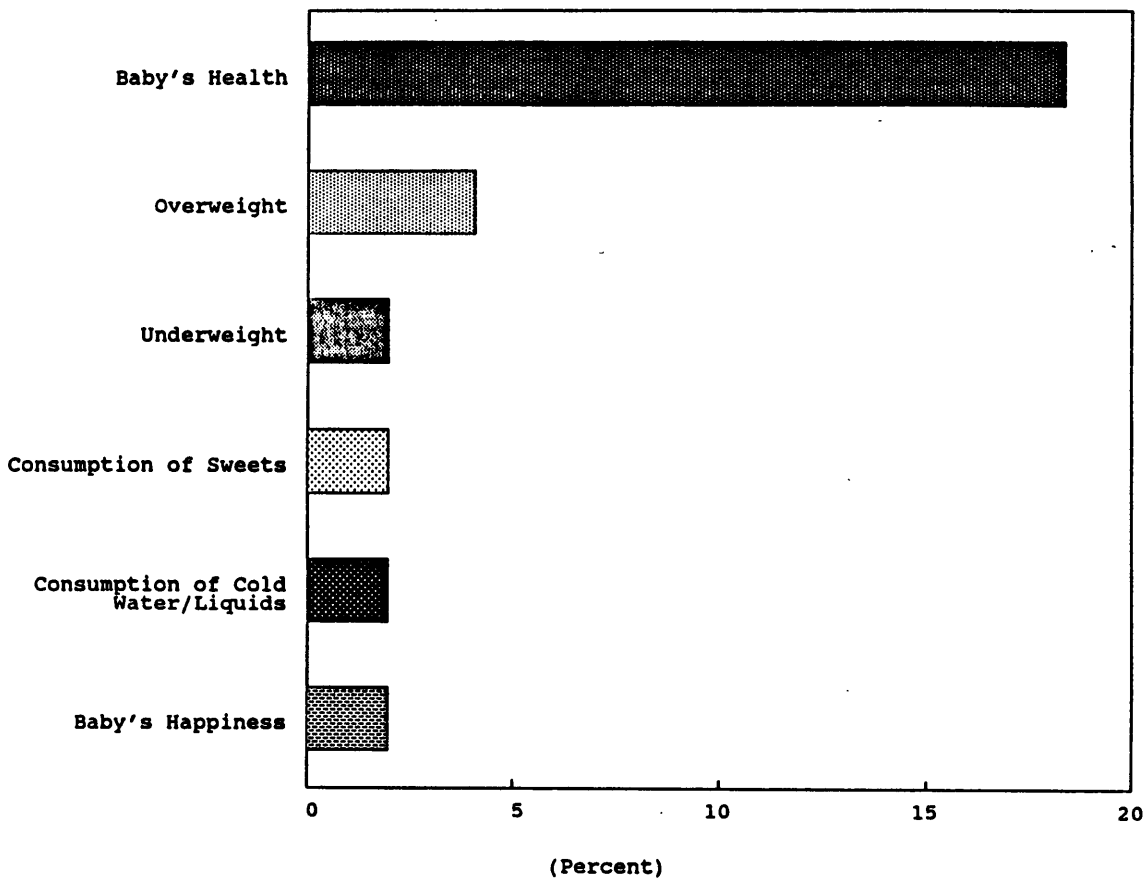

Figure 4. Types of Concerns Regarding Infants' Diets, Percentages, N=13

Health History

(Information Obtained from Head Start Interview)

Prenatal Information

Eight percent (4) of the mothers reported having problems during the pregnancy or delivery of the survey child. Reported problems included 1) at seven months a mother had high blood pressure and a liver infection, 2) another mother had back problems and was overweight, 3) mother of child with brachial plexus reported her son was stuck during delivery, 4) and the fourth mother had a problem of an undefined nature.

Six percent (3) of the mothers reported visiting a physician less than two times during their pregnancy. One mother visited a midwife.

One mother (2.0%) reported that her child was born outside a hospital, in a clinic. (One case was missing because the information not contained in permanent records.) Only one mother (2.0%) reported that her child was born more than three weeks early or late. The child was born 36 weeks gestational. (One case was missing because the information not contained in permanent records.)

Birth Weight

Reported birth weights ranged from 4 lbs. 15 oz. to 9 lbs. 8 oz. with a mean of 7 lbs. 3 oz. and a median of 7 lbs. 1 oz. (Two cases were missing because respondents were unable to supply accurate information as they were specifically asked not to guess.)

Problems at Birth

Four parents (8.2%) reported that their was something was wrong

with their infants at birth. One child was born with brachial plexus on the right side, one was resuscitated after suffocation occurred upon breaking off from the umbilical cord, another had jaundice, and the fourth child had lactose intolerance and was put on Isomil for five months.

Parents were also asked if anything was wrong with their children in the nursery. In addition to the problems listed above, parents reported two additional cases of jaundice, (a total of 6.2% had jaundice), a stomach rash infection which was treated with a topical cream, and one infant girl's lungs were underdeveloped.

Four infants (8.2%) stayed in the hospital longer than their mothers. The cases are described below.

Case One

An infant girl born 8 lbs. 12 oz., had jaundice at birth, and was hospitalized one month after birth due to her underdeveloped lungs.

Case Two

An infant boy was born 4 lbs. 15 oz.and was hospitalized 25 days after birth. (Lactose intolerant.)

Case Three

An infant girl born 36 weeks gestation, 5 lbs. 6 oz., had birth trauma. Suffocation occurred when she broke off from the umbilical cord, and she was resuscitated. She was hospitalized for three weeks after birth.

Case Four

An infant girl, born 7 lbs. 5 oz., had jaundice and was

hospitalized after her mother went home. (Number of days not listed.)

Food Related Emergency Conditions

None (0%) of the parents reported possible food related emergency conditions such as severe asthma, diabetes, or food allergies in their children.

Present Pregnancies

Only one mother (2.0%) reported being pregnant during the Head Start Interview. She had three other children; the youngest was eighteen months.

Hospitalizations and Serious Accidents and Illnesses

Ten percent (5) of the parents reported that their children had been hospitalized or operated on, and two percent (1) said their children had had a serious accident. Eight percent (4) said their children had had a serious illness. The nature of the reported illnesses included one child swallowing nail polish remover, an upper respiratory infection, and two cases of pneumonia (one with asthma). (After the Head Start Interview five additional cases of pneumonia were contracted by children in this population group.)

Additional Health Problems

Additional health problems included eight percent (4) of the children suffering with frequent sore throats, six percent (3) with a frequent cough, and two percent (1) with frequent stomach pain, vomiting, or diarrhea. None (0%) of the children were reported to suffer from urinary infections or trouble urinating.

In addition, parents were asked developmental questions about

their children. Cummulative responses are listed in Table 14 for when children initiated specific activities. The table lists the number of children reported to perform the activity (whose parents knew when they initiated the activity), the median age in months of when the activity was first performed, the reported range of those performing the activity, the number of children whose parents did not remember when their children first initiated the activity, and finally the number of children who were reported not to have initiated the activity.

TABLE 14

AGE AT INITIATION OF ACTIVITIES
FREQUENCIES,
MEDIAN AND RANGE OF INITIATION,
AND MISSING CASES DEFINED

	Frequency	Median (months)	Range (months)	DK*	NA**
Sit Up Without Help	37	6	4-9	2	10
Crawl	30	7	5-12	3	16
Walk	27	11	8-15	4	18
Talk	17	12	6-18	3	29
Feed Self	14	12	8-19	3	32
Learn to Use Toilet	1	12	12	2	46
Respond to Directions	12	14	6-20	5	32
Play with Toys	18	6	3-12	6	31
Understand What is Said to Him/ Her	15	12	7-18	5	29

Note - Although the Infant Feeding Survey interviewed parents of children 6 to 23 months, the Head Start Interview was conducted in several cases three to four months prior. Fourteen percent of the children (seven children) were less than six months during the Head Start Interview.

DK* = Respondents who could not recall the age their children initiated the activity.

NA** = The number of infants who had not initiated the activity at the time of the Head Start interview.

CHAPTER V

DISCUSSION

The purpose of this thesis was to investigate the infant feeding and nutrition practices and associated environment of migrant farmlaborers in Northern Colorado and determine, based on a comparison of the migrants' practices and existing nutrition research, nutrition education needs. The discussion will concentrate on areas for consideration and suggest recommendations based on the results of this study.

Characteristics of Respondents and Families

Researchers (Hertzler and Vaughan, 1979) have stressed the importance of working with the family as an entire unit and not focusing on the responses of the female head of household or of some one family member. Past research (Littlefield, 1981) among this population indicates migrant husbands are involved in the family food-related activities, such as menu planning, shopping for groceries, and meal preparation. Therefore, attempts were made to interview both parents of the child. The majority of interviews were prescheduled at the parents' convenience. In order to increase the likelihood of finding both parents at home, most nonscheduled interviews were conducted in the evening. Even with these attempts, many of the fathers were not at home and of those that were only two participated in Part A of the infant feeding survey. It is impossible to determine how many fathers participated in the Head Start enrollment, Part B of survey.

Despite their low representation in Part A of the infant feeding

survey, migrant fathers did express interest and concern about their children's nutrition and health during the Summer Migrant Head Start Center's annual dinner. Fathers exhibited their concern when they actively participated in discussion with the migrant health nutritionist at her booth.

Based on the results and personal observation, a recommendation for involving migrant fathers along with mothers in future nutrition surveys and education encounters would be to take advantage of opportunities for contact. These opportunities may avail themselves during migrant families' enrollment in food programs, Head Start, and other social services programs.

Home Living Environment

Environmental inadequacies such as the absence of electricity, a working refrigerator, working stove, running water and hot water as well as health and safety hazards (such as rats, insects, and lack of functional kitchen cabinet doors) exist for the migrants in their Northern Colorado and/or permanent residences. One respondent during the pilot survey reported a previous problem of rats coming into the bedroom at night and drinking from the babies' night bottles.

There are several recommendations based on study results. First, due to a wide range of home environmental inadequacies and health and safety hazards, such as those outlined in the preceding paragraph, nutritionists should become aware of each client's home environment. Secondly, nutritionists and other personnel serving migrants should encourage the alleviation of inadequacies and potential safety and health hazards when practical and economically

feasible, such as repairing screens to decrease the household insect population and blocking off rat entrances into the home. Third, when inadequacies and safety and health hazards exist, migrant families should receive information on how to live safely within the existing conditions. For example, if a family's kitchen lacks cabinet doors, has insects, and a refrigerator, the nutritionist can suggest that dry staples exposed to insects be stored in the refrigerator, food items set on the table before a meal be covered, and leftovers be quickly wrapped and refrigerated.

Socioeconomic Characteristics

Education and Language Skills

Recommendations based on language skills and education levels include the following: Since the majority of respondents (40) reported Spanish was the primary language spoken in the home and most (32) preferred to receive printed information from the Head Start Center in Spanish, the continued need for bilingual nutrition education materials and presentation exists. Migrant nutrition educators should have a good command of both Spanish and English. Material presented to migrant parents should be prepared at a fifth to sixth grade level, as the mean education level for fathers was 5.5 years while that of the mothers was 6.6 years.

Annual Income

The mean family income of the sample population was approximately $1,400 less than that reported in the USDA's 1983 survey of migrant farmworkers -- $4,520 compared to $5,921 (Select

Committee on Hunger, 1986). Income did vary with family size. Families with four to five children had a mean income lower than that reported by families with one to three children and those with six to eight children -- $3,826 compared to $4,411 and $6,314 respectively.

Employment Status

Although employment was one of the conditions for the Summer Migrant Head Start enrollment, seven respondents were unemployed at the time of the infant feeding survey. A possibility exists that they were employed during the Head Start enrollment period and then were between jobs during the infant feeding survey.

Nutrition

Nutrition Inadequacies and Utilization of Food Programs

Responses from the survey indicate maintaining an adequate food supply continues to be a problem among migrant families. Almost one fourth of the respondents' families (11) missed meals during the previous 12 months because they lacked finances. Two families (4.1%) missed meals on 30 days throughout the previous year. Yet despite this and the fact that most families (22) would purchase food with an extra $10.00, only three respondents felt that their children's health had been hurt by too little or the wrong kind of food. A possible explanation could be that on days the family missed a meal, the infant may have eaten while the rest of the family did not. Also, infants may have eaten throughout the day at the Migrant Head Start Center while the rest of the family skipped meals. Perhaps infants consumed supplements from either WIC or CSFP, or the effects

of poor nutrition were not yet evident.

Results indicate an inadequate food supply exists among this population as measured by the number of days that meals were missed during the previous twelve months, the number who would purchase food with an extra $10.00, and respondents' infants' health being harmed by too little or the wrong kind of food.

Although the reported enrollment in food programs is greater in this study -- 75 percent compared to 65 percent in Littlefield and Stout's study (1987) -- the underutilization reported in the literature exists. In this study, even though the majority of the families accessed food programs over the previous 12 months, one fourth of the families (12) did not do so and 31 percent (15) did not access programs in Northern Colorado. In addition, although income figures indicate all the families were eligible for Food Stamp enrollment, over half chose not to enroll in Northern Colorado. Further investigation is needed to determine why some families chose not to access the Food Stamp Program and other available food programs.

Past studies however, do provide possible reasons for not enrolling in the Food Stamp Program (Littlefield, 1981; Miserendino, 1986; Strothmann, 1986). According to migrant advocates, hindrances to the Food Stamp Program enrollment include delays of five to thirty days in obtaining the stamps, incomprehensible and lengthy forms, improper anticipation of income, the lack of bilingual assistance in filling out the application, office hours and locations, precious time taken away from work to apply for the stamps, and lack of

information about the program (Littlefield, 1981; Miserendino, 1986; Strothmann, 1986).

Although not within the exact context of this study, the researcher interviewed Food Stamp personnel in Greeley and found that some of the reported problems exist in Northern Colorado. The Weld County Social Services Building located in Greeley is far from many of the farms and has limited hours of operation. At times, interviewers experienced difficulties verifying migrant families' residencies and income. The application is ten pages long. On a more positive note, the three food stamp offices in the study area, located in Adams, Boulder, and Weld Counties, all employ bilingual interviewers who are available to serve the migrant families.

Until migrants report an adequate food supply, it is recommended that nutritionists and other personnel serving migrants attempt to increase the migrants' utilization of food programs. An increase in food program enrollment will increase the food supply for additional migrant infants and will assist families through periods of unemployment and meager earnings. Nutrition and budgeting education programs should also be designed to assist migrants in maintaining an adequate food supply.

Breastfeeding

The incidence of breastfeeding [32.7%] (16) among this population was lower than the reported percentages of the general U.S. population, yet higher than in several Hispanic studies (CDC, 1984; Rassin et al., 1984). The rate of breastfeeding supports de la Torre and Rush's (1987) study that migrants who utilize day care for

their children are a nontraditional population and therefore, would have a decreased incidence in breastfeeding.

When the incidence of breastfeeding is broken down according to permanent residence and ethnicity, the breastfeeding trends vary substantially. Seventy percent of the respondents (7) who reside permanently in Mexico breastfed their infants, 50 percent (2) of those who identified themselves as Kickapoo or spoke Kickapoo breastfed (see Appendix C for a description of Kickapoo), 100 percent (2) of those who spoke Mayan or were of Guatemalan descent breastfed, and of the remainder, the Mexican-American migrants who reside in the United States, 17 percent (5) breastfed.

The incidence of breastfeeding among Mexican-American migrants in this study is similar to that reported by Littlefield (1981) in her study of migrant and seasonal farmworkers in the same study area -- 17 percent compared to 20 percent. The results, therefore, do not support the findings of Kokinos and Dewey (1986), who reported a breastfeeding incidence of 56 percent among Mexican-American migrant farmlaborers in Northern California. Factors influencing breastfeeding among this population are similar to those reported in general U.S. and European studies (Florack et al., 1984; Jones, 1987). The majority of mothers elected to breastfeed because they believed it was better or healthier. Economics, which was a major factor in deciding to breastfeed among rural Mexican mothers in Lillig's (1977) study, was not reported in this study population.

Factors influencing the cessation of breastfeeding were also

similar to previous studies (Florack et al., 1984; Jones, 1987). The majority of the mothers responded that they quit breastfeeding either because they no longer produced milk or because of work.

Promoting Breastfeeding Among Migrant Farmlaborers

One decision that nutritionists must make in serving the migrant population is whether to promote breastfeeding as the ideal nourishment for migrant infants.

In 1986, the Joint Nutrition Monitoring Evaluation Committee stated the following: "No food has proven more beneficial for healthy babies in their first months of life. In areas where sanitation is poor, full breastfeeding is life saving during these first months, and supplemental breastfeeding appears to be beneficial for some time thereafter" (United States Dept. of Health and Human Services, 1986, p.196).

The benefits of breastfeeding have been well supported by a number of researchers. Breast milk adapts to the changing needs of the baby's metabolic system and to immunological needs (Ritchey and Taper, 1983; Montagu, 1979; Pitt, 1979; Prentice, 1987). In addition, breastfeeding lessens the possibility of overfeeding and the subsequent development of obesity in the infant (Ritchey and Taper, 1983). Breastfed babies also benefit from greater facial and oral stimulation that aids in the development of facial morphology and speech (Montagu, 1979).

The Surgeon General has set a goal to encourage more mothers to breastfeed. His objectives for the United States are that by the year 1990, 75 percent of newborn infants will be breastfed at

hospital discharge, and at six months 35 percent of infants will still be breastfeeding (Koop, 1984). And given present knowledge, the American Academy of Pediatrics' Committee on Nutrition recommends breastfeeding as the "sole source of nutrition for the first six months of life, supplemented with vitamin D, fluoride and iron after 4 months" (United States Dept. of Health and Human Services, 1986, p.196).

Researchers Smith and Mhango (1982) feel that in light of the recommendations for increased breastfeeding, Hispanics deserve more attention from the health community to encourage and support breastfeeding as the preferred feeding method for infants. Skeel and associates (1986) have reported an increase incidence of breastfeeding among Hispanics in a California agricultural community was the result of a family-center education approach in the home to promote breastfeeding.

However, along with the knowledge of breastfeeding's benefits and successful projects promoting breastfeeding among Hispanic farmlaborers, one must weigh a potential disadvantage of breastfeeding -- possible pesticide contamination.

The problem of human exposure to environmental and occupational pollutants is that pollutants resistant to degradation become concentrated in the food chain. Consequently, some lipophilic pollutants that reside in human adipose tissue are excreted in breast milk (Coveney, 1985). The concept, then, of breast milk as the ideal nutrient is altered to that of another excretory route from the human body (Peterson and Watson, 1983).

Macy's (1979) pesticide contamination study of the breast milk of Colorado women indicated that the Mexican-American group had a significantly higher mean level of dichlorodiphenyl trichloroethane (DDT), DDE (a major metabolite of DDT), total organochlorine pesticide, and total contamination levels than their Anglo counterparts. Macy (1979) suggested that the significant difference in the presence of pesticides in the two groups was probably due to occupational exposure rather than to any racial differences. Colorado has a large population of migrant Mexican-American farm workers who likely were exposed to DDT when it was widely used. In addition, she felt the total contamination was the result of previous occupational exposure by the Mexican-American mothers.

Results of additional studies are needed to determine if infants of migrant farmlaborers in Northern Colorado are exposed in utero to harmful nonregulated pesticides and if unacceptable levels of pesticides are contained in migrant mothers' milk. Currently, researchers at Colorado State University are conducting environmental studies of migrant breast milk.

Ritchey and Taper (1983) recommend that nursing mothers who have reason to believe they have been exposed to unusually high levels of a contaminant ask their physicians for laboratory analysis of their milk. Other authors (Peterson and Watson, 1983) have commented on the impracticality of testing breast milk samples the recommended two weeks after initiating lactation. They contend testing is not practical because results in many regions are delayed from two to six weeks, during which lactation would have to be maintained by pumping

and breast massage. The author of this study feels that for the nursing working migrant mother this would indeed be impractical. In the case of migrants, necessary measures are needed to facilitate the speed in obtaining breast milk laboratory analysis for those at risk for pesticide contamination. Since all of the infants in the study population were born either in a hospital or clinic, and the majority of infants (46) were born in the United States, it is reasonable to assume attending physicians and other health professionals could encourage or request laboratory analysis of all high-risk migrant mothers' milk.

In advocating more rapid laboratory analysis of breast milk and keeping informed of environmental studies, nutritionists and other health care professionals working with migrants will be able to present a more realistic picture of the true benefit or potential harm of breastfeeding to the parents.

Nursing Mothers' Diets

Although researchers (Vargas, 1977; Kelly, 1966; Clark, 1970) have reported historical utilization of special herbs or roots by nursing Hispanic mothers to stimulate or enhance lactation, none of the respondents in this study reported doing so. In the pilot study, two mothers reported using cumin with cinnamon stick and anise with manzanilla (camomile) to increase their milk supply.

A number of researchers (Clark, 1970; Gladney, 1976; Marquez and Pacheco, 1964) have reported the practice of La Cuarenta, a 40-day postpartum diet observed by Mexican-Americans. A strict adherence to La Cuarenta may cause a Vitamin C deficiency. The results of this

study indicated that migrant mothers in the sample population did not practice the most of La Cuarenta's avoidances. A possible exception included one mother's avoidance of chili because it decreased the quality of milk and caused the baby to get a rash. La Cuarenta advocates avoidance of hot chilies. Supported in this study is Clark's (1970) report that beans were debateable and could be eaten if prepared without hot chilies or used sparingly by nursing mothers, as too many are bad for the baby's stomach. One mother in this study avoided beans because she felt beans decreased the quality and quantity of her milk and caused colic in her infant. However, another respondent reported using beans in attempts to increase the quantity of her milk.

Both Clark (1970) and Kelly (1966) have reported the Hispanic practice of consuming specific foods in the ideal postpartum diet. The foods are thought to assure adequate lactation and rich milk. Nursing mothers in this study reported consuming foods contained in and out of the "ideal" diet to increase the quality and/or quantity of their milk. Foods in the "diet" included milk, cooked cereals, (e.g. oatmeal and rice) and chocolate. Nursing mothers reported consuming various foods not listed in the "ideal postpartum diet," among them fruits and juices, including orange juice. This inclusion indicates that the migrants do not appear to practice the avoidances of La Cuarenta and are not at risk for Vitamin C deficiency.

Bottle Feeding

Respondents indicated work was the most common reason given for

selecting to bottle feed. This supports similar findings in other migrant studies (de la Torre and Rush, 1987; Dewey et al., 1984) while it negates that of others (Kokinos and Dewey, 1986). Other factors in this study influencing the selection of bottle feeding -- refusal of infant to take the breast, hospitalization of the infant, belief that milk was not good, insufficient milk, fear, breastfeeding is too time consuming, too much trouble, medication intake, and personal preference or dislike -have been documented by other researchers among a variety of population groups including the general population, immigrants, Mexican-American migrants, and Mexicans (Lillig, 1977; Evans, 1976; Dewey, 1983; Florack et al., 1984; Dewey and Kokinos, 1986; Jones, 1987).

Almost 70 percent of the infants (34) in this study were formula-fed. The incidence of formula feeding is similar to that reported by Littlefield (1981) in her study of Mexican-American migrants in the same study area. The majority of respondents demonstrated proper mixture of the formula and water. However, since two respondents reported feeding their infants over-concentrated formulas and it was impossible to determine proper mixtures of thirteen respondents, formula preparation appears to be an area that nutritionists, especially those working with WIC and CSFP, should review with their clients.

A potentially harmful practice included the introduction of milk at an early age. Fourteen percent of the infants (7) received milk (whole or fresh/unprocessed) at birth and 18 percent (9) had milk prior to six months. Introducing unprocessed milk at an early age

may be particularly harmful. It is allergenic, almost void of iron, may cause gastrointestinal bleeding, and its mineral content, high protein content, and osmolality may be harmful for some infants (Barness, 1985).

Another potentially harmful infant feeding practice was the introduction of sweetened beverages. The majority of the respondents in this study gave their children Kool-Aid, soda pop, or sugar water prior to 10 months. The consumption of large quantities of high calorie/low nutrient density foods such as Kool-Aid and soda pop were found to correlate positively with fatness and decreased muscle mass in Littlefield's (1981) study of Mexican-American migrant children. The infants' consumption of sweetened beverages may possible predispose infants to obesity as well as baby bottle mouth syndrome.

Results indicate migrant parents continue to need nutrition education regarding the delay in introduction of milk, the potential dangers of fresh/unprocessed milk, and the potential harmful effects of sweetened beverages.

Baby Bottle Mouth Syndrome

Baby bottle mouth syndrome (also referred to as nursing bottle mouth syndrome) is the rotting of all the upper and sometimes the lower posterior teeth caused from constant contact with a nipple containing a sugared liquid (Ritchey and Taper, 1983; Pipes, 1985; Schneider, 1986). [Note: This may also occur in children who breastfeed frequently through the night while sleeping with their mothers (Pipes, 1985).] As children suck, liquids are spread over the upper and lower posterior teeth; the tongue however covers the

lower front teeth. These liquids are then washed away by saliva and swallowed when the child is awake. However, once the child falls asleep, the saliva response is diminished and the sugary liquids -- milk, formula, juices, and other sweetened beverages -- accumulate in the mouth. The liquid pools containing carbohydrates are in extended contact with bacterial plaque, resulting in decay (Pipes, 1985; Ritchey and Taper, 1983).

The baby bottle mouth syndrome and other harmful practices such as a lack of brushing result in a greater incidence of dental caries among young children. By age two, 5 to 10 percent of all children have dental caries (Ritchey and Taper, 1983). Harmful practices among this migrant population include giving a child a bottle in bed and extending the duration of bottle feeding. Almost three fourths of the respondents (36) reported giving their children a bottle while in bed. Milk, formula, and juice were the most common liquids given. (On a positive note, Kool-Aid and chocolate were mentioned only once as liquids consumed in bed.)

Although the majority of respondents reported that their children drank from a cup at an average age of nine months, the mean age at which respondents wanted to take their children off the bottle was 20 months, with the range extending up to three years.

The practices of prolonged bottle usage and/or giving children a bottle in bed at night by a majority of respondents indicate migrant families need nutrition education explaining the possible harmful effects of baby bottle mouth syndrome -- pain and discomfort to the child, lisp in speech, damage to the permanent teeth, and impaired

chewing -- and its preventive measures.

Although none of the infants in the sample population were reported to have baby bottle syndrome, the following summer 14 children enrolled in the Summer Migrant Head Start Program had baby bottle mouth syndrome. The children were aged two to four (Weld County Head Start Program, 1989). It is possible that some of the children were from families that had been enrolled in the migrant program the previous summer, although Hansen (1989) reported most of the children with baby bottle mouth syndrome were new to the program.

Water Sources

Water supplies have been cited as a contributory factor to the often-occurring diarrhea among migrant infants and young children, due to unacceptable bacteria contamination levels and/or difference from the previous source (O'Brien, 1983; Schneider, 1986). In this particular study it is interesting to note that water in general or a change in water was perceived to be a cause of diarrhea by only three respondents. However, three fourths of the formula-fed infants (27) were fed formula prepared with bottled water rather than tap water. The extensive use of bottled water may have been at the recommendation of local health clinic professionals who advocate this practice in Northern Colorado.

Introduction of Solid Foods

The introduction of solid foods is currently recommended when the infant's consumption of food is no longer a reflex process and the infant has the fine, gross, and oral motor skills to

appropriately consume foods; generally, this is approximately four to six months (Pipes, 1983). Waiting until four to six months will decrease the likelihood of choking and aspiration, as the swallowing mechanism has developed (Barness, 1985). Some researchers (Campbell et al., 1986) suggest delaying the introduction of solid foods past five months to yield less distress on the infant.

Limiting the quantity and quality of fed protein until the infant's intestinal tract matures may decrease the development of allergies to foods (Barness, 1985). First foods introduced should be of low allergenicity; generally rice, barley, oatmeal, or iron fortified cereals are recommended followed by single vegetables, fruits, and meats. New foods should be added no more than once a week [once every three days (Pipes, 1983)], in order to determine possible food allergies (Ritchey and Taper, 1983; Pipes, 1983; Barness, 1985).

Beneficial practices among the migrants include the fact that the mean age solid foods were introduced was within the recommended range. Popular first foods included chicken, bananas, carrots, potatoes, and cereal. At the time of the survey, over 75 percent of the children had received infant cereal at home.

Potentially harmful feeding practices were also reported in this study. Results indicate both early and late introduction of solid foods. Over one fourth of the infants (13) ate solid foods prior to four months; the earliest introduction of solid foods was 21 days.

Eight percent of the infants (4) had not been fed solid foods at home. The infants were 8, 10, 11, and 19 months. With the exception

of the 11 month old, the children were of Kickapoo decent. Due to the nature of the study, it is impossible to determine if the Kickapoo culture encourages late introduction of solids or if the delay is based on limited resources. Further investigation of Kickapoo food habits is necessary to aid in an appropriate approach to nutrition education.

Consumption of food, in addition to meeting the nutritional needs of a baby, is a learning experience. The baby gains motor control and coordination when feeding him/herself. Color, shape, and texture recognition are learned. Speech movements are stimulated by the use of mouth muscles (Murray and Zentner, 1979). Children who are denied food miss out on these learning experiences and developmental opportunities. Fortunately, the four children who were not fed solids at home did eat them at the Head Start Center. According to results, the 19 month old did not receive solids at home prior to 17 months when he began eating solids at the Head Start Center.

Although the design of the study was to investigate the introduction of first foods -- their types and age of introduction -- several other food observations were made. Three respondents reported feeding their children carrots at three months and seven respondents reported feeding their infants eggs at a mean of 5.3 months. The concern of introducing carrots at an early age is due to their nitrate content. The introduction of nitrate-containing vegetables (e.g., carrots, beets, and spinach) according to Pipe (1983) should be delayed until the infant is at least four months of

age, because the nitrate can be converted to nitrite in the stomach of the young infant and may result in methemoglobinemia.

Nutritionists (Ritchey and Taper, 1983) recommend that the introduction of egg whites be delayed until one year, as they may cause an allergic reaction; however, cooked egg yolks may be introduced prior to that time. The respondents did not identify egg yolks only, so it is possible that infants received whole eggs.

In reviewing the results of this study, it is important to remember that the consumption of egg or any other food may be higher. The foods listed are the first foods infants were fed at home.

Other researchers (Kokinos and Dewey, 1986) report it is common practice for Mexican-American migrants to give their infants cereal in a bottle via a wide-cut nipple. In this study, there was only one reported incidence of feeding an infant cereal via a bottle. The response was given to an open-ended question and, therefore, this feeding practice may be underestimated. Although, the practice of adding cereal in the bottle along with the formula increases the energy and nutrient composition of the formula, it may deprive the infant of experiences that are important in the development of feeding behavior.

Although the mean age of solid food introduction was greater than four months, survey results indicate the need for nutrition education regarding the introduction of solid foods -- both the types of foods and the age of introduction.

Diarrhea

Although a precise definition of diarrhea is difficult, one

useful definition is "a sudden change in the frequency and consistency of the stool, with more frequent and looser stools than usual for that child" (Waechter et al., 1985, p.873). In a small infant, one or two liquid stools of great volume coupled with a decreased fluid intake can cause dehydration (Waechter et al., 1985). The vast majority of the respondents (39) reported their infants experienced a watery or runny diarrhea. Almost one third (15) did so at least once a month.

Treatments varied and included both beneficial and potentially harmful practices. Beneficial practices included eliminating milk from the child's diet, seeking medical attention, and attempting to hydrate the child with either breast milk or clear liquids such as herbal teas, rice water, and Pedialyte.

There were several harmful or potentially harmful practices utilized by the respondents in treating their children's diarrhea. First, respondents reported administering non-prescribed medication or over-the-counter medication without a doctor's supervision. An example of this is Kaopectate. Kaopectate is a drug used for treatment of diarrhea and is designed to make the stools appear firmer or decrease cramps and bowel motility, but Kaopectate and other similar-acting drugs do not diminish fluid loss or shorten the illness and may mask ongoing losses. In an infant, this can lead to "serious underestimation of fluid losses and severity of diarrhea" (Waechter et al., 1985, p.875).

Another potentially harmful practice in treating infant diarrhea reported in this study is the possibility of hydrating infants with

inappropriate liquids or improper strengths. According to Waechter et al. (1985) liquids to be avoided include those with very low concentrations of electrolytes (e.g. Kool-Aid and sugar water) unless used in combination with other liquids; those relatively high in sodium; and those containing lactose, if transient lactase deficiency is suspected. Several respondents (4) reported giving their infants Kool-Aid or sugar water when they had diarrhea. Other precautionary measures need to be taken with additional liquids. Apple juice used in excess may cause diarrhea in some children. Flavored gelatin products when used for "Jello water" should be prepared at half strength.

Health professionals recommend treatment for acute diarrhea in infants first with clear liquids followed by a bland or BRAT diet. The BRAT diet is composed of bananas, rice, applesauce, and toast. Several respondents included some of these solids in treating their infants' diarrhea. However, other responses included foods that would not decrease gastric motility and allow the bowel to rest. And in ten percent of the cases (4) respondents did not include liquids in their treatment of diarrhea.

The perceived causes of diarrhea were mainly food or teething related while over one fourth (14) did not know the cause. An overlap did occur in the comparison of perceived causes of diarrhea and Mexican-American folk illnesses. Fallen fontanel was the only identified folk illness that was believed to be the cause of the diarrhea. However, several perceived causes of diarrhea -- fresh foods, the child eating too much, foods not agreeing with child, and

milk -- are also believed to be causes of empacho (Barrett, 1979; Abril, 1977; White, 1977; Martinez and Martin, 1966). Folk treatments used in treating diarrhea in this study included hierba buena (mint) and manzanilla (camomile) teas.

The high incidence and long duration of diarrhea among migrant infants indicate the need for parents to receive nutrition education in treatment of diarrhea.

Constipation

Constipation is the regular passage of firmer hard stools or of small, hard masses at long intervals (Silverman and Roy, 1987).

The respondents' beneficial practices in treating their children's constipation included increasing liquids in the diet, particularly juices, as well as the use of herbal teas, and limiting milk in the diet. However, several respondents (3) gave milk for constipation (in one case warmed). This may indicate either a lack of understanding about milk's constipating effect or possibly the children were lactose intolerant and milk caused greater gastric motility.

Potential harmful practices by respondents in treating their infants' constipation included the possible overuse of nonprescribed suppositories, oils -- "eating oil", castor oil, or olive oil -- and Kaopectate. Of the three respondents who reported giving their children suppositories, only one identified the suppositories as prescribed. Precautions are warranted with suppositories, as their unnecessary use will harm the infant's normal bowel developmental patterns (Silverman and Roy, 1987). Oils should also be used

cautiously in treating diarrhea, as an abundance of oil will decrease the absorption of water-soluble vitamins. Finally, Kaopectate, which was used in treating one infant's constipation, is, first of all, not recommended for infants and toddlers under the age of two unless under the supervision of a doctor. And secondly, Kaopectate is an adsorbent designed for use in treating diarrhea, not constipation.

Although migrant infants were not reported to experience constipation with as great a frequency as diarrhea, nutrition education describing normal development patterns, the need to avoid substances affecting normal patterns, and the need to add high-residue foods such as fruits and vegetables to the constipated infants diet would benefit the migrant parents.

Nutrition Information or Advice

The majority of respondents (29) in this study reported receiving information or advice regarding the feeding of their infant from government nutrition program personnel, health professionals, and/or relatives. They reported an extremely high perceived rate of compliance [96.6%] (28) to the given information. While the majority of respondents reported receiving information from food program personnel -- WIC, Food Stamps, or CSFP -- the figures represent less than half of the programs' participants. Both WIC and CSFP funding mandate the distribution of nutrition education materials. Within the past twelve months 29 respondents reported being enrolled in the WIC program, while only 13 reported receiving feeding information from WIC personnel. And although 22 respondents were enrolled in the CSFP, only one respondent reported receiving feeding advice or

information from CSFP personnel.

Health professionals made up the second largest group from which respondents (12) reported receiving feeding information. However, only ten percent (5) of the population reported receiving advice from their relatives. This is surprising due to the reported importance of the Mexican-American extended family (Kasl and Berkman, 1983) and in light of results from other infant feeding studies, among Mexicans and Mexican-American migrants, that reported higher incidences of feeding advice received from relatives (Lillig, 1977; Kokinos and Dewey, 1986).

Over one third of the respondents (18) reported having previously discussed what their infants should eat to be healthy. ("Healthy" was not defined). The majority (28) desired to discuss a health-promoting diet in the future. These results, coupled with the high perceived compliance rate of previously received information, indicate that food program personnel and health professionals have a great potential to have an impact on the feeding practices of migrant farmlaborers in Northern Colorado.

Types of nutrition information sources, e.g. reading materials, were not well documented. Only two respondents reported receiving written information regarding the feeding of their infants. No other media information was reported. Although not specifically reported, CSFP and WIC program participants receive nutrition education packets. During the survey development, one respondent reported viewing infant feeding films at a WIC office located in a migrant homebase city in Texas.

The low response rate may have been because the question was open-ended. Perhaps a list of items including films, television, pamphlets, etc., read to the respondents would have elicited a greater response rate. Further investigation is needed in this area to determine culturally appropriate and effective media tools for nutrition education. Based on personal observation and not within context of the study, the author of this study suggests television and radio. Many migrants view the Hispanic television channels in the evenings before retiring from their hard day's labor. The Hispanic radio station in Greeley has offered to air public service announcements dealing with infant nutrition education.

CHAPTER VI

SUMMARY AND CONCLUSION

In summary, the purpose of this thesis was to describe the infant feeding and nutrition practices and associated environment among migrant farmlaborer families in Northern Colorado during the summer of 1987. The data was used to identify areas of concern to be addressed by the nutritional services at the Weld County Head Start Center and other agencies serving migrants.

In order to determine infant feeding and nutrition practices, a survey questionnaire (Appendix A) was developed to collect information on 1) breastfeeding practices, 2) introduction of foods and liquids, 3) nutrition and health practices and inadequacies, 4) home living environment, and 5) health history. Data on the sources of food and nutrition information were collected regarding the 1) utilization of community food and nutrition programs and 2) input of family and relatives. Preexisting questionnaires provided additional information on the infants' health history and further demographic data.

Data was collected from the parents of 49 migrant infants, between the ages of 6 and 23 months, who were enrolled in the Migrant Head Start Program during the summer of 1987. The sample population families lived within the Head Start's service area which included Weld, Boulder, and Adams counties.

Most of the infants (39) came from two-parent families. The mean number of siblings was 2.1. The mean age of their fathers was 29.7 years and the mean age of their mothers was 25.5. Infants'

fathers had a mean education level of 5.5 years and infants' mothers had a mean education level of 6.6 years. The families were all below poverty level and had a mean annual income of $4,520. Although one criteria for the infants' participation in the Migrant Head Start Program was employment, at the time of Survey Part A, seven of the respondents were unemployed.

The respondents were predominantly Hispanic, followed by Kickapoo Indian and Guatemalan/Mayan. Most of the infants (46) were born in the United States. Approximately two thirds of the infants' parents were born in Mexico, almost one third were born in the United States, and the remainder were born in Guatemala. Spanish was the primary language spoken in the home, and most parents preferred to receive printed material in Spanish from the Head Start Center.

The home living environments varied among the sample population. While in Colorado, most of the families lived in rented trailers followed in frequency by houses, labor camps, apartments, Quonset huts, emergency housing, and a motel room. However, at their permanent residence the majority of families (37) lived in houses, followed by trailers, apartments, and labor camps. The majority of the homes were rented, although one fourth (12) reported owning their homes.

Housing inadequacies and potential health and safety problems existed in Northern Colorado and at the permanent residences. Housing inadequacies reported included lack of electricity, running water, hot water, a working stove, and a working refrigerator. Potential health and safety problems included the presence of rats

and insects and the lack of functioning kitchen cabinet doors.

Nutrition inadequacies, in the form of a low food supply, existed. One fourth of the respondents' families (12) missed meals during the previous 12 months because they lacked funds for a mean of 11.6 days; two families did so on thirty days. In addition, families during the previous 12 months had to borrow money or ask for food from friends or relatives. Food was the primary item most respondents would purchase if they had an extra $10.00.

The majority of families in the sample population (37) had enrolled in food programs during the previous twelve months. Families accessed Food Stamps, WIC, Commodity Supplemental Foods Program, and food banks or free foods. Program enrollment was greater when the migrants were outside Northern Colorado.

Respondents received nutrition information or advice regarding the feeding of their infants from predominantly nonfamily sources. WIC program personnel and health professionals were the most commonly mentioned information sources, followed in frequency by Head Start, Food Stamps, and CSFP personnel. Family members who gave information or advice included respondents' mothers, a mother-in-law, sister(s), aunt, and cousin. The vast majority (28) reported following the advice or information received.

One third of the infants (16) were breastfed at birth, and at six months 14 percent (7) were still breastfeeding. Mothers elected to breastfeed primarily because they felt it was better or healthier. Those who quit breastfeeding did so mainly because they no longer produced milk, because of work, or because they were taking

medication. Most mothers who elected not to breastfeed stated that work influenced their decision.

Some mothers (12) who breastfed identified specific foods and beverages that they ate to increase the quantity and/or quality of their milk. Dairy and grain products were the most common. Herbs and medicines were not used by this population to increase the quantity and/or quality of their milk. Beans and alcohol were the most common food avoidances of nursing mothers.

The majority of infants drank liquids at some point from a bottle. Whole milk and formula were consumed most often. Bottled water was used more often than tap water in formula preparation. Most infants took a bottle -- with milk, formula, or juice -- to bed at night. All of the infants drank water, generally the day of birth. Juice was introduced at a mean of 5.5 months and milk at 7.8 months. Sweetened beverages, e.g. Kool-Aid and soda pop, were introduced at a mean age of less than ten months. Several infants received herbal teas between two and four months. Twenty months was the mean age mothers desired to wean (or had weaned) their infants from a bottle.

Infants were fed their first solid foods at home at a mean age of 6.6 months. Over one fourth of the infants ate solid foods at home prior to four months. The mean age of those who at the time of the survey had not been introduced to solid foods was 11.3 months. Most migrant infants ate table foods and homemade mashed or blended foods. Three fourths ate infant cereal and over one half ate infant commercially prepared strained or junior foods. Popular first foods

included chicken, bananas, carrots, potatoes, and cereal. One infant exhibited pica behaviors. He consumed ice and paint chips with unknown frequency.

A majority of the infants (39) were reported to have had a runny or watery diarrhea a median of less than once a month. The bouts with diarrhea lasted a mean of 3.5 days. Parents' treatments varied and included both beneficial and harmful practices such as the following: Eliminating milk from their infants' diets, administering prescribed and nonprescribed medication, and hydrating with rice water, herbal teas, sweetened beverages, Pedialyte, juices, etc. Solids given to infants with diarrhea also varied in beneficiality. Some solids were given that would allow the gastric motility to decrease and the bowels to rest; other solids given caused the opposite effect.

The perceived causes of diarrhea were predominantly food and teething related. Fallen fontanel was the only folk illness directly named as a cause of diarrhea.

Fewer infants experienced constipation. Most did so less than once a month. The mean duration of the constipation was 3.3 days. Most constipated infants could not go or had difficulties going to the bathroom and/or cried or got fussy. One infant's rectum bled. Parental treatment of infant constipation varied and, as with diarrhea, contained both beneficial and potentially harmful practices. Those practices included giving the constipated infants juice, oils, herbal teas, suppositories, Kaopectate, soft foods, and mixed fruit. Milk was deleted by some parents and included by others

as specifically given to their constipated children.

Parents expressed dietary concerns primarily about their infants' health. Most desired to discuss what their children should eat to be healthy.

The infants' health history revealed that several infants experienced problems at birth or shortly thereafter including jaundice, lactose intolerance, undeveloped lungs, suffocation after breaking off from the umbilical cord, and a stomach rash. Serious illnesses and accidents reported included one child swallowing nail polish remover, an upper respiratory infection, and two cases of pneumonia (one with asthma). Additional health problems included frequent sore throats, frequent coughs, and stomach pain, vomiting, or diarrhea.

The initiation of developmental activities such as sitting up without help, crawling, walking, and talking were performed within an appropriate age range.

The Head Start Performance Standards' Nutritional Component 1304.3-10 mandates their nutritional services "shall set forth and organize a nutrition education program for staff, parents, and children." The program "shall assure families receive education in the selection and preparation of foods to meet family needs, guidance in home and management and help in consumer education so that they can fulfill their major role and responsibility for the nutritional health of the family." (U.S. Dept. Health and Human Services, 1984, p.46).

Head Start personnel attribute the lack of malnutrition among

this population to the effectiveness of nutrition education migrant families received. According to 1987 Head Start health records, migrant infants aged 6-23 months did not suffer from baby bottle mouth syndrome, anemia, underweight or overweight. However, the following summer, fourteen children aged 3-4 had baby bottle mouth syndrome and four had anemia. Six children, aged two and one-half to four, were underweight and twelve were overweight (Weld County Head Start Program, 1989).

It is possible that some of the children with poor nutrition-related status were enrolled in the Migrant Head Start Program the previous summer. A longitudinal study of this population is necessary to determine if the absence of malnutrition among migrant infants aged 6-23 months is due to the parents' nutritional knowledge. One possiblity for the lack of malnutrition among infants includes their participation in the Summer Migrant Head Start program where they receive at least two thirds of their daily nutritional needs 5 days per week. Another possibility is the infants' families' participation in government or private food programs.

In reviewing the results of this study, one can conclude that there are several areas nutrition educators serving migrants need to address or continue to address. The following personal recommendations represent a broad spectrum of nutrition education needs nutritional services at the Migrant Head Start and other agencies should be aware of and seek to address.

Recommendations

1) Migrant home living environments contain inadequacies as

well as potential health and safety hazards. Nutritionists should be aware of each client's home environment. When possible, the alleviation of the inadequacies and hazards should be encouraged. When the alleviation is impossible, nutrition educators should discuss how to live safely within the existing conditions.

2) Migrant nutrition education material should continue to be bilingual and be prepared at a fifth to sixth grade level.

3) The migrant farmlaborer's family has a limited income and low food supply. This food supply could increase if more migrants chose to participate in food programs. Nutritionists should continue to encourage food program participation and to research barriers prohibiting enrollment.

4) The percentage of Mexican-American migrants breastfeeding infants in Northern Colorado in this study is similar to Littlefield's 1981 study of the same population -- 17 percent compared to 20 percent. Nutritionists should participate in and keep abreast of environmental studies of migrant mothers' breastmilk to determine if migrant mothers' breast milk in this population is harmful due to pesticide exposure. In so doing, nutrition educators will be able to present a more realistic picture of the benefits and harms of breastfeeding.

5) Nutritionists, especially those working with WIC and CSFP, should review with their clients the proper mixture of formula and water in bottle preparation.

6) Migrant parents of infants continue to need nutrition education regarding the need to delay introduction of whole milk, the potential

dangers of fresh/unprocessed milk, and the potential harmful effects of sweetened beverages.

7) The practices of prolonged bottle usage and/or giving children a bottle in bed at night indicate that migrant families need nutrition education explaining the possible harmful effects of baby bottle mouth syndrome.

8) Nutritionists should review with migrant families recommended timing and rationale for the introduction of solid foods.

9) Existing parental practices in treating diarrhea indicate the need for parents to receive nutrition education regarding the dietary management of infant diarrhea.

10) Likewise, nutritionists should review dietary management of infant constipation with migrant parents, particularly the need to add high-residue foods such as fruits and vegetables to the infant's diet.

11) Nutritionists should participate in further research to determine culturally appropriate and effective media tools for nutrition education with this culturally diverse group.

12) Finally, nutritionists should take advantage of the opportunities to address migrant parents about their primary dietary concern for their infants -- how they can be healthy or healthier.

In conclusion, a review of data results indicates that although this sample population's children lacks malnutrition, numerous nutrition education needs exist among migrant farmlaborers concerning their infants. This particular study has only skimmed the surface over a broad range of infant feeding practices and nutrition

education sources. Nutrition educators with the Greeley Migrant Head Start Program and other agencies serving migrants should find the results of this study valuable as they address current nutrition education needs of migrant parents and aid parents in "fulfilling their major role and responsibility for the nutritional health of the family."

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APPENDIX A

QUESTIONNAIRE PART A & B (ENGLISH)

QUESTIONNAIRE PART A (SPANISH)

COVER SHEET

INFANT FEEDING PRACTICES OF MIGRANT FARM LABORERS

QUESTIONNAIRE CODE: [INTERVIEWER] [INTERVIEW] [AREA] (1-5)

DATE OF INTERVIEW [MO] [DAY] [YEAR] (6-11)

MOTHER INTERVIEWED ___ (12)
[MOTHER = 1]
[OTHER =2]

FATHER PRESENT FOR INTERVIEW ___ (13)
[YES, BUT DID NOT ASSIST WITH RESPONSES = 1]
[NO = 2]
[YES, ASSISTED WITH ANSWERING QUESTIONS =3]

- -

CHILD'S NAME _____

FILE # _____

ADDRESS AND DIRECTIONS

_____

_____

APPOINTMENT MADE/NOT AT HOME _____

BEST TIME FOR INTERVIEW _____

REFUSED _____

MOTHER'S NAME _____

RECEIVED GIFT AND THANK YOU CARD _____

FOLLOW UP NEEDED? _____

COMMENTS:

First, I would like to ask you some background information questions concerning your housing here and at your permanent residence and nutritional services that you may have been enrolled in.

A1. At your permanent residence and in Colorado, do you presently have:

	In Colorado	Permanent Residence
a. Electricity	(14)1 __Y 2 __N	(15)1 __Y 2 __N
b. Working refrigerator	(16)1 __Y 2 __N	(17)1 __Y 2 __N
c. Working stove	1 __Y 2 __N	1 __Y 2 __N
d. Running water in house	1 __Y 2 __N	1 __Y 2 __N
e. Hot water in house	(22)1 __Y 2 __N	(23)1 __Y 2 __N
f. Working toilet in house	1 __Y 2 __N	1 __Y 2 __N
g. Working toilet in community bathroom	(26)1 __Y 2 __N	(27)1 __Y 2 __N
h. Outdoor toilet	1 __Y 2 __N	1 __Y 2 __N
i. Working washing machine	(30)1 __Y 2 __N	(31)1 __Y 2 __N

A2. Are rats a problem in your present housing? (32)1 _ Y 2 __N

A3. Are insects such as ants or roaches a problem in your present housing? (33)1 __Y 2 __N

A4. Are there cabinet doors that close in your present kitchen? (34) 1 __Y 2 __N

A5. If you had another $10.00, what would do with it? (DO NOT READ OPTIONS)

(35)1 __ Food
2 __ Clothing
3 __ Housing
4 __ Medical Care
5 __ Dental Care
6 __ Entertainment
7 __ Other
_____

A6. Over the past 12 months, since (REF. DATE), have you or your family run out of money to buy food to make a meal? (36) 1 __Y 2 __N(Go to A8).

A7. [IF YES] What is the number of days in the past 12 months, since (REF. DATE), that your family did not eat a meal because of lack of money? (37-38) ___ ___ days

A8. How frequently does (REF. CHILD) eat less than you think he or she should because there is not enough food for the whole family?

(READ OPTIONS)

(39) 1 ___ daily
2 ___ once or twice a week
3 ___ once or twice a month
4 ___ 3-4 times during the year
5 ___ rarely or never

A9. (IF MOTHER BREASTFEEDS ASK) How frequently do you eat less than you think you should because there is not enough food for the whole family?

(READ OPTIONS)

(40) 1 ___daily
2 ___ once or twice a week
3 ___ once or twice a month
4 ___ 3-4 times during the year
5 ___ rarely or never

A10. Over the past 12 months, have you had to borrow money for food or did you ask for food from friends or relatives? (41) 1 __Y 2 __N

A11. Do you think your infant's health has been hurt by having too little food or the wrong kind of food? (42) 1 __Y 2 __N

A12. (IF MOTHER BREASTFEEDS, ASK) Do you think your health has been hurt by having too little food or the wrong kind of food? (43) 1 __Y 2 __N

A13. Which of the following programs have you or your family been enrolled in over the past 12 months:

a. Food Stamps (44) 1 __Y 2 __N
b. WIC Program 1 __Y 2 __N
c. Commodity Supplemental Foods 1 __Y 2 __N
d. Food bank/Free food (47) 1 __Y 2 __N
e. Other_____ 1 __Y 2 __N

A14. Have you tried to enroll in food programs in Colorado? (49) 1 __Y 2 __N(Go to A17).

A15. If Yes, were you successful? (50) 1 __Y 2 __N(Go to A17).

A16. If yes, which programs were you enrolled in in Colorado?

a. Food Stamps (51) 1 __Y 2 __N
b. WIC Program 1 __Y 2 __N
c. Commodity Supplemental Foods 1 __Y 2 __N
d. Food bank/Free food (54) 1 __Y 2 __N
e. Other_____ 1 __Y 2 __N

A17. Who has given you information or advice regarding the feeding of (REF. CHILD)?

	[LIST SOURCES]	[FOLLOWED ADVICE]	[LOCATION]
(56-57)___ ___	_____	(58) 1 __Y 2 __N	(59) ___
(60-61)___ ___	_____	(62) 1 __Y 2 __N	(63) ___
(64-65)___ ___	_____	(66) 1 __Y 2 __N	(67) ___
(68-69)___ ___	_____	(70) 1 __Y 2 __N	(71) ___
(72-73)___ ___	_____	(74) 1 __Y 2 __N	(75) ___

A18. What other sources of information or advice have you received regarding the feeding of (REF. CHILD)? (For example - reading materials)

	[LIST SOURCES]	[FOLLOWED ADVICE]	[LOCATION]
(76-77)___ ___	_____	(78) 1 __Y 2 __N	(79) ___
(80-81)___ ___	_____	(82) 1 __Y 2 __N	(83) ___
(84-85)___ ___	_____	(86) 1 __Y 2 __N	(87) ___
(88-89)___ ___	_____	(90) 1 __Y 2 __N	(91) ___
(92-93)___ ___	_____	(94) 1 __Y 2 __n	(95) ___

A19. (FOR ALL SOURCES LISTED IN 17 AND 18 ASK) Of the people and sources of information you mentioned whose advice do you or have you followed concerning the feeding of (REF. CHILD)?

A20. (FOR ALL SOURCES LISTED IN 17 AND 18 ALSO ASK) Where did you receive the information regarding the feeding of (REF. CHILD)? i.e. Mexico, Texas, Colorado. [LOCATION CODE = MEXICO = 1
U.S. = 2
OTHER COUNTRY = 3

A21. Do you or have you breastfed (REF. CHILD)? (96) 1 __Y 2 __N(Go to A25).

A22. [IF YES ASK] Why did you choose to breastfeed (REF. CHILD)? (97-98) ___ ___

_____ (99-100) ___ ___

_____ (101-102) ___ ___

_____

A23. When did you completely stop breastfeeding? _____ (103-104) ___ ___
[RECORD INFANT'S AGE] (105) ___1 days
___2 weeks
___3 months

A24. What is the most important reason that you stopped breastfeeding? (106-107) ___ ___

_____

_____

A25. [IF NO ASK] Why did you choose not to breastfeed (REF. CHILD)? (108-109) ___ ___

_____

_____

Some women eat or drink a variety of things because they believe the quality of their milk will improve or the quantity of their milk will increase.

A26. Which foods or liquids do you use or have you used to increase the quantity (help you produce more milk) or improve the quality of your milk?

[FOR EACH FOOD OR LIQUID MENTIONED ASK] Was the result achieved? And what was the effect?

[LIST FOODS OR LIQUIDS]	[EFFECT OF FOOD OR LIQUID]	[RESULT ACHIEVED]
(110-111)__ __ _____	(112)__1 Increase quantity __2 Increase quality __3 Both	(113)1__Y __N
(114-115)__ __ _____	(116)__1 Increase quantity __2 Increase quality __3 Both	(117)1__Y __N
(118-119)__ __ _____	(120)__1 Increase quantity __2 Increase quality __3 Both	(121)1__Y __N
(122-123)__ __ _____	(124)__1 Increase quantity __2 Increase quality __3 Both	(125)1__Y __N

Some mothers who breastfeed avoid some foods and liquids because they believe their milk's quality will decrease or the quantity of their milk will decrease and the milk will be damaged or affected their milk.

A27. Which foods or liquids did you or do you avoid because you believe(ed) they affect(ed) or damage(ed) your milk? And why?

[LIST FOODS OR LIQUIDS]		[PURPOSE OF AVOIDANCE]	
(126-127)_____ __ __	(128)	__1 Decrease quantity __2 Decrease quality __3 Both	(129-130) __ __
(131-132)_____ __ __	(133)	__1 Decrease quantity __2 Decrease quality __3 Both	(134-135) __ __
(136-137)_____ __ __	(138)	__1 Decrease quantity __2 Decrease quality __3 Both	(139-140) __ __
(141-142)_____ __ __	(143)	__1 Decrease quantity __2 Decrease quality __3 Both	(144-145) __ __

A28. Which herbs or medicines do you use or have you used to bring your milk in better? What was its effect? And how was it prepared?

[LIST HERBS AND MEDICINES]		[EFFECT]	[PREPARATION AND USAGE]
(146-147)_____ __ __	(148)	__1 Increase quantity __2 Increase quality __3 Both __4 Did not work	(149)___ _____ _____
(150-151)_____ __ __	(152)	__1 Increase quantity __2 Increase quality __3 Both __4 Did not work	(153)___ _____ _____
(154-155)_____ __ __	(156)	__1 Increase quantity __2 Increase quality __3 Both __4 Did not work	(157)___ _____ _____
(158-159)_____ __ __	(160)	__1 Increase quantity __2 Increase quality __3 Both __4 Did not work	(161)___ _____ _____

A29. Does or did (REF.CHILD) take a bottle? (162) 1__Y 2__N(GO TO A34).

A30.a. What is or was (REF. CHILD) given in the bottle?

a. Breast milk	(163)	1__Y 2__N
b. Formula		1__Y 2__N
c. Formula with Iron	(165)	1__Y 2__N
d. Condensed Milk		1__Y 2__N
e. Evaporated Milk		1__Y 2__N
f. Whole Milk		1__Y 2__N
g. Other_____	(169)	1__Y 2__N

A30.b. [IF REF. CHILD TAKES A BOTTLE ASK] How is the bottle prepared? What quantity of the formula (milk) is placed in the bottle? How much water or other items is (are) added? [IF MOTHER USES INFANT FORMULA, ASK HER TO SHOW YOU THE CANS OF INFANT FORMULA. AND ASK HOW SHE PREPARES THE FORMULA.] (170)

1__proper mixture
2__diluted mixture
3__over mixed
4__can not determine

DESCRIBE._____

_____

_____

A30.c. If water is used in preparation what is its source? (READ OPTIONS) (171)

1 __ well water
2 __ purchased bottle water
3 __ tap water from faucet
4 __ irrigation water from ditch
5 __ rain water
6 __ other_____

A31. (IF REF. CHILD IS CURRENTLY TAKING THE BOTTLE ASK) When do you want to take (REF. CHILD) off the bottle? At what age? (172-173) ___ ___ MONTHS

A32. Does (REF. CHILD) take a bottle to bed? (174)1__Y 2__N(GO TO A34)

A33. (IF YES ASK) What is usually in the bottle?_____ (175-176) ___ ___

A34. Does or has (REF. CHILD) drink any of the following?

				[INFANT'S AGE WHEN INTRODUCED]
a.	sugar water	(177)1__Y 2__N	(178-179)__ __	(180) 1 day 2 mo 3 DK
b.	Kool-aid	(181)1__Y 2__N	(182-183)__ __	(184) 1 day 2 mo 3 DK
c.	soda pop	(185)1__Y 2__N	(186-187)__ __	(188) 1 day 2 mo 3 DK
d.	juice	(189)1__Y 2__N	(190-191)__ __	(192) 1 day 2 mo 3 DK
e.	water	(193)1__Y 2__N	(194-195)__ __	(196) 1 day 2 mo 3 DK
f.	milk	(197)1 _Y 2__N	(198-199)__ __	(200) 1 day 2 mo 3 DK
g.	Jello water	(201)1__Y 2__N	(202-203)__ __	(204) 1 day 2 mo 3 DK
h.	Other liquid	(205)1 _Y 2__N	(206-207)__ __	(208) 1 day 2 mo 3 DK
i.	Other liquid	(209)1 _Y 2__N	(210-211)__ __	(212) 1 day 2 mo 3 DK

A35. Does (REF. CHILD) drink from a cup? (213)1 _Y 2__N

A36. Does (REF. CHILD) eat solid foods? (214)1_ Y 2__N(GO TO A40)

A37. [IF YES ASK] a. Are solids given by a spoon? (215)1__Y 2__N

b. Does (REF. CHILD) eat alone? (216)1__Y 2__N

c. Does (REF. CHILD) use utensils? 1__Y 2__N

d. Does (REF. CHILD) prefer to feed him/herself with his/her fingers? 1 _Y 2__N

A38. [IF REF. CHILD EATS SOLID FOODS ASK] Which of the following types of solid foods does (REF. CHILD) eat or has he or she eaten:

a. Infant strained/Junior foods (219)1__Y 2__N

b. Infant cereal in a jar or box (220)1__Y 2__N

c. Homemade mashed/blended foods 1__Y 2__N

d. Table foods (222)1__Y 2__N

A39. [IF REF. CHILD EATS SOLID FOODS ASK]
What were the first kinds of solid foods you gave (REF. CHILD) and when were they first introduced? ie. meat, vegetables, cereal, etc.

	[LIST FOOD]		[INFANT'S AGE WHEN INTRODUCED]	
(223-224)	__ __ _____	(225-226)	___ ___	(227) 1 day 2 mo 3 DK
(228-229)	__ __ _____	(230-231)	___ ___	(232) 1 day 2 mo 3 DK
(233-234)	__ __ _____	(235-236)	___ ___	(237) 1 day 2 mo 3 DK
(238-239)	__ __ _____	(240-241)	___ ___	(242) 1 day 2 mo 3 DK
(243-244)	__ __ _____	(245-246)	___ ___	(247) 1 day 2 mo 3 DK
(248-249)	__ __ _____	(250-251)	___ ___	(252) 1 day 2 mo 3 DK

A40. Does (REF. CHILD) eat clay, starch, paint chips, paper, dirt, ice, or other non-food items? And how often are they consumed? (253) 1__Y 2__N

	[LIST ITEMS CONSUMED]		[HOW OFTEN]	
(254-255)	__ __ _____	(256-257)	__ __	(258) 1 day 2 wk 3 mo 4DK
(259-260)	__ __ _____	(261-262)	__ __	(263) 1 day 2 wk 3 mo 4DK
(264-265)	__ __ _____	(266-267)	__ __	(268) 1 day 2 wk 3 mo 4DK
(269-270)	__ __ _____	(271-272)	__ __	(273) 1 day 2 wk 3 mo 4DK

A41. Does (REF. CHILD) ever have diarrhea? (274) 1__Y 2__N(GO TO A49)

A42. Describe (REF. CHILD'S) diarrhea.
_____ (275-276) ___ ___
_____ (277-278) ___ ___
_____ (279-280) ___ ___

A43. How often does (REF. CHILD) have diarrhea? (281-282) ___ ___ times per mo
[98=Less than 1x/mo]
[99=DK]

A44. If (REF. CHILD) has diarrhea how long does it usually last? (283-284)___ ___ (285) 1 hours
2 days

A45. If (REF. CHILD) starts to have diarrhea, what do you do for him or her? (286-287) ___ ___
(288-289) ___ ___
(290-291) ___ ___
_____

A46. What foods or liquids do you give (REF. CHILD) when he or she has diarrhea? (292-293) ___ ___

_____ (296-297) ___ ___

_____ ___ ___

_____ ___ ___

_____ (302-303) ___ ___

_____ (304-305) ___ ___

A47. (IF MOTHER BREASTFEEDS ASK) Do you or did you stop breastfeeding (REF. CHILD) when he or she has or had diarrhea? (306) 1 __Y 2 __N

A48. What do you think gives diarrhea to a child? (307-308) ___ ___

_____ (311-312) ___ ___

_____

A49. Does (Ref. Child) ever have constipation? (313)1_ Y 2_ N(Go to A56).

A50. Describe the constipation.

_____ (314-315) ___ ___

_____ (316-317) ___ ___

_____ (318-319) ___ ___

A51. How often does the constipation occur? (320-321) ___ ___ times/mo.
[98=Less than 1x/mo]
[99=DK]

A52. What is the average duration of the constipation? (322-323) ___ ___ days

A53. What foods or drinks do you give (Ref. Child) when (he or she) is constipated? (324-325) ___ ___

_____ ___ ___

_____ ___ ___

_____ (330-331) ___ ___

_____ ___ ___

_____ (334-335) ___ ___

A54. What else do you give (Ref. Child) when (he or she) is constipated? (336-337) ___ ___

_____ (338-339) ___ ___

_____ ___ ___

_____ (342-343) ___ ___

A55. Do you give (Ref. Child) any of the following when (he or she) is constipated? [IF YES ASK] What kinds?

			[LIST]
a. Laxative	(344)1__Y 2_ N	(345-346)___ ___	_____
b. Herbs	(347)1 _Y 2__N	(348-349)___ ___	_____
c. Enemas	(350)1_ Y 2_ N	(351-352)___ ___	_____
d. Other	(353)1 _Y 2__N	(354-355)___ ___	_____

_____

A56. Do you have any concerns about what (REF. CHILD) eats? (356) 1__Y 2__N (Go to A58).

A57. [IF YES ASK] What?_____ (357-358) ___ ___
_____ (359-360) ___ ___
_____ (361-362) ___ ___
_____ (363-364) ___ ___

A58. [IF REF. CHILD HAD VITAMIN AND MINERAL SUPPLEMENTS PRESCRIBED ASK] Who perscribed (REF CHILD'S) vitamin and mineral supplement? (365-366) ___ ___
[98=NA]
[99=DK]
_____

A59. [IF REF. CHILD IS ON SPECIAL DIET ASK] Why is (REF. CHILD) on a special diet? (367-368) ___ ___
_____
_____

A60. Has anyone ever discussed with you what your child should eat to be healthy? (369) 1__Y 2__N

A61. Would you like for someone to discuss with you what your child should eat to be healthy? (370) 1__Y 2__N

A62. What is your present employment status? [READ OPTIONS] (371)
1 __ Works full-time
2 __ Works part-time
3 __ Unemployed
4 __ Retired
5 __ Homemaker
6 __ Other

A63. What is your marital status? [READ OPTIONS] (372)
1 __ married
2 __ widowed
3 __ divorced
4 __ separated
5 __ never married/single

A64. (IF MOTHER, ASK) Where were you born? (IF PRIMARY CARETAKER IS OTHER THAN MOTHER, ASK) Where was (REF. CHILD'S) mother born? [READ OPTIONS] (373)
1 __ U.S.
2 __ Mexico
3 __ Other Country
_____
4 __ DK

A65. Where was (REF. CHILD'S) father born? [READ OPTIONS] (374)
1 __ U.S.
2 __ Mexico
3 __ Other Country
_____
4 __ DK

__ __ Interview Number

Colorado Migrant Farmworker Infant Feeding Survey

Background Information

B1. Child's Birthdate __ __ __ __
MO YEAR

Age at Interview -- Head Start Interview (375-376) __ __
MO

__ __ __ __
MO YEAR

Age at Interview -- Infant Feeding Survey (377-378) __ __
MO

B2. Mother's Birthdate __ __ __ __
MO YEAR

Age at Interview -- Infant Feeding Survey (379-380) __ __
YEAR

B3. Father's Birthdate __ __ __ __
MO YEAR

Age at Interview -- Infant Feeding Survey (381-382) __ __
YEAR

B4. Number of siblings (383-384) __ __

B5. Ethnic Background of Infant (385)
1 __ Hispanic
2 __ Black (Non Hispanic)
3 __ White (Non Hispanic)
4 __ American Indian
5 __ Other _____

B6. Mother's Education Status (386-387) __ __ Last grade completed in school

B7. Father's Education Status (388-389) __ __ Last grade completed in school

B8. Language spoken in Home (390)
1 __ English
2 __ Spanish
3 __ Other _____

B9. Parents prefer to receive printed material from school in: (391)
1 __ English
2 __ Spanish

B10. Where was (REF. CHILD) born? (392)
1 __ U.S.
2 __ Mexico
3 __ Other Country
_____

B11. Type of housing presently in: (393)
1 __ house
2 __ trailer
3 __ labor camp
4 __ apartment
5 __ other_____

B12. Type of housing presently in is: (394) 1 __ rented
2 __ owned
3 __ free

B13. Permanent Residence Address (395) 1 _ Colorado
2 __ Texas
3 __ Other state in U.S.
_____
4 __ Mexico (Identify state)_____ ___
5 __ Other country
_____ ___

B14. Type of housing at permanent residence: (396) 1 __ house
2 __ trailer
3 __ labor camp
4 __ apartment
5 __ other_____

B15. Type of housing at permanent permanent residence: (397) 1 __ rented
2 __ owned
3 __ free

B16. Family income last year. (398-402) __ __ __ __ __ (DOLLARS)

B17. Does your child take vitamins and mineral supplements? (403) 1 __Y 2 __N(GO TO B18).

a. What kind are they? (404) 1 ___ infant vitamin/mineral multi.
2 ___ child vitamin/mineral multi.
3 ___ adult vitamin/mineral multi.
4 ___ Vit. C
5 ___ Iron
6 ___ Other

b. Do they contain iron? (405) 1 ___Y 2 ___N
c. Do they contain fluoride? 1 ___Y 2 ___N
d. Were they prescribed? (407) 1 ___Y 2 ___N

B18. Is there any food your child should not eat for medical, religious, or personal reasons?
What?_____ (408) 1 _Y 2 _N(GO TO B19).

(409) 1 ___medical
2 ___religious
3 ___personal reasons

B19. Is your child on a special diet? (410) 1 ___Y 2 ___N(GO TO B20).

If yes, what kind?_____ (411) 1 ___
2 ___
3 ___
4 ___

B20. Has there been a big change in your child's appetite in the last month? (412) 1 ___Y 2 ___N(GO TO B21)

Increase or decrease or other? (413) 1 ___ INCREASE
2 ___DECREASE
3 ___OTHER
_____

B21. Infant's reported emergency conditions, possible food related.
a. Severe asthma (414) 1 ___Y 2 ___N
b. Diabetes 1 ___Y 2 ___N
c. Food allergies (416) 1 ___Y 2 ___N

B22. Did mother have any problems during this pregnancy or during delivery? (417) 1 ___Y 2 ___N

B23. Did mother visit physician fewer than two times during pregnancy? (418) 1 ___Y 2 ___N

B24. Was child born outside of a hospital? (419) 1 ___Y 2 ___N

B25. Was child born more than 3 weeks early or late? (420) 1 ___Y 2 ___N

B26. What was the child's birth weight? ___ ___ lbs. ___ ___ oz.
(INSURE RESPONSES THAT WERE GUESSES ARE NOT CODED) (421-422) (423-424)

B27. Was anything wrong with the child at birth? (425) 1 ___Y 2___N

B28. Was anything wrong with the child in the nursery? (426) 1 ___Y 2 ___N

B29. Did the child stay in the hospital after the mother left? (427) 1 ___Y 2 ___N

B30. Is the mother pregnant now? (428) 1 ___Y 2 ___N

B31. Has your child been hospitalized or operated on? (429) 1 ___Y 2 ___N

B32. Has child ever had a serious accident (broken bones, head injuries, falls, burns, poisoning)? (430) 1 ___Y 2 ___N (GO TO B33).

What? (431) 1 ___ broken bones
2 ___ head injuries
3 ___ falls
4 ___ burns
5 ___ poisoning
6 ___ other _____

B33. Has child ever had a serious illness? (432) 1 ___Y 2 ___N (GO TO B34)

What? (433) 1___
2___
3___
4___

B34. Does child have frequent problems with the following:

a. sore throat (434) 1 ___Y 2 ___N
b. cough (435) 1 ___Y 2 ___N
c. urinary infections or trouble urinating 1 ___Y 2 ___N
d. stomach pain, vomiting, diarrhea (437) 1 ___Y 2 ___N

B35. At what age did your child begin to do the following:

a. sit up without help (438-439) __ __ months
b. crawl (440-441) __ __ months
c. walk __ __ months
d. talk (444-445) __ __ months
e. feed self __ __ months
f. learn to use the toilet __ __ months
g. respond to directions (450-451) __ __ months
h. play with toys __ __ months
i. use crayons __ __ months
j. understand what is said to him/her (456-457) __ __ months
(99=NA)

Primero, yo necesito informacion de tiempo pasado concerniente a su casa aqui, y residencia permanente y si a estado un algun programa de nutricion.

A1. ¿En su casa/residencia premanente y en Colorado, tiene usted:

		En Colorado	Casa Permanente
a.	Electricidad?	(14)1__Sí 2__No	(15)1__Sí 2__No
b.	Refrigerador funcionado?	(16)1__Sí 2__No	(17)1__Sí 2__No
c.	Estufa funcionando?	1__Sí 2__No	1__Sí 2__No
d.	Agua potable en la casa?	1__Sí 2__No	1__Sí 2__No
e.	Agua caliente en la casa?	(22)1__Sí 2__No	(23)1__Sí 2__No
f.	Excusado/WC/letrina en la casa?	1__Sí 2__No	1__Sí 2__No
g.	Excusado/WC/letrina en el bano colectivo? (mas de una familia lo usa)	(26)1__Sí 2__No	(27)1__Sí 2__No
h.	Excusado/WC/letrina esta fuera de la casa?	1__Sí 2__No	1__Sí 2__No
g.	Lavadora de ropa funcionando?	(30)1__Sí 2__No	(31)1__Sí 2__No

A2. ¿Actualmente existe un problema en su casa con las ratas? (32)1__Sí 2__No

A3. ¿Actualmente existe un problema en su casa con las hormigas o las cucarachas? (33)1__Sí 2__No

A4. ¿El armario de la cocina tiene puertas? ¿Cierran bien? (34)1__Sí 2__No

A5. ¿Si tuviera otros $10.00, que haria usted con ellos? (35)1__ Comida
2__ Ropa
3__ Dinero por casa
4__ Atencion medica
5__ Atencion dental
6__ Diversiones
7__ Otro _____

[DO NOT READ OPTIONS]

A6. ¿Durante los pasado 12 meses, desde (REF. DATE), le ha faltado a usted o a su familia dinero para comprar lo necesario para preparar una comida? (36)1__Sí 2__No(GO TO A8).

A7. [IF YES] ¿Desde (REF. DATE), cuántos días, en los últimos doce meses, su familia estuvo sin alimento porque no habia dinero? (37-38)___ ___ días

A8. ¿Con qué frecuencia come (REF. CHILD) menos de lo que piensa que (el or ella) debería comer porque no hay suficiente comida para toda la familia?

(READ OPTIONS)

(39) 1___ Diariamente.
2___ Una o dos veces por semana.
3___ Una o dos veces por mes.
4___ Tres o cuatro veces durante el año.
5___ Rara vez o nunca.

A9. (IF MOTHER BREASTFEEDS ASK) ¿Con qué frecuencia come usted menos de lo que piensa que debería comer porque no hay suficiente comida para toda la familia?

(READ OPTIONS)

(40) 1___ Diariamente
2___ Una o dos veces por semena.
3___ Una o dos veces por mes.
4___ Tres o cuatro veces durante el año.
5___ Rara vez o nunca.

A10. ¿En los ultimos doce meses, tuvo usted que pedir dinero prestado para comida o le pidio comida a sus familiares o amigos? (41) 1__Sí 2__No

A11. ¿Piensa que (REF. CHILD's) salud se ha lesionado por comer tan poca comida o un tipo de comida equivocada? (42) 1__Sí 2__No

A12. (IF MOTHER BREASTFEEDS, ASK) ¿Piensa que su salud se ha lesionado por comer tan poca comida o un tipo de comida equivocada? (43) 1__Sí 2__No

A13. ¿En cuál de los siguientes programas se han inscrito, usted o su familia, en los pasados doce meses?

a. Food Stamps (44) 1__Sí 2__No
b. WIC Program 1__Sí 2__No
c. Commodity Supplemental Foods 1__Sí 2__No
d. Food bank/Free food (47) 1__Sí 2__No
e. Otro_____ 1__Sí 2__No

A14. ¿Ha tratado usted de inscribirse en programas alimenticios en Colorado? (49) 1__Sí 2__No (Go to A17).

A15. [IF YES] ¿Tuvo usted exito? (50) 1__Sí 2__No (Go to A17).

A16. [IF YES] ¿En qué programas está usted inscrito en Colorado?

a. Food Stamps (51) 1__Sí 2__No
b. WIC Program 1__Sí 2__No
c. Commodity Supplemental Foods 1__Sí 2__No
d. Food bank/Free food (54) 1__Sí 2__No
e. Otro _____ 1__Sí 2__No

A17. ¿Quién (si alguien) le ha proporcionado información o consejo sobre la alimentación de (REF. CHILD)?

	[LIST SOURCES]	[FOLLOWED ADVICE]	[LOCATION]
(56-57)___ ___	_____	(58) 1 __Sí 2 __No	(59) ___
(60-61)___ ___	_____	(62) 1 __Sí 2 __No	(63) ___
(64-65)___ ___	_____	(66) 1 __Sí 2 __No	(67) ___
(68-69)___ ___	_____	(70) 1 __Sí 2 __No	(71) ___
(72-73)___ ___	_____	(74) 1 __Sí 2 __No	(75) ___

A18. ¿Cuáles otra lugares de informacion o consejo Ud. recivio sobre la alimentacion de (REF. CHILD), por ejemplo, materia de leer?

	[LIST SOURCES]	[FOLLOWED ADVICE]	[LOCATION]
(76-77)___ ___	_____	(78) 1 __Sí 2 __No	(79) ___
(80-81)___ ___	_____	(82) 1 __Sí 2 __No	(83) ___
(84-85)___ ___	_____	(86) 1 __Sí 2 __No	(87) ___
(88-89)___ ___	_____	(90) 1 __Sí 2 _No	(91) ___
(92-93)___ ___	_____	(94) 1 __Sí 2 __No	(95) ___

A19. (FOR ALL SOURCES LISTED IN 17 AND 18 ASK) ¿De las recomendaciones y consejos que Ud. mencionó cuáles siguió y cuáles no, sobre la alimentacion de (REF. CHILD)?

A20. (FOR ALL SOURCES LISTED IN 17 AND 18 ALSO ASK) ¿Dónde obtuvo la información que Ud. tiene sobre la alimentacion de (REF. CHILD), i.e. Mexico, Texas, Colorado? [LOCATION CODE = MEXICO = 1
U.S. = 2
OHTER COUNTRY = 3]

A21. ¿Actualmente, está alimentando al bebe con el pecho? ¿Si no ahora, lo hizo antes? (96)1__Sí 2__No(Go to A25).

A22. [IF YES ASK] ¿Porque decidió alimentar a (REF. CHILD) con el pecho?

_____ (97-98) ___ ___

_____ (99-100) ___ ___

_____ (101-102) ___ ___

A23. ¿Cuándo definitivamente dejó de alimentar (REF. CHILD) con el pecho/amamantarlo? (103-104) ___ ___

_____
[RECORD INFANT'S AGE]

(105) ___1 days
___2 weeks
___3 months

A24. ¿Cuál fué el motivo más importante por su decision? (106-107) ___ ___

_____

_____

A25. [IF NO ASK] ¿Si no lo esta alimentando con el pecho, por qué NO? (108-109) ___ ___

_____

_____

Algunas mujeres comen o toman ciertas comidas porque creen que esas comidas mejoran la cualidad de su leche o aumentan la cantidad de ella.

A26. ¿Cuáles comidas o bebidas ha tomado Ud. para aumentar la cantida o mejorar la cualidad de su leche? Y porque?

[FOR EACH FOOD OR LIQUID MENTIONED ASK] ¿Esas comidas o bebidas tuvieron resultados o no? ¿Que clase de resultados?

[LIST FOODS OR LIQUIDS]	[EFFECT OF FOOD OR LIQUID]	[RESULT ACHIEVED]
(110-111)__ __ _____	(112)__1Aumentar la cantidad __2Mejorar la cualidad __3Ambas	(113)1__Sí 2__No
(114-115)__ __ _____	(116)__1Aumentar la cantidad __2Mejorar la cualidad __3Ambas	(117)1__Sí 2__No
(118-119)__ __ _____	(120)__1Aumentar la cantidad __2Mejorar la cualidad __3Ambas	(121)1__Sí 2__No
(122-123)__ __ _____	(124)__1Aumentar la cantidad __2Mejorar la cualidad __3Ambas	(125)1__Sí 2__No

Algunas madres quienes alimentan a sus bebes con el pecho evitan el consumo de ciertas comidas y bebidas porque creen que esas comidas o bebidas perjudican la cualidad de su leche o disminuyen la cantidad de ella.

A27. ¿Cuáles comidas o bebidas no consume Ud. (o no consumía) porque cree que tienen un impacto negativo sobre la cualidad o cantidad de su leche? ¿Y porqué?

[LIST FOODS OR LIQUIDS]		[PURPOSE OF AVOIDANCE]	
(126-127)_____	(128) __1 Menos cantidad	_____	(129-130)
__ __	__2 Menos cualidad	_____	__ __
	__3 Ambas		
(131-132)_____	(133) __1 Menos cantidad	_____	(134-135)
__ __	__2 Menos cualidad	_____	__ __
	__3 Ambas		
(136-137)_____	(138) __1 Menos cantidad	_____	(139-140)
__ __	__2 Menos cualidad	_____	__ __
	__3 Ambas		
(141-142)_____	(143) __1 Menos cantidad	_____	(144-145)
__ __	__2 Menos cualidad	_____	__ __
	__3 Ambas		

A28. ¿Cuáles herbas y/o medicinas usa Ud. para que les venga mejor la leche? ¿Que resultado? ¿Y como prepara y uso Ud.?

[LIST HERBS AND MEDICINES]	[EFFECT]	[PREPARATION AND USAGE]	
(146-147)_____	(148) __1 Increase quantity		(149)___
__ __	__2 Increase quality	_____	
	__3 Both		
	__4 Did not work	_____	
(150-151)_____	(152) __1 Increase quantity		(153)___
__ __	__2 Increase quality	_____	
	__3 Both		
	__4 Did not work	_____	
(154-155)_____	(156) __1 Increase quantity		(157)___
__ __	__2 Increase quality	_____	
	__3 Both		
	__4 Did not work	_____	
(158-159)_____	(160) __1 Increase quantity		(161)___
__ __	__2 Increase quality	_____	
	__3 Both		
	__4 Did not work	_____	

A29. ¿Toma (REF.CHILD) una botella/ tetra/viveron? (162) 1__Sí 2__No(GO TO A34).

A30.a. ¿Qué ladava (REF. CHILD'S) en la botella/pettra/viveron?

a.	Leche del pecho	(163)	1__Sí 2__No
b.	Formula		1__Sí 2__No
c.	Formula con Hierro	(165)	1__Sí 2__No
d.	Leche Condensed		1__Sí 2__No
e.	Leche Evaporated		1__Sí 2__No
f.	Leche Whole		1__Sí 2__No
g.	Otras_____	(169)	1__Sí 2__No

A30.b. [IF REF. CHILD TAKES A BOTTLE ASK] ¿Cómo prepara Ud. la botella/tetra/viveron para el bebé? ¿Cuánto de formula lecha a la botella/tetra/viveron? ¿Cuánto de agua o otro liquido agregue Ud. a la botella/ tetra/viveron? [IF MOTHER USES INFANT FORMULA , ASK HER TO SHOW YOU THE CANS OF INFANT FORMULA AND ASK HOW SHE PREPARES THE FORMULA.]

(170) 1__proper mixture
2__diluted mixture
3__over mixed
4__can not determine

DESCRIBE._____

_____

_____

A30.c. ¿Si Ud. usa agua para preparar la formula, donde obtiene el agua?

(READ OPTIONS) (171)
1__ agua de una noria/pozo
2__ agua purificada de botella o hervida
3__ agua de la llave
4__ agua de riego
5__ agua de almacenada de lluvias
6__ otra_____

A31. (IF REF. CHILD IS CURRENTLY TAKING THE BOTTLE ASK) ¿Cuando quiere dejar de alimentar al bebe con la botella/tetra/ viveron? ¿A que edad? (172-173) ___ ___ MONTHS

A32. ¿El bebe se acuesta con la botella/ tetra/viveron? (174)1__Sí 2__No(GO TO A34)

A33. (IF YES ASK) ¿Normalmente, que clase de liquido echa Ud. a la botella/ tetra/viveron? (175-176) ___ ___

_____

A34. El bebé consume o ha consumido una o unas de los siguientes:

			[INFANT'S AGE WHEN INTRODUCED]
a.	agua de sugar	(177)1__Sí 2__No	(178-179)__ __ (180) 1 días 2 mes 3 DK
b.	Kool-aid	(181)1__Sí 2__No	(182-183)__ __ (184) 1 días 2 mes 3 DK
c.	soda o refresco	(185)1__Sí 2_ No	(186-187)__ __ (188) 1 días 2 mes 3 DK
d.	jugo	(189)1__Sí 2__No	(190-191)__ __ (192) 1 días 2 mes 3 DK
e.	agua	(193)1__Sí 2__No	(194-195)__ __ (196) 1 días 2 mes 3 DK
f.	leche	(197)1__Sí 2__No	(198-199)__ __ (200) 1 días 2 mes 3 DK
g.	agua de jello	(201)1__Sí 2_ No	(202-203)__ __ (204) 1 días 2 mes 3 DK
h.	Otro liquido _____	(205)1__Sí 2__No	(206-207)__ __ (208) 1 días 2 mes 3 DK
i.	Otro liquido _____	(209)1__Sí 2__No	(210-211)__ __ (212) 1 días 2 mes 3 DK

A35. ¿El bebé puede tomar liquidos de una taza? (213)1__Sí 2__No

A36. ¿El bebé puede comer comidas sólidas? (214)1__Sí 2_ No(GO TO A40)

A37. [IF YES ASK]

a. ¿Se la da la comida sólida con una cuchara? (215)1__Sí 2__No

b. ¿El bebé puede comer solo? 1__Sí 2__No

c. ¿Puede usar utensilios? 1__Sí 2__No

d. ¿Prefiere comer con los dedos? 1__Sí 2__No

A38. [IF REF. CHILD EATS SOLID FOODS ASK]
¿Qué clase de comidas sólids come (REF. CHILD) actualmente oa ha comido antes?

a. Comidas de bebe coladas o filtradas, o comidas estilo "Junior" (219)1__Sí 2__No

b. Cereal de bebe en jarro o lata (220)1__Sí 2__No

c. Comidas hechas puree, exprimidas, molidas, batidas o mezcladas en la casa, o por maquina o a mano 1__Sí 2__No

d. Comidas de la mesa, igual que comen los adultos (222)1__Sí 2__No

A39. [IF REF. CHILD EATS SOLID FOODS ASK] ¿Qué fué primera cosas sólida que dio a comer a (REF. CHILD) y cuándo fué la primera introdución? Por ejemplo, carne, fruta, y cereal.

	[LIST FOOD]	[INFANT'S AGE WHEN INTRODUCED]	
(223-224)	__ __ _____	(225-226) ___ ___	(227) 1 días 2 mes 3 DK
(228-229)	__ __ _____	(230-231) ___ ___	(232) 1 días 2 mes 3 DK
(233-234)	__ __ _____	(235-236) ___ ___	(237) 1 días 2 mes 3 DK
(238-239)	__ __ _____	(240-241) ___ ___	(242) 1 días 2 mes 3 DK
(243-244)	__ __ _____	(245-246) ___ ___	(247) 1 días 2 mes 3 DK
(248-249)	__ __ _____	(250-251) ___ ___	(252) 1 días 2 mes 3 DK

A40. ¿El bebé come una o unas de las siguientes: arcilla, almidón, lascas de pintura, papel, tierra, hielo, y otras cosas que no sean comidas? Y con que frequencia las come? (253) 1__Sí 2__No

	[LIST ITEMS CONSUMED]	[HOW OFTEN]
(254-255)	__ __ _____	(256-257) __ __ (258) 1días 2sem 3mes 4DK
(259-260)	__ __ _____	(261-262) __ __ (263) 1días 2sem 3mes 4DK
(264-265)	__ __ _____	(266-267) __ __ (268) 1días 2sem 3mes 4DK
(269-270)	__ __ _____	(271-272) __ __ (273) 1días 2sem 3mes 4DK

A41. ¿De vez en cuándo (REF. CHILD) padece de diarrea? (274) 1__Sí 2__No (GO TO A49)

A42. Describa la diarrea de (REF. CHILD). (275-276) ___ ___
_____ (277-278) ___ ___
_____ (279-280) ___ ___

A43. ¿Qué segido (REF. CHILD) tiene diarrea normalmente en un mes? (281-282) ___ ___ Vez en mes
[98=Less than 1x/mo]
[99=DK]

A44. ¿Si (REF. CHILD) tiene diarrea, cuántas horas o dias dura la diarrea normalmente? (283-284) ___ ___ (285) 1 horas 2 dias

A45. ¿Cuándo Ud. se da cuenta que (REF. CHILD) tiene diarrea, que hace para aliviarla? (286-287) ___ ___
(288-289) ___ ___
(290-291) ___ ___
_____
_____

A46. ¿Qué clase de liquidos o comidas le da al (REF. CHILD) cuándo padece de diarrea? (292-293) ___ ___

_____ (296-297) ___ ___
_____ ___ ___
_____ ___ ___
_____ (302-303) ___ ___
_____ (304-305) ___ ___

A47. (IF MOTHER BREASTFEEDS OR BREASTFED ASK) (306) 1 __Sí 2 __No
¿Cuándo (REF. CHILD) tiene diarrea Ud. suspende temporalmente la alimentación del pecho?

A48. ¿Qué piensa Ud. que causa la diarra en los bebes? (307-308) ___ ___

_____ (311-312) ___ ___
_____ ___ ___

A49. ¿De vez en cuándo (Ref. Child) padece de estrenimiento? (313)1__Sí 2__No(Go to A56).

A50. Describa el estreñimiento.

_____ (314-315) ___ ___
_____ (316-317) ___ ___
_____ (318-319) ___ ___

A51. ¿El estreñimiento occurre frequentemente en (REF. CHILD)? (320-321) ___ ___ Vez en mes
[98=Less than 1x/mo]
[99=DK]

A52. ¿Cuántas días dura? (322-323) ___ ___ days

A53. ¿Qué clase de liquidos o comidas le da al (Ref. Child) cuándo tiene estreñimiento? (324-325) ___ ___

___ ___
_____ (330-331) ___ ___
_____ ___ ___
_____ (334-335) ___ ___
_____ ___ ___

A54. ¿Qué mas le da al (Ref. Child) cuándo tiene estreñimiento? (336-337) ___ ___

_____ (338-339) ___ ___
_____ ___ ___
_____ (342-343) ___ ___

A55. ¿Cuándo (Ref. Child) tiene estreñimiento Ud. le da una o unas de las siguientes: ¿Qué clase ?

[LIST]

a. Laxantes (344)1__Sí 2__No (345-346)___ ___ _____
b. Hierba (347)1__Sí 2__No (348-349)___ ___ _____
c. Enemas (350)1__Sí 2__No (351-352)___ ___ _____
d. Otras (353)1__Sí 2__No (354-355)___ ___ _____

_____

A56. ¿Ud. se interesa por la dieta de (REF. CHILD)? (356) 1__Sí 2__No(Go to A58).

A57. [IF YES ASK] Qué?_____ (357-358) ___ ___
_____ (359-360) ___ ___
_____ (361-362) ___ ___
_____ (363-364) ___ ___

A58. [IF REF. CHILD HAD VITAMIN AND MINERAL SUPPLEMENTS PRESCRIBED ASK] (365-366) ___ ___
¿Quién le recomendó a Ud. que (REF CHILD) tomara vitaminas y minerales suplementarios? [98=NA] [99=DK]
_____

A59. [IF REF. CHILD IS ON SPECIAL DIET ASK] ¿Porqué (REF. CHILD) esta en una dieta especial?
_____ (367-368) ___ ___
_____

A60. ¿Alguna vez alguien le ha habalado de la alimentación apropiada de su bebé por su salud beuena? (369) 1__Sí 2__No

A61. ¿Ud. quisiera que alguien le hablara de la alimentación apropiada de su bebé por su salud buena? (370) 1__Sí 2__No

A62. ¿Cuál es su categoria presente como trabajador? (371)
[READ OPTIONS]
1 __ Trabajador de tiempo completo
2 __ Trabajador de tiempo parcial (medio tiempo)
3 __ Desempleada
4 __ Retirada
5 __ Ama de casa
6 __ Otra

A63. ¿Cuál es su estado civil? (372)
[READ OPTIONS]
1 __ Casadad
2 __ Viuda
3 __ Divorciada
4 __ Separada
5 __ Nunca casado/Soltera

A64. (IF MOTHER, ASK) ¿Donde nacio Ud.? (IF PRIMARY CARETAKER IS OTHER THAN MOTHER, ASK) ¿Donde nacio la mama de (REF. CHILD)? (373)
[READ OPTIONS]
1 __ En los Estados Unidos
2 __ En Mexico
3 __ Otro pais _____
4 __ DK

A65. ¿Donde nacio el papa de (REF. CHILD)? (374)
READ OPTIONS
1 __ En los Estados Unidos
2 __ En Mexico
3 __ Otro pais _____
4 __ DK

APPENDIX B

CONSENT FORM (ENGLISH)

CONSENT FORM (SPANISH)

Sample Number __ __ __

_____Best times for interview
_____Best days for interview

COLORADO MIGRANT FARMWORKER INFANT FEEDING PRACTICES SURVEY
Consent Form

You are invited to participate in a study called "The Colorado Migrant Farmworker Infant Feeding Practices Survey". The survey is being conducted through the Colorado Migrant Health Program and the Greeley Head Start Program. The intent of this survey is to study the migrant infant feeding practices and their nutritional needs. Hopefully from this study, nutritional programs can be developed which will better meet the current needs of infants of migrant farmworker parents in northern Colorado.

If you agree to take part in this study, you will be asked to:

1) answer a questionnaire which will take about 1 hour;
2) release information regarding the health and nutrition of your child and family background already obtained by the Head Start interviewer.

The questions in the interview cover different topics relating to the feeding of your infant including introduction of new foods, duration of breastfeeding, bottle feeding preparation, utilization of nutritional services, and family history.

All the information we obtain from you will be kept in strictest of confidence. Under no circumstances will any information be published or released that could in any way identify you, your infant, or any member of your family.

If you have any questions about the survey or your participation in it, you may contact the director of the study, Beth O'Malley at the Greeley Head Start Center at 1-356-0600.

Remember, your participation in this survey is completely voluntary. There is no penalty if you refuse to take part in the survey, i.e. your services through the Head Start Program will not be effected. You may withdraw from this study at anytime. You may ask any questions you want at any time during the interview.

I UNDERSTAND THE ABOVE INFORMATION PRESENTED AND GIVE MY VOLUNTARY CONSENT TO PARTICIPATE IN THE STUDY.

_____ _____
Signature of mother or guardian Date

_____ _____
Signature of witness Date

_____
Print first, middle, and last name of infant.

Sample Number__ __ __

_____Las horas buenas por la entrevista
_____Los días buenos por la entrevista

ESTUDIDO ACERCA DE LAS PRÁCTICAS DE ALEMENTATIÓN DE BEBÉS DE FAMILIAS EMIGRANTES Y TRABAJADORES DEL CAMPO EN COLORADO
Consentimiento

Usted está invitado a participar en un estudio llamado "Acerca de las Practicas de Alemenatión de Bebés de Familias Emigrantes y Trabajadores del Campo en Colorado". Esté estudio esta siendo conducido por el Deparamento de Salud para Emigrantes y el programa de Head Start en Greeley, CO. El proposito de esté estudio este estudio es conocer los modos en que las familias emigrantes alimentan a sus bebés y sus necesidades nutricionales. Esperamente los resultados de este estudio seran utilizados para desarrollar programas que respondan a las necesidades reales de los bebes de los emigrantes padres del campo en norte Colorado.

Si usted acepta participar en este estudio, le pediremos que:

1) conteste un questionario que le llevara aproximadamente una hora;
2) nos permita obtener informacion acerca de la salud y nutricion de su bebé, asi como de su familia que usted le a proporcionado a el programa Head Start.

Las preguntas de la entrevista cubren distintos aspesctos acerca de la alimentación de su bebé incluyendo la introduccion de su bebe comidas nuevas, si usted le dio pecho a su bebé, cuando le dejo de dar el pecho, la preparacion de botellas, la utilización de los servicios de nutrición, y la historia familiar.

Toda la información obtenida sera estrictamente confidencial. Bajo ninguna circumstancia esta información podrá ser publicada o se permitira acceso a la información que de alguna manera pueda identificarlo a usted, a su bebé, o a miembo de su familia.

Si Usted tiene preguntas acerca de estudio o acerca de su participacion en el, por favor comuniquese con la directora de este proyecto, Sra. Beth O'Malley, en el programa de Head Start en Greeley al teléfano (303) 356-0600.

Recuerde que su participación en este proyecto es completamente voluntaria. No hay ninguna obligacion que le obligue a participar en el. Sus servicios al programa de Head Start no seran afectados. Usted puede naegarse a participar en cualquier momento, si lo desea. Por favor haga todas las preguntas que desee durante la entrevista.

YO ENTIENDO LA INFORMACIÓN ANTERIOR Y DOY MI CONSENTIMIENTO VOLUNTARIO PARA PARTICIPAR EN EL ESTUDIO.

_____ _____
Firma de la madre o guardian Fecha

_____ _____
Firma del testigo Fecha

_____
Primer y segundo nombre y apellido de infantile.

APPENDIX C

The Kickapoo

The Kickapoo Indian tribe is a mobile tribe and their name itself means "he moves about, standing now here, and now there." Nielsen (1975) writes of the history relating to the frequent geographic migrations from their homeland in Wisconsin to Mexico, over 1,000 miles away, and also their cultural travels from the 17th century into the twentieth. The Kickapoo are considered by some historians to be the most culturally conservative of Indian tribes as they have fought to maintain their culture. They ardently believed that if they were to give up their ways, the world would come to an end (Neilsen, 1975).

The first recorded home land of the Kickapoo, reported in the 1650's by French explorers, was in southern Wisconsin. The Kickapoo now come from two communities in the United States and Mexico. They visit back and forth, and sometimes there is intermarriage. In the 1970's, the Mexican Kickapoo community was noted as the more traditional of the two because of its geographical isolation and the Mexican government's tolerance. The Mexican government's attempt to introduce the Kickapoo to new ways through public education was met by triabal resistance through the burning of the school buildings. In recent years, however, the Mexican Kickapoo have participated in migratory labor in the United States and as a result have been exposed to a different culture. Isolation has become difficult for the Kickapoo community and attrition of the old ways will be more accelerated (Neilsen, 1975).

APPENDIX D

Case Study: Nando's Family

Nando was born in Texas with a physical handicap. The doctors told his parents he would need therapy the rest of his life. After undergoing four months of physical therapy the family's Medicaid benefits were lost. Nando was unable to continue therapy since the family could not afford the cost.

When Nando was six months old, he and his family moved to Colorado. Nando has two brothers aged nine and seven. The oldest, Juan, wants to be a professional football player when he grows up. The next oldest, Victor, wants to be a fireman. Nando's mother, Maria, is a proud mother who ardently exhibits her love for her three boys. She insists she loves each of them the same. Each of the boys is given an equal distribution of toys and other items. Nando's father, Manuel, pinched a nerve while lifting a heavy object at work in 1984. He kept going to work to support his family, but finally one day he was in so much pain he came home. Three days later he made an appointment with the doctor. The doctor hospitalized Manuel and operated on his back. Due to the operation on two of his spinal discs, Manuel could no longer work in the fields.

Nando's parents have been migrants since 1975. In 1974, Maria started going back and forth with her family from Texas to Colorado. She and Manuel were from the same hometown in Texas but they met in Colorado. Nando's parents were married when Maria was 16 and Manuel was 24. A year later their first son, Juan, was born. Their second

son, Victor, was born when Maria was 19. When she was 24, Nando was born. The birth of each of their sons was monumentous occasion, with the entire extended family helping out.

During her pregnancy with Nando, Maria qualified for the WIC program in Texas because she was both anemic and overweight, although she had low weight gain. She went from 189 lbs to 187 lbs and then up to 200 lbs. Maria experienced morning sickness complete with vomiting. Typically she would eat one meal per day and snack during the day. She complained of being hungry when she did not eat. Generally, she would eat until she was full.

Athough Maria had breastfed Nando's brothers, Juan and Manuel, she was unsucessful in breastfeeding Nando. He "would not take the breast." He was fed dry formula with iron for twelve months and then he started drinking whole milk. Maria said she has had difficulties taking Nando off the bottle. (He was 21 months at the time of the interview.) She planned to begin potty training at 22 months.

During the previous twelve months, the family's annual income was $1,523, which Maria earned through agricultural labor. In May of 1986, she planted onions in Northern Colorado. In June and July Maria was unemployed so she, Manuel, and their boys lived with relatives and received food stamps. In August through October she topped onions in Northern Colorado. In November 1986 Nando's family returned to Texas and lived in Maria's grandmother's trailer for free through April 1987; the family received food stamps. In May 1987 Nando and his family returned to Northern Colorado and Maria planted onions. In June 1987 she cleaned beets.

Although at the end of the summer Maria was unemployed, she had hopes of going into the burrito-selling business with her sister. She would like for her family to get out of the migrant stream and was anxiously anticipating assistance with Nando's physical therapy costs through a Head Start referral agency. Maria was also optimistic about the future of Nando and his brothers. She believed, "If you want something bad enough, you will get it if you set your mind to it."

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