



PHILIPPINES

PNAAP 369
100-33605

MATERNAL AND INFANT NUTRITION REVIEWS

PHILIPPINES

A Guide to the Literature

Compiled by

Ron Israel - Senior Editor
Joanne Nestor Tighe - Editor and Reviewer
Steve Wirtz - Principal Reviewer
Ellen Blumenstiel Taylor and Janet Tognetti - Reviewers

December, 1983

An International Nutrition Communication Service (INCS) Publication

Education Development Center, Inc.
55 Chapel Street, Newton, MA 02160 USA

INCS Advisory Board: Roy E. Brown, Derrick B. Jelliffe, E. F. Patrice Jelliffe,
Richard K. Manoff, Marian L. Thompson, R.R.N. Tuluhungwa, Joe D. Wray,
Marian F. Zeitlin

*This project has been conducted under Contract A.I.D./DSAN-C-0209, Project No. 931-1010.
Project Officer: Dr. Tina Sanghvi, Office of Nutrition - Science and Technology Bureau,
Agency for International Development, Washington, D. C.*

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INTRODUCTION

MATERNAL AND INFANT NUTRITION REVIEWS: A RESOURCE FOR NUTRITION PLANNERS AND EDUCATORS

The MATERNAL AND INFANT NUTRITION REVIEWS (MINR) profile existing data on nutritional status and nutrition-related beliefs and practices of mothers and children in developing countries. MINRs also contain information on current nutrition policies and programs of governments, the United States Agency for International Development, and other bilateral, international agencies and Private Voluntary Organizations (PVO). There are thirty-five MINRs in all, profiling forty-four different countries. (See list on next page).

Maternal and Infant Nutrition Reviews summarize important information obtained from available literature, government documents, consultant reports, and personal correspondence. The data is presented in bulleted form under six major headings: nutrition and health status, dietary beliefs, dietary practices, nutrition status correlations, nutrition and health policies and programs, and commentaries. A bibliography at the back of each monograph describes the listed documents in terms of type of study, methodology, sample characteristics and location, and a summary. Special thanks are extended to Dr. Richard Lockwood for his assistance in reviewing this report and supplying information.

Nutrition planners and policy makers can use MINRs to help identify a given country's data base. For example, the information contained in each review enables the reader to identify key planning factors such as problem areas of malnutrition, prevailing beliefs about breast feeding, the extent of bottle feeding, types of weaning foods, the government's inter-agency five-year nutrition plan, the amount of donated food being distributed at MCH centers, and major PVOs involved in administering food and nutrition programs.

MINRs can be used as background documents for consultants going into the field and for program developers in-country. They can provide a frame of reference for an in-country workshop aimed at developing a national nutrition strategy. Technical assistance in organizing a workshop of this kind is available through the International Nutrition Communication Service. MINRs can also be used as a resource document in the development of journal articles and textbooks.

MINR data is stored on a computerized word processing system that allows for updates and individualized literature searches on specific topics. Patterns in a particular country or group of countries can be analyzed in accordance with user needs. A nutrition information retrieval service is available free to those working in developing countries and for a small fee to all others. Orders, inquiries, and comments should be addressed to:

Ron Israel, Director
International Nutrition Communication Service
Education Development Center
55 Chapel Street
Newton, Massachusetts 02160, USA

MINR Country Reports:

AFRICA:

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Lesotho
Liberia
Mali
Sudan
Tanzania
Zaire

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Egypt
Jordan
Morocco
Tunisia
Yemen

ASIA:

Bangladesh
Burma
India
Indonesia
Nepal
Pakistan
Philippines
South Pacific*
Sri Lanka
Thailand

LATIN AMERICA AND CARIBBEAN:

Bolivia
Costa Rica
Dominican Republic
Ecuador
Guatemala
Haiti
Honduras
Jamaica
Panama
Peru

*South Pacific Region includes the nations of Cook Islands, Fiji, Kiribati, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, Vanuatu, and Western Samoa

MATERNAL AND INFANT NUTRITION REVIEWS

CLASSIFICATION SYSTEM

1. Nutrition and Health Status
 - 1.1 General
 - 1.2 Women, Pregnant
 - 1.3 Women, Lactating
 - 1.4 Infants 0-6 Months
 - 1.5 Infants 6-24 Months
2. Dietary Beliefs
 - 2.1 General
 - 2.2 About Pregnancy
 - 2.3 About Lactation
 - 2.4 About Breast Milk Substitutes (including bottle feeding)
 - 2.5 About Weaning
3. Dietary Practices
 - 3.1 General
 - 3.2 Women
 - 3.2.1 During Pregnancy
 - 3.2.2 During Lactation
 - 3.3 Infants 0-24 Months
 - 3.3.1 Breast feeding
 - 3.3.2 Weaning
 - 3.3.3 After Weaning
 - 3.4 Health and Medicine
4. Nutrition Status Correlations
5. Nutrition and Health Policies and Programs
 - 5.1 Policies
 - 5.2 Programs
6. Commentaries

Bibliography

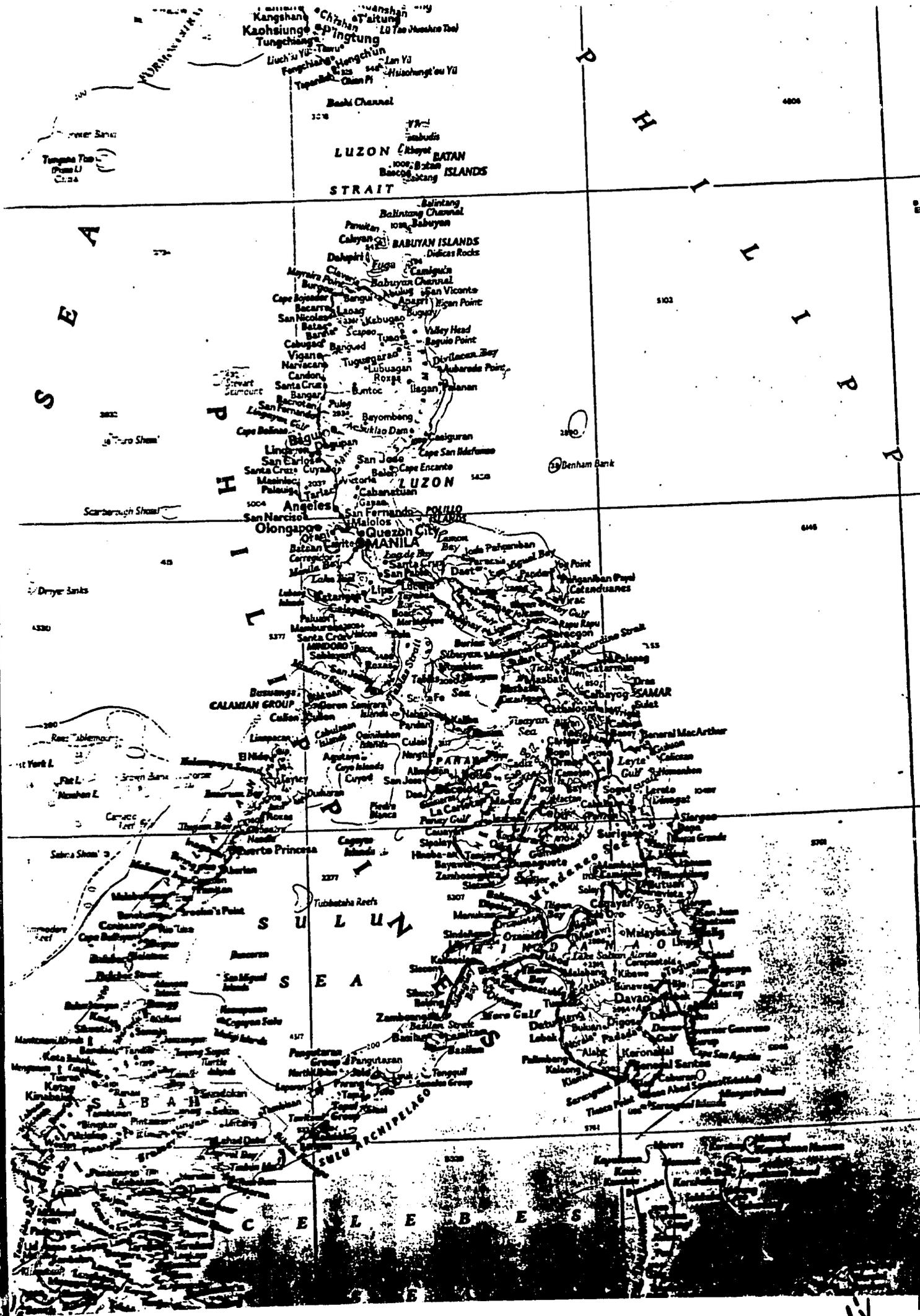


TABLE I
LOCATIONS STUDIED

	Barba et al., 1982	Barranda-Bautista and Cruz, 1979	Bonga and Hernandez, 1975	Burgess, 1980	Deja Rosa et al., n.d.	Florencio, 1980	FAO 1979	Guthrie et al., 1980	Guthrie et al., 1982	Guthrie et al., 1983	Guzman, 1976	Ignacio et al., 1980	Jimeno, 1978	Kent, 1981	Lamprey, 1981	National Nutrition Council, 1977a	National Nutrition Council, 1977b	Omavale, 1980	Osteria, 1978	Paradas et al., 1977	Popkin, 1978	Popkin, 1980	Popkin, 1981	Relucio-Clavano, 1981	Raynes and Davis, 1979	Rivers and Mareso, 1979	Solon et al., 1980a	Solon et al., 1980b	Taylor et al., 1978	Williamson, 1982	World Fertility Survey, 1979	World Health Organization, 1981	Zeitlin et al., 1978				
Northern Philippines																																					
Luzon Island																																					
Urban Manila	X					X													X																X		
Metro Manila Area																																					
Laguna Province						X				X								X			X	X	X														
Pasay				X																																	
Pasig																				X																	
Quezon City		X										X																									
Quezon Area																																					
Krusina Liga Village		X																																			
Old Bulara Village		X																																			
Other Provinces and towns																																					
Albay Province																																					
Baguio																								X													
Bicol Province	X																																				
Bo												X																									
Bulacan Province																																					
Capri												X																									
Novaliches												X																									
Nueva Ecija Province												X																									
Pampanga Province		X																																			
Paranaque																																					
San Francisco del Monte												X																									
San Rafael																																					
Central Philippines																																					
Cebu Island																																					
Cebu City										X																											
Cebu City Area								X	X																												
Region																																					
Bohol Island																																					
Bohol Province																																					
Tagbilaran City												X													X												
Other (not specified)	X																																				
Southern Philippines																																					
Northern Mindanao Region																																					
Agusan del Norte																																					
Agusan del Sur																																					
Misamis Oriental																																					
Surigao del Norte																																					
National Samples				X		X							X			X	X																			X	

HIGHLIGHTS

1. NUTRITION AND HEALTH STATUS: Malnutrition occurs principally in the form of protein calorie malnutrition in young children, anemia, and vitamin A deficiency. The 1978 National Nutrition Survey found that 85% of pregnant women and 63% of lactating women were anemic; rates among other women were 51.1%, and among children age 0 to 6 years, 55.8%. About 25% of the population has deficient or low blood levels of vitamin A.

Among children, nutrition status is good until age 6 months, when growth failure begins. The incidence of underweight (less than 85% of the median weight-for-age, based on Philippine standards) is highest among children one year old, and decreases with age; the prevalence of malnutrition has been decreasing for several years. In 1978, only 27.2% of the children had "normal" weights for their ages; 3.6% were overweight and 68.9% were underweight. The areas most affected by malnutrition are in the central part of the country; those in the north and around Manila and Manila Bay are the least affected, and the regions in the southern part of the country contain a mix of worst- and least-affected provinces.

2. DIETARY BELIEFS: Almost all women terminate breast feeding as soon as they realize they are pregnant again, because they believe that "the milk belongs to the new baby." Following delivery, the mother enters into a five-month period known as tangad, which means "to take care." Mother and infant are considered especially vulnerable to ills during this period. 70% of mothers consider breast feeding better than bottle feeding for a child 3 to 6 months of age. "Insufficient milk" is a major reason given by both rural and urban mothers for cessation of breast feeding. Mothers express a good deal of worry over the quality of their milk, e.g. whether it tastes too salty or thin, and whether it becomes altered by hot and cold foods and drink. Many urban mothers believe that colostrum should be discarded. In 1980, a survey of health professional attitudes in Pasay City revealed several important needs for change: 49% of health workers interviewed said they would feel embarrassed or disgusted if they saw a friend nursing in public; 60% said they would prefer their newborns to be kept in a nursery for fear of infection.

3. DIETARY PRACTICES: The basic staples are rice (corn in certain areas), plus fish and succulent vegetables or bananas. The estimated per capita calorie and protein supplies in 1977 and intakes, according to the National Nutrition Survey of 1978, were significantly below recommended FAO/WHO requirements. Mothers do not vary their diets before or after giving birth. Their overall dietary intakes are customarily low in protein, thiamin, vitamins A and C, and iron. The prevalence of breast feeding is 90% among 6 month olds, 85% among 12 month olds, and 80% at 18 months. The median age of weaning from the breast is over a year for lower income families and less than 2 months among the economically advantaged urban class. Exclusive breast feeding averages about 4 months. 90% of all rural and urban poor babies under 3 months old who receive supplemental foods are given milk or milk-based products by bottle. By the second year only about 50% receive milk or milk-based supplements. Approximately 24 types of infant formulas and 22 types of other milk-based products, including condensed and evaporated milks, are available. The average expenditure for breast milk substitutes in 1981 was 14% of the average family income per year. While mass media promotion of breast milk substitutes is rare, extensive promotional activities occur through the health care delivery system, including the use of free samples,

posters, calendars, baby care books, and gifts and support for doctors and professional societies.

4. NUTRITION STATUS CORRELATIONS: There is a correlation between malnutrition in young children and early weaning onto starchy gruels; malnutrition also is correlated with a relatively large household size, low per capita income, and low female education levels. There is a higher than average incidence of third degree malnutrition in the offshore islands of Bohol Province. Condensed milk appears to be associated with more severe cases of malnutrition than either evaporated or powdered milks. Breast feeding prevalence tends to be higher among non-working women than working women. In Luzon province a significant relationship exists between family occupation and child nutritional status: the mean weight for age was highest among children of farmers and lowest among those of commercial/government workers. 90% of the cases of neonatal infection seen at Baguio General Hospital over a four-year period were being bottle fed. Following the implementation of a breast feeding promotion program at Baguio Medical Center, the neonatal mortality rate dropped from 13.5 per 1000 to 0.5 per 1000.

5. NUTRITION AND HEALTH POLICIES AND PROGRAMS: On July 2, 1974, Presidential Decree No. 491 created a National Nutrition Council. The Council is charged with the formulation of the Philippine Nutrition Program (PNP). The Executive Director of the National Nutrition Council (NNC) is also the Executive Director of the Nutrition Center of the Philippines (MCP), a private Foundation created in 1974 to gather the resources of the private sector to support the Philippines Nutrition Program. The specific objectives of the PNP are: 1) to reduce third degree malnutrition among infants and preschoolers by at least 25% and to lower mortality by 25%; 2) to decrease the prevalence of second degree malnutrition by at least 10%; 3) to motivate 50% of pregnant and nursing mothers to adopt desired nutrition, health, family planning, and food production practices; 4) to improve the nutritional status of at least 40% of school children suffering from malnutrition; 5) to identify and treat cases of vitamin A deficiency and anemia; and 6) to promote nutrition among all families so that no more than 50% of infants and preschool children will have weights below 90% of normal. The strategy for reaching these objectives centers on five types of intervention: food assistance, health protection, nutrition information and education, food production, and family planning.

To keep food costs within the reach of low income families, price controls have been imposed on basic commodities and consumer items, including rice and oil. The Philippine Government currently is considering the adoption of a national Code for the Marketing of Breastmilk Substitutes. Existing maternity leave legislation permits 6 weeks on full pay (2 prenatal and 4 postpartum) with job tenure guaranteed. Establishments employing 15 or more married women workers are required by law to provide adequate facilities for breast feeding.

Operation Timbang is a child-weighting program used to identify children in need of nutritional help and to provide a database on malnutrition for national planning. The Barangay Nutrition Scholar Program was developed in 1977 as a pilot project in six regions of the country as a strategy for providing each barangay with a trained community worker to deliver basic health and nutrition services. The Malnutrition Prevention Project (MPP) is a Ministry of Agriculture, Bureau of Agricultural Extension project operating in 24 of the country's 75 provinces. It is implemented by Home Management Technicians who are trained in skills needed to prevent malnutrition among

young children. Nutri-Paks are high calorie and protein, ready-to-cook food supplements distributed to mothers of children with third degree malnutrition. Nutribuses are mobile vans that carry nutrition communication support materials for Barangay Nutrition Scholars. The Nursing Mothers Association of the Philippines (NMAP) offers mother-to-mother counseling services, breast feeding and infant care classes, numerous publications, and community education events. In 1975 Baguio General Hospital and Medical Center implemented a breast feeding promotion program consisting of complete breast feeding on demand, rooming in, and shortened initial starvation time which drastically cut neonatal mortality rates. The Philippine Government is conducting a national nutrition surveillance program under the direction of the National Nutrition Council with support from U.S.A.I.D. and Cornell University. In 1982 the value of the U.S. PL-480 Supplemental Foods program in the Philippines was US\$17.5 million.

1. NUTRITION AND HEALTH STATUS

1.1 NUTRITION AND HEALTH STATUS, GENERAL

NATIONAL

NUTRITION PROBLEMS: A review of information available in 1973 produced the following list of nutritional problems: 1) protein-calorie malnutrition was the most serious nutrition problem, with the calorie deficit most pronounced; 2) infants, pre-school children, and pregnant and lactating women in low income households were most at risk; 3) 90% of infants and children were malnourished to some degree, with 35% suffering from second and third degree malnutrition; 4) iron and vitamin A deficiencies were also serious; 5) income distribution was severely skewed and had not improved during between 1950 and 1970 period; 6) 56% to 81% of families could not afford to purchase a minimum "food basket"; 7) the high prevalence of infectious disease was a significant barrier to improving nutritional status; 8) the level of knowledge of good nutritional practices was low; 9) grain markets were unstable and food production was inadequate; and 10) neither the government nor the private sector viewed malnutrition as a development priority or was organized to address nutrition problems. (USAID, 1978)

ANEMIA: The 1978 National Nutrition Survey found the following rates of anemia: children age 0 to 6 years, 55.8%; age 7 to 12, 59.7%; males age 13 to 59, 33.3%; females age 13-50 (except pregnant or lactating), 51.5%; and adults age 60 and over, 60.9%. (NSDB, 1981)

VITAMIN A: About 25% of the population nationally suffers from deficient or low blood vitamin A levels. (National Nutrition Council, 1977b)

VITAMIN A DEFICIENCY—CEBU: An epidemiological, clinical, and biochemical study of 1,715 children aged one to 16 years from 626 families on the island of Cebu in 1973 found that 4.4% of the children displayed clinical signs of xerophthalmia, 40% of the children had low serum vitamin A levels, and 17% deficient levels. 2.9% had xerophthalmia; this is a conservative estimate given the stringent definition used. (Austin et al., 1981)

XEROPHTHALMIA (VITAMIN A DEFICIENCY)—CEBU: An intensive study of vitamin A deficiency in Cebu province involving 1,700 children aged 1 to 5 years from different ecological zones found that 58% of the children had deficit or low serum vitamin A levels using ICNND standards, and that 70% displayed clinical symptoms of xerophthalmia. Defining xerophthalmia as only those cases with both clinical signs and biochemical deficiencies, the incidence was 40%. (Solon, 1978)

RURAL

NUTRITIONAL DEFICIENCIES: Villagers outside Cebu City have diets severely deficient in calories, thiamin, and riboflavin. Vitamin A also is not well absorbed because of their fat-free diets. (Guthrie et al., 1980)

1.1 NUTRITION AND HEALTH STATUS, GENERAL (Cont.)

GOITER: The FNRC surveys from 1958 to 1969 showed that goiter was present in 4% of the total population. It was most prevalent in the mountainous areas, although it was also found in coastal regions. (Solon, 1978)

1.2 NUTRITION AND HEALTH STATUS, WOMEN, PREGNANT

NATIONAL

ANEMIA: Among pregnant women, the 1978 National Nutrition Survey found the following rates of anemia: nationwide, 85.0%; in Luzon, 87.7%; in Visayas, 85.5%; and in Mindanao, 76.1%. (NSDB, 1981)

GOITER: Studies during the 1960s revealed that about 12% of pregnant women had goiter. Adolescent girls and pregnant women were the most prone to the disease. (Solon, 1978)

1.3 NUTRITION AND HEALTH STATUS, WOMEN, LACTATING

NATIONAL

ANEMIA: The 1978 National Nutrition Survey found the following rates of anemia: nationwide, 62.5%; in Luzon, 68.0%; in Visayas, 53.4%; and in Mindanao, 63.2%. (NSDB, 1981)

VITAMIN A DEFICIENCY: 41% of nursing women were found to have either deficient or low serum vitamin A levels in 1958 to 1969 regional nutrition surveys. (Solon, 1978)

VITAMIN B DEFICIENCIES: The 1958 to 1969 regional nutrition surveys revealed that 80% and 83% of pregnant women, respectively, were thiamin and riboflavin deficient. At least 44% of pregnant and nursing women also had angular scars on their lips, a sign of ariboflavinosis. (Solon, 1978)

1.4 NUTRITION AND HEALTH STATUS, INFANTS 0-6 MONTHS

NATIONAL

GOOD STATUS: The results of a cross-sectional survey using anthropometric measurements show that in general, nutritional status from birth to six months was good, but deteriorated thereafter. (Magbitang et al., 1983)

INFANT MORTALITY RATE: In 1978 the estimated infant mortality rate was 65 deaths per 1000 live births, down from the 1960 figure of 98 per 1000. (World Bank, 1981)

INFANT MORTALITY RATE: The estimated infant mortality rate in 1976 was 74 deaths per 1000 live births. (Five Year Philippine Development Plan 1978-1982, 1977)

BIRTH WEIGHTS—ALBAY PROVINCE: The mean birth weight among the 2,956 births recorded in May to December 1977 was 3.09 kg., with no significant difference between midwife and hospital attended deliveries. 12.8% of the birth weights were less than 2.5 kg. However, births attended by hilots are not included and account for about 80% of the births in the province. (Solon et al., 1980a)

CAUSES OF INFANT MORTALITY: The five leading causes of infant mortality in 1975 were pneumonia, gastroenteritis and colitis, avitaminosis and other nutritional deficiencies, anoxic and hypoxic conditions, and tetanus. (Ocampo and Rabor, 1982)

BERIBERI (THIAMIN DEFICIENCY): Beriberi (caused by thiamin deficiency) was a major contributing cause of infant mortality. (Woolley et al., 1972)

HEMOGLOBIN AND HEMATOCRIT VALUES: The hemoglobin values for 15 breast-fed and 15 bottle-fed infants under 6 months of age did not differ, but the hematocrit values were higher for the breast-fed infants (34 vs. 31 vol%) in the youngest group of infants. (Barranda-Bautista and Cruz, 1979)

RURAL

MALNUTRITION—LAGUNA: In a longitudinal study of children one month to 36 months of age, the percentage of children in the normal nutritional range (based on Filipino standards) was highest (57.7%) and the rate of first degree malnutrition was lowest (38.2%) during the first six months of life. The growth curves of breast fed children were equal or superior to American standards up to 4 to 5 months of age. (Guzman, 1976)

URBAN

LOW BIRTH WEIGHT: 23% of the 577 urban-poor infants surveyed in the WHO Collaborative Study had birth weights equal to or below 2.5 kilograms; 12% of the 487 economically advantaged infants surveyed were low birth weight. The mean birth weight of the urban poor infants was 2.93 kg, while that for the better-off infants was 3.11 kg. (WHO, 1981)

WEIGHT GAIN AND BREAST FEEDING: Breast fed infants weighed monthly generally showed good gains up to five months, but gains thereafter were poor, or even non-existent, in infants with bouts of infection. (Guthrie et al., 1983)

GROWTH IN BREAST FED INFANTS: Growth among 12 infants one to four months old measured as part of a study of breast milk volume showed that the mean weights were within 90% of the Harvard Standard despite the fact that protein, calorie, and calcium intakes were below 1965-67 recommended standards. Among the 5 infants 7 to 8 months old, 4 were still above 90% of standard. Only one of the five 9 to 10 month olds was above 90% of standard. (Bonga and Hernandez, 1975)

1.5 NUTRITION AND HEALTH STATUS, INFANTS 6-24 MONTHS

NATIONAL

MALNUTRITION: Among children age 0 to 6 years examined in the National Nutrition Survey of 1978, only 27.2% had normal weights for their ages; 3.9% were overweight and 68.9% were underweight. (NSDB, 1981)

DECREASING MALNUTRITION: Data collected through Operation Timbang suggest that in the year 1979-1980, there was an improvement of 2-3% in the rate of malnutrition nationwide. The extent of improvement seemed to be slightly higher for nutritionally least and worst affected municipalities compared to that of those moderately affected in 1979. Northern regions improved unevenly, but the central and southern regions did better than the national average. (Tabatabai et al., 1982a)

DECREASING MALNUTRITION: In the 60 municipalities evaluated, Operation Timbang weighings showed that about 28% of preschool children had second or third degree malnutrition, with a range among municipalities of 15% to 46%. The comparable 1977 data for these municipalities was 31% malnourished, ranging from 13% to 58%. This represents a 6% decline in malnutrition in three years. (Kerpelman et al., 1982)

DECREASING MALNUTRITION: Although quantitative data on the impact of the Philippine Nutrition Program is spotty, there is substantial evidence for a general reduction nation-wide in the number of cases of second and third degree malnutrition, from about 35% children of under 6 years old in 1971 to 30% in 1977. Results from the same province in 1971 and 1976 show a reduction in prevalence of second and third degree malnutrition from 41% to 22%. However, caution should be used in interpreting these trends because of differences in procedures and training. (USAID, 1978)

DISTRIBUTION OF MALNUTRITION: Based on data collected in 1979 through Operation Timbang, the municipalities least affected by malnutrition are those in the northern part of the country and the provinces surrounding Manila and Manila Bay. The regions in the central part of the country are the worst-off, and the southern part contains a mix of worst- and least-affected provinces. (Tabatabai, 1982b)

MALNUTRITION RISK: The 1978 National Nutrition Survey found that, among children age 0 to 5 years, those under 1 year of age were the least likely to be malnourished. The incidence of underweight (for age) was highest at one year, and the proportion of children underweight for age decreased steadily at increasing ages. (NSDB, 1981)

WEIGHT FOR AGE: The 1978-1982 Five Year Development Plan reported that in July 1976 24.8% of children 0 to 6 years of age were suffering second degree malnutrition, and 5.8% of these children had third degree malnutrition. Serious deficiencies in iron, vitamin A, and iodine were also found. Recent indications show that the incidence of malnutrition has not decreased and that among the disadvantaged groups, the nutritional status may have even deteriorated. (Five Year Philippine Development Plan 1978-1982, 1977)

WEIGHT FOR AGE: The results of the 1976 Operation Timbang nationwide weighing program of over 4 million preschool children showed that 25% of preschoolers had second degree malnutrition and 6% had third degree malnutrition (Gomez classification, Philippine standards). Only 22% were classed as normal. The countrywide estimate is, thus, 2.9 million moderately and severely malnourished preschoolers. (Lamprey et al., 1981)

CAUSES OF CHILD DEATHS: 49% of child deaths were caused by diseases of the respiratory system; 30%, by infective and parasitic diseases; 2%, by avitaminoses and other nutritional deficiencies; and 0.4%, by goiter and anemia. (USAID, 1982b)

WEIGHT FOR HEIGHT: The highest percentage of children below the weight for height standard were those aged one year or less (22.6%). Nutritional status was observed to improve with age, and underweight was down to 8.1% by age 4. (Magbitang et al., 1983)

WEIGHT FOR HEIGHT: The proportion of children underweight for height, by age, was as follows: under 1 year, 22.6%; 1 year, 16.7%; 2 years, 14.6%; 3 years, 16.0%; 4 years, 8.1%; 5 years, 9.8%; 6 years, 8.7%; and overall, 13.8%. (Magbitang et al., 1983)

ARM CIRCUMFERENCE: The mean arm circumference of male Filipino infants, by age, was as follows: 0 years, 13.0 cm.; 1 year, 13.8 cm.; 2 years, 14.3 cm. The mean arm circumference of female Filipino infants, by age, was as follows: 0 years, 12.7 cm.; 1 year, 13.4 cm.; 2 years, 14.0 cm. The differences between sexes were statistically significant ($p < .05$). (Magbitang et al., 1983)

HEAD CIRCUMFERENCE: The mean head circumference of male Filipino infants, by age, was as follows: 0 years, 41.2 cm.; 1 year, 45.8 cm.; 2 years, 47.1 cm. The mean head circumference of female Filipino infants was as follows: 0 years, 40.7 cm.; 1 year, 44.6 cm.; 2 years, 46.0 cm. The differences between sexes at 2 and 3 years of age were statistically significant ($p < .01$). (Magbitang et al., 1983)

ABDOMINAL CIRCUMFERENCE: The mean abdominal circumference of male Filipino infants, by age, was as follows: 0 to 11 months, 40.5 cm.; 12 to 23 months, 44.5 cm. The mean abdominal circumference of female Filipino infants by age was as follows: 0 to 11 months, 39.5 cm.; 12 to 23 months, 43.5 cm. The differences were statistically significant ($p < .05$). (Magbitang et al., 1983)

CHEST CIRCUMFERENCE: The mean chest circumference of male Filipino infants, by age, was as follows: 0 years, 41.6 cm.; 1 year, 45.9 cm.; 2 years, 48.3 cm. The mean chest circumference of female Filipino infants, by age, was as follows: 0 years, 40.6 cm.; 1 year, 44.6 cm.; 2 years, 47.4 cm. The differences were statistically significant ($p < .05$). (Magbitang et al., 1983)

MALNUTRITION—REGIONS MOST AFFECTED: The results of Operation Timbang broken down by region show that Northeastern Luzon, Central Luzon, Bicol, Western Visayas, and Eastern Visayas had rates of second and third degree

1.5 NUTRITION AND HEALTH STATUS, INFANTS 6-24 MONTHS (Cont.)

malnutrition higher than the national average. (National Nutrition Council, 1977b)

MALNUTRITION BY REGION: Four regions had malnutrition prevalence rates (second and third degree) higher than the national average of 30.6% in July 1976: Western Visayas (39.0%), Eastern Visayas (36.3%), Central Luzon (32.3%), and Ilocos (31.0%). (National Nutrition Council, 1977b)

WEIGHT FOR AGE—ALBAY: The 1976 Operation Timbang weighing of 76,855 preschool children in Albay Province found 26.4% of the children normal, 48.6% with first degree malnutrition, 21.4% with second degree malnutrition, and 3.6% with third degree malnutrition. In the provincial/regional capital, Legzapi City, 49% of the preschool children were either second or third degree malnourished. (Solon et al., 1980a)

WEIGHT FOR AGE—ALBAY PROVINCE: In a nutrition survey of 634 preschool children conducted as part of the Nutrition Surveillance Pilot Project, 3.9% of the children had third degree malnutrition, 17.4% had second degree, and 50.9% were mildly malnourished. The data are very similar to the June 1976 Operation Timbang results: 3.6%, 21.4%, and 48.6%, respectively. The municipality of Malinao had a very high rate of third degree malnutrition (13.1%). (Solon et al., 1980a)

MALNUTRITION TRENDS--BOHOL PROVINCE: A comparison of the results of a 1979 nutrition survey with a similar survey in 1976 showed that there was a slight increase in the percentage of first and second degree malnutrition from 46% to 57% and from 20% to 27% respectively. The percentage of third degree malnourished children dropped from 6% to 2%. There was no significant difference in the proportions of children belonging to the second degree or third degree groups between the two studies. (Reynes and Davis, 1979)

MALNUTRITION BY ECOLOGICAL REGION--BOHOL PROVINCE: In the 1979 Bohol nutrition survey, severe (third degree) malnutrition was recorded in 2 to 3% of children in each of the five regions. Second degree malnutrition, however, was highest in the rural farming (32%), the rural fishing (26%), and the off-shore island (25%) areas. These three areas also had the lowest number of children classified as normal using Gomez classifications. In comparison, the results of the 1976 survey showed the town center area with the highest rate of second degree malnutrition (24%) and the off-shore islands and rural farming areas having the highest percent of third degree malnutrition, 12% and 8% respectively. These two areas also had the lowest number of "normal" children. (Reynes and Davis, 1979)

MALNUTRITION BY AGE—BOHOL PROVINCE: According to both the 1976 and 1979 nutrition surveys, newborn infants tend to maintain normal weight gain until their sixth month of age. In the 12 to 23 month age group, however, the 1976 study classified 36% of the children as being severely malnourished or at high risk of becoming so. The 1979 data showed this figure to have increased to 44% of the 12 to 23 month olds. One in four or five children 3 to 6 years of age were malnourished or at risk in both studies. (Reynes and Davis, 1979)

MALNUTRITION RECOVERY--BOHOL PROVINCE: Among the children classified as third degree malnourished in the 1976 nutrition survey who were reweighed in 1979 (71%), 7% were reclassified as normal, 44% as first degree malnourished, 40% were second degree, and only 9% remained critically malnourished. 5% of the original sample was reported as deceased, and 24% were lost to follow-up. These results are probably due to natural growth or illness histories rather than to health interventions. (Reynes and Davis, 1979)

CHARACTERISTICS OF ADMITTED CASES OF PEM: Of nearly 400 cases of PEM admitted to nutriwards and nutrihuts, most of the cases (72.5%) were diagnosed as marasmus and the rest as kwashiorkor (16.4%) and marasmic-kwashiorkor (11.1%). Most of the marasmic children (66.4%) were less than 24 months old, whereas most of the kwashiorkor and marasmic-kwashiorkor cases were over 24 months. The mean weight for age on admission was 57% of WHO standards and on discharge, 64%, representing a mean weight gain of 7%. At an average of 9 months after discharge, the weight-for-age had reached 68%, indicating that, on average, children were maintaining their improved nutritional status. (Lamprey et al., 1981)

CHILD MORTALITY RATE: In 1979 the mortality rate among children aged 1 to 4 years old was estimated to be 6 deaths per 1000 children. (World Bank, 1981)

PERCENTAGE OF TOTAL DEATHS: In 1972, 39.7% of all deaths recorded in the Philippines were of children less than 5 years of age, who made up 15.9% of the total population. (Solon, 1978)

VITAMIN A DEFICIENCY: The largest age-specific incidence of blindness directly associated with xerophthalmia appeared in children below 6 years old. 15.14 out of 10,000 children aged 1-6 are blinded from xerophthalmia, according to an intensive study by Solon of 1,700 children 1 to 15 years old. (Solon, 1978)

VITAMIN A DEFICIENCY--CEBU: 1.4% of the 1 to 3 year old children in the larger Cebu study had both clinical signs of xerophthalmia and deficient or low serum vitamin A levels. The highest rates (2.8%) were found in the urban fringe barrios, and the lowest rates (0.0%) were recorded in the rural coastal areas. The rates were lowest among this young age group. (Solon et al., 1980b)

RURAL

WEIGHT OF BREAST FED INFANTS: In the rural areas studied, the weights of breast fed babies at birth and through the first four months coincided with the national standard based on a sample of adequately fed Manila children. By 6 months their average weight was below 90% of the standard and at 13 months weight stabilized at about 80% of standard. (Guthrie et al., 1980)

ENERGY DEFICIENCY: Among the mildly malnourished infants and toddlers, protein intake was found to be adequate. Energy, rather than protein, was the limiting factor in the children's diets. (Barba et al., 1982)

1.5 NUTRITION AND HEALTH STATUS, INFANTS 6-24 MONTHS (Cont.)

NUTRIENT INTAKE: The nutrient intake and nutrient adequacy ratios of 5 to 11 month old infants were lower than those of 12 to 24 month old toddlers in both the experimental and control groups. (Barba et al., 1982)

ASCARIS: The rate of infection with ascarsis increases from near zero at 6 months to near epidemic proportions of 80% by 18 months. (Guthrie et al., 1983)

2. DIETARY BELIEFS

2.1 DIETARY BELIEFS, GENERAL

NATIONAL

FOOD ADVICE REQUESTED: The most common nutrition problem for which advice was sought from community health workers concerned the preparation of everyday foods. Other topics for which advice was sought included diet during illness, supplementary feeding, and cooking tips. (National Nutrition Council, 1977a)

RURAL

LEARNED HELPLESSNESS: Mothers in an experimental study of reinforcement strategies to improve infant feeding practices exhibited many features of "learned helplessness." They generally saw little relationship between what they fed their babies and the babies' growth, and they saw no apparent relationship between diet or care and illness and death. Thus, they were unlikely to learn new, more effective actions. (Guthrie et al., 1982)

CULTURAL PATTERNS EFFECT ON NUTRITION EDUCATION: The use of successful mothers as examples in nutrition intervention program was found to conflict with the cultural belief that to compliment or admire another's baby implies that one may be a witch or likely to take or harm the healthy baby. The lack of perceived relationships between mother's feeding and care behavior and their infants' growth appears to lead to "learned helplessness," that is, the inability to learn new, more effective actions. Other cultural beliefs that hinder nutrition education are mothers' accounting for small babies in terms of heredity (kaliwat) and illnesses, and the belief in the importance of vitamins. The use of reinforcements contingent on mothers' own behaviors conflicted with the general pattern used by outside agencies of giving free supplements to high risk mothers. The concepts of protective and preventive actions are not familiar in the typical medical services. (Guthrie et al., 1982)

2.2 DIETARY BELIEFS, ABOUT PREGNANCY

NATIONAL

PREGNANCY AND BREAST FEEDING: Almost all women terminate breast feeding as soon as they realize they are pregnant again, because they believe that "the milk belongs to the new baby" and that it changes sufficiently such that the suckling child may get sick from it. (Guthrie et al., 1983)

2.3 DIETARY BELIEFS, ABOUT LACTATION

NATIONAL

TANGAD PERIOD OF CARE: Following delivery, the mother enters into a five-month period known as tangad, which means "to take care." It is believed that the mother and infant are especially vulnerable to ills and

2.3 DIETARY BELIEFS, ABOUT LACTATION (Cont.)

that special care must be taken. The constraints surrounding tangad ensure an ample, nutritious milk supply. The mother is supposed to receive a diet rich in vegetables, fish, and papaya. (Woolley et al., 1972)

BREAST IS BEST: At least 70% of mothers interviewed considered breast feeding better than bottle feeding for a child 3 to 6 months of age. (WHO, 1981)

PRIVACY: More than half of the mothers in the economically advantaged urban group expressed a preference to breast feed "in privacy," whereas a majority of women in both the urban and rural poor groups said they would breast feed anywhere without regard to privacy. (WHO, 1981)

CHILD OLD ENOUGH TO STOP: There is a consensus among mothers that by one year a child can eat adult foods and that it is okay to stop breast feeding at that age. (Guthrie et al., 1980)

RURAL

EXCLUSIVE BREAST FEEDING: Among the rural poor surveyed, 52% of mothers stated that 6 to 8 months was the optimum duration for breast feeding without supplements. 38% felt that 3 to 5 months was optimal. 9% said 9 or more months, and 1% suggested 0 to 2 months as the optimal duration. (WHO, 1981)

OPTIMAL DURATION: Among the rural poor mothers interviewed in the WHO study, only 3% felt that the optimum length of breast feeding was less than one year. 46% felt that breast feeding should continue for 18 or more months, and 7% suggested 15 to 17 months. (WHO, 1981)

REASONS FOR STOPPING BREAST FEEDING: About 50% of women's responses to the question why they stopped breast feeding gave "insufficient milk" as a reason. 10% of the responses referred to pregnancy. 9% advanced return to work as a reason. 7% listed illness of the mother or child as a reason. Other reasons made up the total. (WHO, 1981)

REASONS FOR NOT BREAST FEEDING OR EARLY WEANING: Among a rural sample of 1068 women from Pampanga and Bicol Provinces, the major reason mentioned for early weaning or not starting breast feeding was insufficient or no milk (49.3%). Other reasons cited were baby is big enough to wean (15.2%), work (8.3%), pregnancy (8.3%), baby illness (7.4%), baby refused to suck (5%), and others (6.5%). (Barranda-Bautista and Cruz, 1979)

URBAN

COLOSTRUM: 46.6% of low income urban mothers interviewed believed that colostrum should be discarded although they had different reasons for this belief. 29.1% realized the importance of colostrum but were not aware of its immunological function. (Ignacio et al., 1980)

EXCLUSIVE BREAST FEEDING—POOR: Among the urban poor mothers interviewed, 56% said they felt breast feeding without supplements should

continue for 3 to 5 months. 25% felt 6 to 8 months was optimal, while 10% said 0 to 2 months, and 8% said 9 or more months. (WHO, 1981)

EXCLUSIVE BREAST FEEDING--ECONOMICALLY ADVANTAGED: 52% of the women in the economically advantaged group felt that 0 to 2 months was the optimal duration for breast feeding without supplements. 36% felt 3 to 5 was optimal. 10% felt that 6 to 8 months was optimal; and 2%, 9 months or longer. (WHO, 1981)

REASONS FOR BREAST FEEDING: In a study of low to middle income Manila mothers, the major reasons given in the hospital for breast feeding were: economical (37%), health of the child (26%), nutritious (11%), sufficient milk (10%), no reason (7%), and others (9%). The major reasons for choosing to mix-feed were: working (38%), convenience (26%), and inadequate breast milk (16%). (Rivera and Marso, 1979)

BREAST IS BEST: Traditions and expectations in the study setting strongly supported breast feeding. In prenatal interviews, there was unanimity that breast milk is the most healthful, economical, and convenient food for the baby. Mothers with breast feeding problems received much advice and support, and stopping was often considered a crisis because they felt that continuing to breast feed would endanger the child's health while stopping would sacrifice the benefits of breast feeding. (Guthrie et al., 1983)

BENEFITS OF BREAST FEEDING: The urban poor mothers surveyed reported the major benefits of breast feeding to be the contribution to the baby's health, the lower cost, and the convenience. (Guthrie et al., 1980)

INCREASING MILK SUPPLY: Mothers believe that they can increase the amount of milk by increasing their own intake of soups, vegetables, and other foods. (Guthrie et al., 1980)

INCREASED MILK SUPPLY: Mothers in a longitudinal study reported that green vegetables in water would increase their milk. They did not suggest increasing their caloric intake even though weight gain during pregnancy was only 6 to 7 kg and their weight remained unchanged after delivery. (Guthrie et al., 1983)

OPTIMAL DURATION--URBAN POOR GROUP: 51% of urban poor mothers stated that they felt breast feeding should be continued for 12 to 14 months. 29% felt that the optimum length of breast feeding should be 18 months or more. The remaining answers were 6 to 8 months (8%), 9 to 11 months (6%), and 15 to 17 months (6%). (WHO, 1981)

OPTIMAL DURATION--ECONOMICALLY ADVANTAGED GROUP: When asked how long breast feeding should be continued, 44% of mothers from the economically advantaged groups suggested 12 to 14 months, 7% suggested 18 or more months, and 4% each felt 0 to 2 and 9 to 11 months were the appropriate lengths for breast feeding. (WHO, 1981)

QUALITY OF BREAST MILK: Mothers worried about the quality of their milk. In addition to concerns over whether it tasted too salty or thin and watery, they believed their milk could be altered if they stayed in the

2.3 DIETARY BELIEFS, ABOUT LACTATION (Cont.)

hot sun or took foods or drinks that were too hot or cold. The general rule is that the mother should be the same temperature as the infant and feeds may be delayed for a couple hours for this purpose. (Guthrie et al., 1980)

TRANSMISSION OF CHARACTERISTICS: Mothers appear to be convinced that they not only transmit to the child what they have eaten but also their unfavorable emotions. One mother stopped breast feeding because she said "he will suck up my sorrow." (Guthrie et al., 1983)

REASONS FOR NOT BREAST FEEDING: Among 26 poor urban mothers who did not breast feed, 12 gave "not enough milk" as their reason, 6 said that they were working, 6 stated they were sick, and 2 suggested the child was sick. (Guthrie et al., 1980)

REASONS FOR NOT BREAST FEEDING OR EARLY WEANING: Insufficient or no milk (44%) was the major reason given by Manila mothers interviewed concerning why they did not breast feed or weaned early. Other reasons that were also mentioned included work (17.5%), baby big enough to wean (7.5%), maternal illness (7.5%), baby refused to suck (7.0%), baby illness (6.5%), inconvenience (5%), and others (5%). (Barranda-Bautista and Cruz, 1979)

REASONS FOR EARLY TERMINATION: The major reasons given by 66 poor urban mothers for early termination of breast feeding (prior to six months) were: no milk (16), pregnancy (12), mother sick (10), breast feeding painful (9), baby sick (6), child no longer wants (5), mother working (5), and others (3). (Guthrie et al., 1980)

REASONS FOR TERMINATION: In two studies of poor urban mothers, the major reasons for stopping breast feeding at any point during the first two years were: new pregnancy, child old enough, painful breasts, no milk or milk unsatisfactory, baby sick, mother sick, and mother working. Other reasons included mother tired, mother on pill, and child refuses. (Guthrie et al., 1980)

REASONS FOR TERMINATING: In a longitudinal study of 187 urban poor mothers, the 28% who terminated breast feeding during the study period felt that they were forced by circumstances to wean their child. The major reasons cited were: infant diarrhea (11); insufficient milk (9); mother working (7); mother sick (6); mother pregnant (5); baby stopped (4); milk salty (3); and others (5). (Guthrie et al., 1983)

REASONS FOR STOPPING BREAST FEEDING: About 50% of women's responses to the questions on why they stopped breast feeding cited "insufficient milk" as a reason. Among the economically advantaged and the poor groups, 19% and 9% of the responses respectively referred to return to work, and 2% and 10% respectively referred to pregnancy. Illness of the mother or child was given in about 12% and 22% of the responses of the two groups. (WHO, 1981)

UNSATISFACTORY MILK: Mothers in the two urban studies frequently reported tasting their milk to see if it was too salty or too thin. If either condition exists, breast feeding may be stopped. The respondents

do not believe that they can remedy this problem of milk quality. (Guthrie et al., 1980)

BAHAW: Mothers believe that if they are away from the baby for six to eight hours or more, their milk is no longer good, or bahaw, and must be expressed and discarded or else it will make that baby sick (e.g. diarrhea). (Guthrie et al., 1980)

TIMING: Mothers believe that both mother and baby should eat at the times they would normally eat, even though they also practice unrestricted on-demand feeding. Missing or extensively delaying a meal until hunger has gone away may lead to pasmo, or hunger that has passed. The mother's symptoms include vomiting, abdominal cramps, or diarrhea. Pasmo may also occur if the mother takes soft drinks or ice candy instead of corn at meal time and can be transmitted to a nursing baby. (Guthrie et al., 1980)

BREAST MILK DIFFERENCES: In a study of 319 poor urban mothers, 62% believed that the milk from the right breast was food and that from the left was water. They cited differences in the consistency of the milk secreted by the right and left breasts. (Ignacio et al., 1980)

MOTHER'S DIET AND INFANT DIARRHEA: Mothers believe that "he eats what I eat" and thus their food choices may be influenced by what they think might cause the baby to develop diarrhea. Foods avoided for this reason include foods cooked in oil, fruits, and spicy stews. The test of whether a baby tolerates breast milk or any other food is whether it causes diarrhea. (Guthrie et al., 1980)

SOURCES OF ADVICE: In a study of 319 women, the majority of mothers who breast fed cited their "own will" as the most influential in their choice of feeding method, 33 followed the advice of their doctors, 29 were encouraged by their mothers, 15 by their husbands, 9 by their mothers-in-law, and 6 by nutritionists. (Ignacio et al., 1980)

HEALTH WORKERS' ATTITUDES: The results from the health professional survey in Pasay City suggests that there are several important areas where attitudes need improvement if they are to successfully promote breast feeding. For example, 49% of health workers said they would feel embarrassed or disgusted if they saw a friend nursing in public. 60% of health workers would also prefer their own newborns to be kept in a nursery rather than beside the mother for fear of ward infections (39%) or because of better care (5%). In addition a majority of nurses (75%), midwives (63%), and doctors (50%) thought it was a good idea for representatives of milk firms to visit newly delivered mothers. (Burgess, 1980)

HEALTH WORKERS' KNOWLEDGE: Although health workers are apparently in favor of breast feeding they lack much pertinent knowledge basic to the management of the breast feeding mother. Concerning the physiology of breast feeding, for example, only 18% of doctors could name the two maternal reflexes associated with breast feeding, only 35% of doctors and 6% of midwives knew that sucking stimulated these reflexes, and 13% of doctors, 3% of nurses, and 3% of midwives could explain the importance of

2.3 DIETARY BELIEFS, ABOUT LACTATION (Cont.)

the position of the baby's jaws. Regarding initiation of lactation, only 3% of doctors and 13% of midwives said that the baby should be put to the breast at birth. A majority of all professions questioned would wait at least 24 hours or until the milk comes in. (Burgess, 1980)

COMPARISON OF HEALTH WORKERS' KNOWLEDGE: Overall, doctors knew better than nurses how to promote breast feeding even though they often lack correct information. Often they had not imparted what positive knowledge and attitudes they had to those in closer contact with new mothers, namely the nurses and midwives working with them. (Burgess, 1980)

FACTORS AFFECTING MILK SUPPLY: When asked to rank six factors in order of their favorable influence on milk supply, health workers from Pasay City listed maternal diet, preparation of the breast, and drinking plenty of fluids as the most important and a relaxed and motivated mother, frequent suckling and supplementing with a bottle as the least. (Burgess, 1980)

PLANS FOR FUTURE CHILDREN: About 88% of the 205 urban poor mothers planned to breast feed their next child, while 6% planned mixed feeding and 6% planned bottle feeding. (Guthrie et al., 1980)

2.4 DIETARY BELIEFS, ABOUT BREAST MILK SUBSTITUTES (INCLUDING BOTTLE FEEDING)

RURAL

REASONS FOR SUPPLEMENTATION: The major reason given by rural mothers for introducing regular supplementation to babies under 3 months of age was "insufficient milk" (58%). Reasons such as "child likes solids," "mother thinks it is important," "to train baby," and "experience" accounted for another 7% of the reasons given. (WHO, 1981)

INFLUENCES ON SUPPLEMENTATION: In the WHO Collaborative Study, the major influences cited by rural mothers on their decision to begin supplements were the mother herself (51%), relatives (24%), medical advice (18%), friends (4%), and the media (1%). (WHO, 1981)

URBAN

INTRODUCTION OF SOLIDS: 24% of health workers interviewed in Pasay City would introduce cereals to infants below 3 months of age, 23% would wait until 6 to 8 months, and 51% correctly stated between 3 to 5 months. (Burgess, 1980)

INFLUENCES ON SUPPLEMENTATION: Among the urban poor group of mothers, the major influences on the decision to begin supplementation were the mother herself (37%), relatives (37%), medical advice (18%), friends (5%), and the media (1%). Among the economically advantaged group, mothers cited medical advice (60%), the mother herself (17%), relatives (16%), media (4%), and friends (2%). (WHO, 1981)

REASONS FOR SUPPLEMENTATION: Reasons such as "child likes solids," "mother thinks it is important," "to train baby," and "experience" accounted for 45% of the reasons given for introducing regular

supplements by mothers with babies under 3 months of age in the economically advantaged and 26% of the urban poor group. "Insufficient milk" accounted for 12% and 38% of the responses, respectively. (WHO, 1981)

REASONS FOR BOTTLE FEEDING: In a hospital study of low to middle income Manila mothers, the major reasons given by the 24% of mothers choosing to bottle feed were: no milk (29%), working (22%), mother's illness or painful breasts (17%), inadequate milk (12%), convenience (5%), and others (14%). (Rivera and Marso, 1979)

FEAR OF DIARRHEA: Both rural and urban mothers have a great fear of diarrhea because they have seen or heard about babies who died of serious dehydration and they sense that a baby with diarrhea loses weight and is weak. However, they expect very young babies to develop the adult pattern of one stool a day. When there are two or three stools or when they are not well formed, they immediately seek the cause in the diet. By a process of exclusion they come to suspect their own milk. They combat diarrhea with over the counter drugs and frequently cut off all foods and fluids. The older the child, the more likely the mother will stop breast feeding. (Guthrie et al., 1980)

RECOGNITION OF MALNUTRITION: In a 1976 study, 19 of 33 mothers of infants suffering from second or third degree malnutrition declared their belief that their infants were growing and developing well. (Zeitlin et al., 1978)

RECOGNITION OF POOR GROWTH: Mothers in the longitudinal study were asked monthly whether they were satisfied with their child's growth and often responded that the baby was growing well and had a good appetite, despite the fact that most of the infants gained little weight between the fifth and tenth months. This response may be due to the comparison with other local infants which might give an illusion of growth. (Guthrie et al., 1983)

2.5 DIETARY BELIEFS, ABOUT WEANING

2.6 DIETARY BELIEFS, ABOUT ILLNESS AND CURE

RURAL

DIARRHEA AND WORMS: Mothers in villages outside Cebu City are convinced that fruit causes diarrhea and fish causes worms. Scientific interventions do not have the same powerful contingencies as these traditional beliefs. One who maintains traditional practices receives a great deal of social support while one who innovates risks ridicule if the changed diet is followed by inevitable bouts of illness. (Guthrie et al., 1982)

3. DIETARY PRACTICES

3.1 DIETARY PRACTICES, GENERAL

NATIONAL

BASIC DIET: The basic diet is rice (corn in certain areas), plus fish and succulent vegetables or bananas. (Solon, 1978)

MAIN FOODS: Aside from rice, other major food crops are corn, bananas, sweet potatoes, fruits, and vegetables. Rice and wheat are imported. Fish is the main source of animal protein. Fats and oils are in limited supply. (Solon, 1978)

MAJOR FOOD COMMODITIES: The four food commodity groups which contributed the most to the total calorie supply (food balance sheet data) in 1977 were: rice (39% of total calories), maize (17.2%), sugar and honey (9.8%), and roots and tubers (6.7%). (USAID, 1982b)

CEREAL CONSUMPTION: Between 1977 and 1979, the estimated per capita consumption of cereal was 235 kg per year, with 7% of this consumption from imports, according to FAO figures based on food balance sheets (USAID, 1982b)

RICE CONSUMPTION: Per capita rice consumption is 300 grams per day or 109.5 kilograms per year, 82% of all cereal consumption; the balance is principally corn. (NSDB, 1981)

INTAKE DEFICITS: The National Nutrition Survey of 1978 found that average per capita daily calorie intake was 1804 calories, only 88% of the recommended allowance of 2036 calories. Protein intake was 53 grams per day, or 102.9% of the recommended 51.5 grams. Iron intake was 11.0 mg., 91.7% of the recommended 12 grams. Vitamin A intake was 2481 I.U., or 68.6% of the recommended allowance of 3681 I.U. (NSDB, 1981)

SEASONAL ENERGY DEFICITS: Agricultural workers typically suffer from a significant energy deficit during the height of the farming season. The typical intake of rice farmers was 2,471 calories, whereas energy expenditure was about 3,307 calories. (National Nutrition Council, 1977b)

FOOD INTAKES AND DISTRIBUTION: A comparison of the 1973 Food Balance Sheet to food intake figures from nutrition surveys uncovers a significant gap between supply and intake in several food groups including sugar, fats and oils, and protein-rich foods (meat, fish, milk, and eggs). While some of this gap may be due to "hidden" intakes, unequal and inefficient food distribution has undoubtedly led to unequal distribution of food intake. (Solon, 1978)

CALORIE SUPPLY PER CAPITA: Between 1977 and 1979 the average daily calorie supply per capita was 2211 calories (excluding fish), according to FAO calculations from food balance sheets. This is about 98% of the FAO/WHO recommended calorie intake. (USAID, 1982b)

3.1 DIETARY PRACTICES, GENERAL (Cont.)

CALORIE SUPPLY: In 1977 the estimated per capita calorie supply was 2,189 which was 108% of the FAO recommended intake. (World Bank, 1981)

CALORIE SUPPLY: Between 1972 and 1974 the per capita daily supply of calories was 1953 kcal which was 86% of the recommended intake. (FAO, 1979)

PROTEIN SUPPLY PER CAPITA: Between 1977 and 1979, the daily protein supply per capita was 41 grams (excluding fish), according to FAO figures based on food balance sheets. This is about 68% of the FAO/WHO recommended protein intake. Only 8.2 grams were supplied from animal products. (USAID, 1982b)

FAT SUPPLY PER CAPITA: Between 1977 and 1979, the daily fat supply per capita was 30.1 grams (excluding fish), according to FAO figures based on food balance sheets. (USAID, 1982b)

IRON SUPPLY PER CAPITA: Between 1977 and 1979, the daily iron supply per capita was 1.3 milligrams from animal products and 10.6 mg from vegetable products (excluding fish), according to FAO figures based on food balance sheets. (USAID, 1982b)

ASCORBIC ACID SUPPLY PER CAPITA: In 1977 to 1979 the average daily ascorbic acid supply per capita was 75 mg./day (excluding fish), according to FAO figures based on food balance sheets. This exceeds the recommended minimum intake. (USAID, 1982b)

RURAL

STAPLE DIET: In the villages outside Cebu City, white corn grits is the staple food. The boiled corn is augmented by a soup of small dried or fresh fish and green leafy vegetables such as tops of sweet potatoes, yellow squash, green beans, and Chinese cabbage. Sometimes small portions of stew made of vegetables, spices, and chicken, goat, or pork are purchased at roadside stands and poured over the family plate of corn. Eggs and meat are generally too expensive to eat. They are often sold instead. Soft drinks are available everywhere. (Guthrie et al., 1982)

INTAKES: Energy intake was 1769 calories per person per day, 87.2% of the recommended allowance of 2029 calories. Protein intake was 50.3 grams, 98.6% of the recommended 51 grams. Iron intake, 10.8 mg., was 91.5% of the recommended 11.8 mg. Vitamin A intake, 2253 I.U., was 62.7% of the recommended 3595 I.U. (NSDB, 1981)

URBAN

INTAKES: Calorie intake averaged 1872 per person per day, 91.2% of the recommended 2052 calories. Protein intake was 58.2 grams, 111.3% of the recommended intake of 52.3 grams. Iron intake, 11.4 mg., was 91.9% of the recommended intake of 12.4 mg. Vitamin A intake, 2922 I.U., was 79.8% of the recommended 3663 I.U. (NSDB, 1981)

3.2 DIETARY PRACTICES, WOMEN

3.2.1 DIETARY PRACTICES, WOMEN, DURING PREGNANCY

NATIONAL

DIETARY INTAKE: Mothers did not vary their diets before giving birth. Their overall dietary intake is customarily low in protein, thiamin, and vitamins A and C. (Woolley et al., 1972)

3.2.2 DIETARY PRACTICES, WOMEN, DURING LACTATION

NATIONAL

DIET: Mothers do not vary their diets after giving birth. (Woolley et al., 1972)

TANGAD: Following delivery, the mother enters the five-month period known as tangad, characterized by constraints which help to ensure an ample, nourishing milk supply. The diet of the mother is supposed to be rich in vegetables, fish, and papaya. The mother receives vigorous massages for several days and wears a tight band around the waist. (Woolley et al., 1972)

RURAL

LIKI--ASSURING GOOD MILK SUPPLY: Liki is a ritual performed by some rural women to ensure a good flow of rich milk and help mothers cope with their fears over the quantity and quality of breast milk. In the liki the mother's breasts are stroked with broken leaves of papaya and stalks of sugar cane; the white sap of the papaya is to assure that the milk will be copious, thick, and white, and the cane to assure that it will be sweet. (Guthrie et al., 1983)

URBAN

NUTRIENT INTAKE: The average nutrient intakes of 21 lactating mothers calculated from three-day food records were: 2175 calories, 66 grams protein (27g animal), 430 mg calcium, 14.6 mg iron, 1672 IU vitamin A, 41.2 mg vitamin C, 17.1 mg niacin, 0.8 mg thiamin, and 0.74 mg riboflavin. (Bonga and Hernandez, 1975)

3.3 DIETARY PRACTICES, INFANTS 0-24 MONTHS

3.3.1 DIETARY PRACTICES, INFANTS 0-24 MONTHS, BREAST FEEDING

NATIONAL

EXCLUSIVE BREAST FEEDING: Exclusive breast feeding, feeding the infant only mother's milk, averaged 4 months among the breast feeding women sampled in the 1978 World Fertility Survey. (World Fertility Survey, 1979)

3.3.1 DIETARY PRACTICES, INFANTS 0-24 MONTHS, BREAST FEEDING (Cont.)

PREVALENCE: Breast feeding prevalence was measured in two ways in the 1978 World Fertility Survey. 87.8% of women breast fed in the last closed pregnancy interval (including only women with at least two births whose next to the last child survived at least 12 months). 85% of the children of the interviewed women who were born in the three years preceding the World Fertility Survey were breast-fed. (Kent, 1981)

PREVALENCE: According to national surveys, the prevalence of breast feeding is 90% among 6-month-olds, 85% among 12-month-olds, and 80% at 18 months. (USAID, 1982b)

PREVALENCES: According to the nine country WHO Collaborative Breast Feeding Study, the Philippines and Guatemala had the lowest percentages of mothers initiating breast feeding in the period 1975 to 1977. (Relucio-Clavano, 1981)

BREAST FEEDING COMPARISON AMONG WFS COUNTRIES: The percentage of children breast fed, as reported in the 1978 World Fertility Survey, is lower than in WFS countries with similar per capita incomes (e.g., Thailand, Guyana, Colombia, and Jordan). The longer exposure to Western influence and a lower cultural resistance to changing infant feeding practices are suggested as reasons for the relatively low initiation of breast feeding in the Philippines. The mean duration of breast feeding, however, conforms to the general pattern in relation to per capita GNP. (Kent, 1981)

FREQUENCY OF FEEDS: A large majority (85-97%) of the breast feeding women interviewed in the WHO study reported feeding their infants "on demand" rather than "on schedule." (WHO, 1981)

PREVALENCE BY AGE AND PARITY: 91.5% of women under 25 years old had breast fed their next-to-last child, but this decreased to 86.8% for 25 to 34 year old women, and 87.9% for women 35 years old or more, according to the WFS data. The percent of women who breast fed their next-to-last child increased with increasing birth order from 84% for the first child to 90% for the child born fifth or later. (Kent, 1981)

PREVALENCE BY EDUCATIONAL LEVEL: The percentage of women who breast fed their next to the last child varied by their educational level: 79.6% with no formal education, 80.8% with primary education, and 72.5% with at least secondary education breast fed. (Kent, 1981)

PREVALENCE AND MATERNAL EDUCATION: The percentage of urban and rural poor mothers breast feeding their index child tended to decrease with the mother's educational status at all child ages. (WHO, 1981)

PREVALENCE AND PAID WORK: Breast feeding prevalence tended to be consistently higher among non-working (i.e., not paid) than among working (full or part-time) mothers in each of the three groups surveyed. (WHO, 1981)

PREVALENCE AND PREVIOUS BREAST FEEDING EXPERIENCE: Mothers who had exclusively breast fed their second youngest child one month or more were consistently more likely to be breast feeding the index child than

mothers who had exclusively breast fed for less than a months, in the WHO study: 85% to 52% among the economically advantaged group; 96% to 73% among the urban poor group; and 96% to 91% among the rural poor mothers. (WHO, 1981)

BREAST MILK VOLUME: According to data collected in the WHO Collaborative Study, the total 24-hour volume of breast milk in 561 women ranged from 50 ml to 1250 ml. The mean volume for traditional rural women was 620.5 ml, for the urban poor women was 623.6 ml, and for the economically advantaged women was 360.0 ml. (Guzman, 1982)

ROOMING-IN IN HOSPITALS: In the WHO study, only 27% of mothers in the economically advantaged group who delivered in institutions were found to keep their babies in the same room. 18% of the urban poor mothers and 6% of the rural poor mothers delivering in hospital kept their babies in the same room. There was a tendency (very small numbers) for "rooming in" to favor breast feeding. (WHO, 1981)

DURATION: According to the World Fertility Survey, the average duration of breast feeding among the sample surveyed was 11 months. (World Fertility Survey, 1979)

DURATION: The median length of breast feeding among those WFS women whose next to the last child survived at least 12 months was 11.9 months. (Kent, 1981)

DURATION—URBAN AND RURAL: The median age at weaning from the breast was below 2 months among the economically advantaged urban group compared to the median age of over a year for the urban and poor groups combined, among the three groups interviewed in the WHO study. (WHO, 1981)

REASONS FOR BREAST FEEDING DECLINE: According to the 1975-76 WHO Study on Breast Feeding, the main factors causing the sharp decline in breast feeding were: 1) lack of promotion by health personnel, 2) lack of a national policy supporting breast feeding, 3) rapid urbanization, 4) socioeconomic development, 5) increase in the number of women working outside the home, and 6) the copying of the affluent women by the poor urban women. (Guzman, 1982)

DURATION—BOHOL: In Bohol Province, the average duration of breast feeding was 16.6 months for the last live-born child among a sample of 720. The duration in the MCH/FP Project Area was 17.9 months compared with the 15.1-month average in the non-project area (the project area was less developed). The duration among the rural sample (579) was 17.5 months, while the duration in the town centers was 12.5 months. (Jimeno, 1978)

TYPICAL BREAST FEEDING WOMEN—BOHOL: The profile of a typical breast feeding woman in Bohol Province in 1976 was a woman who resided in a barrio, finished primary school, was married to a farmer, had a family income of less than P 1000 (less than \$150) and was engaged in making handicrafts. (Jimeno, 1978)

3.3.1 DIETARY PRACTICES, INFANTS 0-24 MONTHS, BREAST FEEDING (Cont.)

DURATION BY AGE: The 1978 World Fertility Survey shows virtually no difference in the overall median length of breast feeding by the age of the mother. (Kent, 1981)

DURATION AND HUSBAND'S OCCUPATION—BOHOL: In a 1976 Bohol Province survey, women whose husbands were employed in high status occupations (i.e., professional-clerical) breast fed for shorter periods (average, 8.8 months) than women whose husbands had low status jobs (i.e., farmers, 17.9 months; fishermen, 17 months; blue collar/non-farming, 13.4 months). (Jimeno, 1978)

DURATION AND FAMILY INCOME—BOHOL: The mean duration of breast feeding decreased as family income increased among a cross-sectional sample of families in Bohol Province. Respondents from families with incomes less than P 500 (less than \$71) had the longest duration (20.5 months) and those with incomes over P 5000 (more than \$714) had the shortest duration (12.6 months). (Jimeno, 1978)

DURATION AND WORK STATUS—BOHOL: Women who had ever worked for pay since their first marriage had a slightly higher mean length of breast feeding (16.8 months) than those who had not worked for pay (15 months), according to the results of a 1976 Bohol Province survey of 701 women. Women engaged in traditional farm-related jobs breast fed the longest (20.5 months), and those with modern jobs (i.e., professional-clerical) breast fed the shortest duration (5.9 months). Whether the work was at home or away did not influence duration, perhaps because this data was relating current work status to past breast feeding practices. (Jimeno, 1978)

DURATION AND MOTHER'S EDUCATIONAL LEVEL—BOHOL: Higher educational level is associated with shorter breast feeding duration. Women with no schooling up to 6th grade level breast fed for 16 to 19 months, while high school graduates averaged 11 months and college graduates averaged 8 months. (Jimeno, 1978)

DURATION AND TYPE OF MATERNITY CARE—BOHOL: In general women in Bohol Province who received prenatal and/or delivery care from medical personnel breast fed for a shorter duration (private M.D./hospital, 10.9 months; rural health unit personnel, 13/1 months) than those attended by traditional birth attendants, called hilots (18.4 months). This data is confounded by the socio-economic status and residence of the respondents. (Jimeno, 1978)

DURATION AND DEMOGRAPHIC CHARACTERISTICS—BOHOL: In general younger women and those with fewer children breast fed their last live-born child for a shorter duration, according to a 1976 survey of Bohol Province women. (Jimeno, 1978)

RURAL

CONDITIONS OF LACTATION: The conditions for rural mothers are excellent for the easy establishment of lactation. Mothers have been surrounded by other successfully lactating women, delivery is without drugs, baby is held by the mother soon after delivery, and the mother has helpers who

care for her, the baby, and the house for a week. Everyone assumes she will breast feed, and she does so, with few exceptions. (Guthrie et al., 1980)

PREVALENCE: 79% of the 2151 rural women surveyed in the 1978 World Fertility Survey breast fed their next to the last child, which was 17% higher than the urban rate. (Kent, 1981)

PREVALENCE: 94% of the 808 rural women surveyed in the WHO Collaborative Study reported ever breast feeding the index child. (WHO, 1981)

PREVALENCE--LUZON: Data from a FNRI 1974 food consumption survey in rural areas of Luzon showed that 66% of the 0 to 3 years old children were being breast fed, 27.5% were mixed fed, and 6% were bottle fed. (Osteria, 1978)

PREVALENCE--LAGUNA PROVINCE: In a 1972-1976 longitudinal study in a rural Laguna town, 70.6% (43) of the children followed for 3.5 years were wholly breast fed, 2.9% (12) were solely artificially fed, and 8.8% (6) were mixed-fed but predominately given artificial milk. (Guzman, 1976)

INITIAL BREAST FEEDING: Mothers wash their breasts after delivery and put their babies to their breasts for the first time four to 24 hours after birth. (Guthrie et al., 1980)

COLOSTRUM: Almost all rural mothers give their colostrum to the baby. (Guthrie et al., 1980)

EXCLUSIVE BREAST FEEDING: 5% of rural mothers were still exclusively breast feeding their 6 to 7 month old infants. (WHO, 1981)

NUMBER OF FEEDING: Poor rural breast feeding women reported feeding their infants (0-2 months old) an average of 9.8 times per day: 6.2 times during their waking hours, and 3.6 times during the night. The reliability of these numbers is not known, because of casual on demand feeding patterns. (WHO, 1981)

PREVALENCE BY AGE--RURAL POOR: The proportion of mothers breast feeding four or more times by day during waking hours remains stable at all ages of the children studied: 88% to 90% of mothers were breast feeding their 0 to 8 month-old infants 4 or more times per day, and 81% to 91% of the 9 to 17 month olds received 4 or more feeds per day. (WHO, 1981)

PREVALENCE AND PLACE OF DELIVERY: Among the rural poor there was a clear tendency (although the numbers were small) for breast feeding to be more common among mothers who were delivered at home than among those delivered in hospital. The proportion of mothers who never breast fed was higher among those delivered in hospital. (WHO, 1981)

DURATION: At the time of the WHO study, 92% (N=49) of the infants one month old, 83% (35) of the three month olds, 89% (28) of the 6 month olds, 75% (36) of the 9 month olds, 63% (30) of the one year olds, 42% (33) of the 15 month olds, and 42% (33) of the 18 month children were still being breast fed by the survey mothers. (WHO, 1981)

3.3.1 DIETARY PRACTICES, INFANTS 0-24 MONTHS, BREAST FEEDING (Cont.)

DURATION—PAMPANGA AND BICC' PROVINCE: The majority of rural infants (52%) were reported by their mothers to have been weaned from the breast at one year of age. Only 8.4% were weaned at 6 months or less and 10.6% between 7 and 11 months of age. 16.7% had not been weaned yet after one year, 11.2% were weaned at 24 months, and 0.9% at 36 months. (Barranda-Bautista and Cruz, 1979)

DURATION—LAGUNA PROVINCE: In a longitudinal study of feeding patterns, the peak months of weaning from the breast were 14 to 18 months; 4% of the sample were still breast feeding at 23 months. (Guzman, 1976)

MAINTENANCE OF BREAST FEEDING: In a cross-cultural study of lactation in Filipino and Australian women, the ability to maintain lactation for long periods was found to be related to the frequency of breast feeding. (Dela Rosa et al., n.d.)

WORK AS A REASON FOR STOPPING: In the Bohol Province sample of 734 women, 18% gave work as a reason for terminating breast feeding. (Jimeno, 1978)

COSTS OF BREAST AND BOTTLE FEEDING—LAGUNA: The actual money or goods cost for breast feeding was lower than that for bottle feeding, especially for the poor, while the time costs of bottle feeding were less for the poor and similar for the rich, according to calculations based on a small rural Laguna study sample. Breast feeding was relatively time-intensive and bottle feeding relatively goods-intensive. (Popkin, 1978)

URBAN

INFANT FEEDING PATTERNS: In a longitudinal study of feeding practices, 95% of mothers initiated breast feeding. 10 to 20% of the babies followed in the study were on a mixed diet of breast and bottle feeding, some beginning as early as the first month, when mothers returned to parttime work or felt the baby was not getting enough to eat. This did not necessarily lead to complete weaning from the breast and in some cases full breast feeding was reestablished. Corn gruel was also added to the babies' diets some time between the third and sixth month. (Guthrie et al., 1983)

COLOSTRUM: As many as one-half of the urban poor mothers in Cebu express their colostrum rather than give it to the baby. (Guthrie et al., 1980)

DELIVERY CONDITIONS AND INITIATION OF BREAST FEEDING: Only about 25% of upper income women try to initiate breast feeding in Cebu city. The private hospitals have separate nurseries and mothers must go to a special room to nurse. Even when lactation is stabilized after their three-day confinement, many of these middle class mothers immediately go to a mixed schedule of breast and bottle because most work and the standard maternity leave is 45 days. Because of their busy professional and social lives some of the bottle feeding mothers leave their newborns in the hospital or board them in nurseries for 4 to 6 weeks. (Guthrie et al., 1980)

EXCLUSIVE BREAST FEEDING: 9% of urban poor mothers were still exclusively breast feeding their infants at 6 to 7 months. (WHO, 1981)

PREVALENCE: Among the urban women surveyed in the 1978 World Fertility Survey, 67.5% had breast fed their next-to-the last child (N=1008), 17% lower than the rural rate. (Kent, 1981)

PREVALENCE: A 1974 food consumption survey in Luzon showed that 26.5% of the 0 to 3 year old urban children were being breast fed, 44.1% were mixed fed, and 29.4% were bottle fed. (Osteria, 1978)

PREVALENCE--MANILA: 76% of 794 married Manila women studied in 1973 breast fed for some period of time. There were small, but not significant, differences in rates by age, education, and employment. The major differences were in the duration of breast feeding. (Osteria, 1978)

PREVALENCE--MANILA: In a 1978 study of 768 urban Manila mothers of children under 6 years old, 30.9% exclusively breast fed, 43% mixed fed, and 26% totally artificially fed their children. (Barranda-Bautista and Cruz, 1979)

PREVALENCE--MANILA: Among a sample of 250 low to middle income women delivering at a Manila hospital, 123 (49.2%) chose to breast feed their babies in the hospital, 68 (27.2%) chose mixed feeding, and 59 (23.6%) chose exclusive bottle feeding. (Rivera and Marso, 1979)

PREVALENCE--QUEZON CITY: In a study of 319 low income women, the prevalence of breast feeding was 87.8% (280). (Ignacio et al., 1980)

PREVALENCE: Del Mundo conducted a study on breast feeding in 1975 at a University hospital child health clinic and found 16% of the children were breast fed while 64% were fed artificial milk. (Dela Rosa et al., n.d.)

PREVALENCE BY AGE--URBAN POOR: The percentage of mothers breast feeding four or more times by day (waking hours) was fairly consistent for each age group of children: 81% with 0-2 month olds; 92% with 3-5 months olds; 85% with 6-8 month olds; 86% with 9-11 month olds; 81% with 12-14 months olds; and 72% with 15-17 month olds. (WHO, 1981)

PREVALENCE BY AGE--ECONOMICALLY ADVANTAGED WOMEN: 86% of mothers with infants 0-2 months of age and 79% of mothers with infants 3-5 months of age were breast feeding four or more times by day (waking hours). The percentages fell steeply as the age of the child increased. (WHO, 1981)

PREVALENCE BY SOCIO-ECONOMIC LEVEL: 68% of the economically advantaged urban women reported ever breast feeding the index child, while 85% of the urban poor women reported ever breast feeding the index child. (WHO, 1981)

PREVALENCE AND PLACE OF DELIVERY: Among the urban poor there was a significantly higher prevalence of breast feeding following home delivery than deliveries in hospital. The proportion of mothers who never breast fed was higher among those who were delivered in hospital. (WHO, 1981)

3.3.1 DIETARY PRACTICES, INFANTS 0-24 MONTHS, BREAST FEEDING (Cont.)

PREVALENCE AND DURATION: Among 121 urban poor mothers of 420 infants, 5% did not initiate breast feeding, 10% breast fed for 0 to 3 months, 5% for 4 to 6 months, 10% for 7 to 9 months, 3% for 10 to 11 months, 23% for 12 months, 39% for 13 to 24 months, and 4% over 24 months. (Guthrie et al., 1980)

MILK VOLUME: The average quantity of milk obtained by infants in a 24-hour weighing study of 21 lactating women was 584 ml for those 1/2 to 2 1/2 months of age, 600 ml for those 3 to 4 months of age, 390 ml for those 7 to 8 months of age, and 333 ml for those 9 to 10 months of age. (Bonga and Hernandez, 1975)

MILK QUALITY—PROTEIN AND CALCIUM: The average protein concentration of breast milk among mothers ranged from 1.24 g/100 ml at 9 to 10 months to 1.38 g/100 ml at 7 to 8 months. The average calcium content in the breast milk samples ranged from 25 mg/100 ml at 1 to 2, 7 to 8, and 9 to 10 months to 33 mg/100 ml at 3 to 4 months. (Bonga and Hernandez, 1975)

NUMBER OF FEEDINGS: Women in the economically advantaged group averaged 8 breast feeds per day during the first 2 months post-partum: 5.7 during their waking hours, and 2.3 during the night. The urban poor group averaged 8.4 breast feeds per day: 5.2 during their waking hours and 3.2 during the night. These numbers may not be reliable because of the casual on-demand feeding patterns. (WHO, 1981)

WORK ARRANGEMENTS—CEBU: In Cebu City most women work in home industries or marketing near their homes and are able to work out schedules permitting them to nurse their babies often enough to maintain lactation. 17% of the 605 women surveyed gave work as a reason for not starting breast feeding. 6% gave work as a reason for terminating breast feeding. (Guthrie et al., 1980)

BREAST FEEDING AND WORK LOCATION—CEBU: In the periurban setting of Cebu, mothers breast feed if they work close to home, but they practice more mixed feeding (breast and bottle) earlier if they work in a different barrio. (Popkin and Solon, 1976)

DURATION—URBAN POOR: Among urban poor women 69% of those with one-month-olds were breast feeding. 61% of the women with three-month-olds, 53% of those with 6-month-olds, 38% of those with 9-month-olds, and 29% of the women with 15 months olds were breast feeding at the time of the interview. (WHO, 1981)

DURATION—ECONOMICALLY ADVANTAGED GROUP: Among economically advantaged women, 61% were breast feeding their one month old infants. Only 27% of those with three month olds, 19% of those with 6 month olds, and 5% with 9 month olds were still breast feeding at the time of their interview. (WHO, 1981)

DURATION—MANILA: Among the urban women studied, 10.1% reported weaning their children from the breast at less than one month of age, 40.1% at less than 7 months, 10.9% at between the seventh and twelfth months, and 20.3% at 12 months. 9.3% were still breast feeding after 1 year of age,

and 8.9% weaned at 24 months, according to the women's own reports. (Barranda-Bautista and Cruz, 1979)

TERMINATION OF BREAST FEEDING: Approximately 20 to 25% of poor urban women in the three studies conducted had stopped breast feeding prior to 6 months. (Guthrie et al., 1980)

3.3.2 DIETARY PRACTICES, INFANTS 0-24 MONTHS, WEANING

NATIONAL

SUPPLEMENTARY FOODS: 90% of all rural and urban poor babies who received supplementary foods during the first 3 months were given milk or milk-based products by bottle. By the second year only about 50% received milk or milk-based supplements. Very few babies were receiving cereals in the first 3 months, but by 6 months nearly all babies receiving supplements were given cereals of one kind or another. No other supplementary foods were noted in the first 3 months. After 6 months of age low cost protein supplements were given to about 205 of the urban poor babies. By 9 months about 80% received animal products or vegetables and about 35% received legumes. (WHO, 1981)

TYPES OF MILK PRODUCTS AVAILABLE: In 1976 to 1977 there were 24 types of infant formulas, 22 types of other milk-based products and condensed or evaporated milk found in the WHO Collaborative Market Survey. (WHO, 1981)

COMMERCIAL BABY FOODS IN THE HOME: Among urban poor and rural mothers interviewed, 16 to 18% of the non-breast feeding mothers, 16% of the breast feeding mothers who were supplementing, and 4 to 5% of the exclusively breast feeding mothers reported having commercial baby foods in their homes. (WHO, 1981)

COST OF BREAST MILK SUBSTITUTES: The average expenditure for breast milk substitutes in the Philippines in 1981 was 14% of the average family income per year. In addition there is the cost of bottles, nipples, caps, and fuel for boiling. (Relucio-Clavano, 1981)

COSTS OF FORMULA: The estimated cost of 6 months' full feeding using infant formula ranged from \$49 to \$127 in 1976 which represented between 15 and 30% of the per capita GNP, according to WHO calculations. (WHO, 1981)

AMOUNT OF BABY FOODS USED: The WHO Collaborative Study estimated that in 1975 to 1976 the sales volume of infant formulas in the Philippines was 7,000 tons, worth \$22.2 million. The volume for other milk-based products was 4,500 tons valued at \$11.2 million. The estimate for condensed or evaporated milk was 68,000 tons, worth \$56.3 million. In 1976, 3.6 kg of formula, 2.3 kg of other milk-based products, and 35 kg of condensed or evaporated milk was sold for each baby born. (WHO, 1981)

ESTIMATED SHARE OF FORMULA MARKET: In 1976 the largest company in the Philippines infant formula market had about a 47% share of the market. The second largest company had a 38% share of the market, and the three largest companies had a 99% share of the market. (WHO, 1981)

3.3.2 DIETARY PRACTICES, INFANTS 0-24 MONTHS, WEANING (Cont.)

LEADING FORMULA PRODUCTS: In 1978 Bonna (Wyeth) was said to be the leading seller among infant formulas by unit sales. Pelargon (Nestle) was said to be close by dollar value. (Baer, 1978)

RURAL

FIRST FULL SOLID FOOD: 65% of the rural children surveyed in Pampanga and Bicol Provinces were given cereal as their first solid—normally lugao gruel or rice gruel. Eggs were given first to 10.3% of infants, biscuits for 7.3%, fruits to 7.2%, and potatoes to 7.0%. (Barranda-Bautista and Cruz, 1979)

AGE OF INTRODUCTION OF SOLIDS—PAMPANGA AND BICOL PROVINCES: Among the rural mothers surveyed, initial solid supplementation did not occur until after the first month and ranged from one month to one year. 8% introduced solids before the fourth month, 47.6% at 4 to 6 months, 31% at 6 to 9 months, and 12.4% at 10 to 12 months. (Barranda-Bautista and Cruz, 1979)

SUPPLEMENTARY FEEDING: 42% of the breast fed infants 2 to 3 months old were also receiving occasional (13%) or regular (29%) supplements. By 6 to 7 months of age, 95% of breast fed infants were receiving supplements either occasionally (18%) or regularly (77%). (WHO, 1981)

SUPPLEMENTARY FOODS: In Cebu, supplements of thin corn gruel and water from vegetable cooking are given at five to six months. (Guthrie et al., 1980)

URBAN

FIRST SOLID FOOD—MANILA: Mothers of the 768 urban children surveyed reported that 78.4% received cereal as their first solid food. The most prevalent form of cereal was Cerelac (34.1%), followed by lugao gruel (28.6%), oatmeal, Gerber, and pablum. Other first foods included eggs for 8.5%, potatoes for 6.5%, and fruits for 4.9%. (Barranda-Bautista and Cruz, 1979)

AGE OF INTRODUCTION OF SOLIDS—MANILA: Initial solid supplementation is started as early as 3 weeks by a few Manila mothers, and 48.5% have introduced solids by the end of the third month. 40.3% introduced solids between 7 and 9 months, and the rest after the 9th month. (Barranda-Bautista and Cruz, 1979)

WEANING PRACTICES: In a study of 319 poor urban mothers, 141 (44%) reported applying spicy and bitter foods to the nipple as the means to wean the young from the breast. Other methods cited included hiding the bottle, the use of bandaids, and the application of Vicks over the nipples. (Ignacio et al., 1980)

TRADITIONAL WEANING FOODS: Some of the traditional foods given to young infants are lanot (the water from cooking rice or corn), gabon (the crushed leaves of gabon yield a white milky substance), and lagnob (Ficus hauli). None of these foods has significant nutritional value. (Guthrie et al., 1983)

FISH AND COCONUT OIL: Fish and coconut oil were not fed to infants. (Guthrie et al., 1983)

SUPPLEMENTARY FEEDING: 85% of the economically advantaged breast feeding mothers reported giving occasional supplements (39%) or regular supplements (46%) to their 2 to 3 month old infants. 36% of the urban poor mothers who were breast feeding reported giving supplements (13% and 23%) at 2 to 3 months. By 6 to 7 months 91% of the urban poor infants were receiving occasional (9%) or regular (82%) supplements. (WHO, 1981)

SWEETENED CONDENSED MILK: Mothers who stop nursing turn to sweetened condensed, evaporated, or powdered milk, and rarely to infant formula unless the baby is very young. Sweetened condensed milk is the first choice because it keeps without refrigeration and because it can be purchased in small quantities. Even a single can may be beyond the reach of some on certain days. Some roadside food stands sell condensed milk by the tablespoon. Powdered milk and infant formula are used by few because the smallest units are still too expensive. (Guthrie et al., 1983)

ADVERTISING: Artificial feeding promotional materials from Borden (poster), Mead-Johnson (booklets, pamphlets), Nestle (booklets, brochures, immunizations cards), and Wyeth (booklets, brochures, baby record books) were found in Manila and Cavite City hospitals and health clinics in September 1980 and February 1981. These advertising practices are in violation of the WHO/UNICEF recommendation on the marketing of breast milk substitutes. (IBFAN, 1981)

ADVERTISING--PROMOTION TO HEALTH PROFESSIONALS: Mead Johnson, Nestle, and Wyeth were reported in February 1981 to offer regularly a year's supply of infant formula to nurses and doctors in a Manila hospital if they have a new baby in the family. Other promotions to health professionals reported included support for pediatric and midwives' conferences (Mead Johnson) and the donation of equipment (Mead Johnson) to a Manila hospital. (IBFAN, 1981)

ADVERTISING--COMPANY PERSONNEL IN HEALTH CARE SYSTEM: Company representatives from Mead Johnson, Nestle, and Wyeth were reported in September 1980 to talk regularly with mothers at Manila and Cavite City health clinics. Their activities include promotional talks and distribution of literature and free formula. (IBFAN, 1981)

ADVERTISING--FREE SAMPLES: Mead Johnson, Nestle, and Wyeth were reported to be distributing promotional samples of breast milk substitutes through health service channels in Manila and Cavite City. In one Manila hospital the three companies operated a 15-day rotation system that allowed each company to provide samples for 40 to 60 babies per month, including a free sample on discharge. (IBFAN, 1981)

ADVERTISING--LABELING: Tins of breast milk substitutes from Borden's (KLIM), Holland Milk Products (Frisian Girl), and Nestle (AL 110) had no graphic instructions for safe preparations. (IBFAN, 1981)

3.3.2 DIETARY PRACTICES, INFANTS 0-24 MONTHS, WEANING (Cont.)

ADVERTISING—NO MENTION OF BREAST MILK SUPERIORITY: Labels on breast milk substitutes from Abbott (Isomil), Carnation (Carnation whole milk powder), Holland Milk Products (Frisian Girl), Lijempf (Frisiana), and Nestle (Al 110 and Lactation Follow Up) make no mention of the superiority of breast milk even when the product is suggested for infant feeding. (IBFAN, 1981)

INFANT FORMULA ADVERTISING: In 9 of 27 interview sites for health workers included in the Pasay Survey, promotional materials from Nestle, Mead Johnson, and Wyeth Samco were displayed. Cans of milk powder were in all the maternity wards and most private practitioners offices. (Burgess, 1980)

3.3.3 DIETARY PRACTICES, INFANTS 0-24 MONTHS, AFTER WEANING

NATIONAL

SOURCES OF VITAMIN A: Among 130 children 1 to 16 years old, the major source of vitamin A intake was from carotene in vegetables and fruits (81%) while 9% came from animal sources and 9% from cereals. There was a large inverse relationship between vitamin A intake and evidence of xerophthalmia. (Solon et al., 1980b)

3.4 DIETARY PRACTICES, HEALTH AND MEDICINE

URBAN

SUKMIL—WEANING RITUAL: Sukmil is a ritual performed by some rural women to ensure a good transition to supplemental food. In sukmil, a mother chars the tentacles of a squid and rubs them over a baby's legs and tongue to assure that the child will be nimble and not experience falls and dislocated bones. She also applies a charred gizzard of a chicken to the baby's lips and tongue to protect the baby starting on solid foods from diarrhea. The chicken is believed not to have diarrhea. (Guthrie et al., 1983)

BUGHAT (EXHAUSTION): Bughat, or exhaustion, is a complex and variable postpartum syndrome in which the mother reports headache, exhaustion, dizziness, nausea, bleeding, and muscle pains, apparently a form of postpartum depression. Mothers report stopping breast feeding because of bughat. They seek advice and medicine from both physicians and traditional healers. (Guthrie et al., 1980)

BUGHAT OR RELAPSE: Bughat is a culture-bound syndrome that may occur at any time postpartum. Sometimes milk decreases or stops entirely. A variety of causes are suggested, including skipping meals, nervousness or fright, hard work, sadness, acute illness, and certain foods (turtle, water buffalo, and the losing rooster from a cockfight). Native healers use a mixture of brewed herbs and roots to relieve the symptoms. If treatment is unsuccessful, the mother terminates breast feeding. (Guthrie et al., 1983)

4. NUTRITION STATUS CORRELATIONS

NATIONAL

MALNUTRITION AND CHILD SPACING: The rate of malnutrition was higher among children "deposed" from the breast by a younger sibling. The rate of malnutrition was 55% among children "deposed" after a birth interval of 18 months or less; the rates were 35% for birth intervals of 19 to 30 months, and 29% for intervals of 31 months or more. (Engel, 1979)

MALNUTRITION AND WEANING: Malnutrition in young children may be the result of early weaning (sometimes due to pregnancy) onto starchy gruels (commonly rice). Surveys indicate that many children are sufficiently nourished only during the time of breast feeding. (Woolley et al., 1972)

MALNUTRITION AND SOCIOECONOMIC STATUS: In the 60 municipalities evaluated, 1980 levels of malnutrition were correlated with 1977 malnutrition levels and relatively large mean household size, as well as with low per capita incomes, low female education levels, and low levels of project activities. Correlations suggest that nutritionally deficient areas targeted for project activity in 1977 were no longer as nutritionally deficient in 1980. (Kerpelman et al., 1982)

MALNUTRITION AND MOTHER'S EDUCATION: Research undertaken by the National Nutrition Council indicated that education of the mother might be the single most significant determinant of infant nutrition status. Rural extension Home Economists, teaching mothers improved weaning practices, decreased the prevalence of severe malnutrition in children 18 months old from 5% (the national average) to under 1%. (Engel, 1979)

MALNUTRITION CORRELATES—BOHOL: In the October–November 1976 baseline nutritional status survey for the Bohol MCH/FP project, a higher incidence of severe (third degree) malnutrition was found in the off-shore islands of Bohol Province (12%) compared to the overall average of 6%. Mothers' limited awareness of proper nutrition was believed to be a major cause of malnutrition in the area. (Reynes and Davis, 1979)

MALNUTRITION AND INFANT FEEDING METHOD—ALBAY PROVINCE: Condensed milk appeared to be associated with more severe cases of malnutrition than either evaporated or powdered milks. Among the 95 infants surveyed who were still milk-fed, there was a slight association between nutrition status and feeding method: breast fed and bottle fed infants had higher nutritional status than mixed fed infants. (Solon et al., 1980a)

CORRELATES OF MALNUTRITION—ALBAY PROVINCE: The major correlates of malnutrition found in the Nutrition Surveillance Pilot Project were: age during the first year only (3 times the rate of malnutrition in 6 to 12 month olds vs. 0 to 6 months olds), mother's education, and per capita food expenditures. (Solon et al., 1980a)

MALNUTRITION OF SIBLINGS: The chance of having another child with malnutrition is highest for households in which the worst malnourished child had second degree malnutrition, not third degree. (Solon et al., 1980a)

4. NUTRITION STATUS CORRELATIONS (Cont.)

SEX AND ANTHROPOMETRIC MEASURES: Anthropometric measurements showed that boys had significantly larger head, chest, and abdominal circumferences than girls at all ages, except at ages of less than one year, when head circumference measurements were almost the same. (Magbitang et al., 1983)

SEX AND ARM CIRCUMFERENCE: Arm circumference measurements were significantly different among boys and girls at 2 years of age, but were almost the same from 3 to 6 years. (Magbitang et al., 1983)

SEX AND WEIGHT FOR AGE: The mean weight of male Filipino infants by age was as follows: <1 year, 6.4 kg.; 1 year, 8.9 kg.; 2 years, 10.9 kg. The mean weight of female Filipino infants by age was as follows: <1 year, 6.2 kg.; 1 year, 8.4 kg.; 2 years, 10.4 kg. The differences at one and two years were statistically significant ($p < .05$). (Magbitang et al., 1983)

HEIGHT, WEIGHT, AND RESIDENCE: Urban dwellers over age 20 were significantly taller and heavier than rural dwellers. (Magbitang et al., 1983)

FAMILY CORRELATES OF CHILD DEATHS—BOHOL: Research in Bohol Province using retrospective survey data found that families with the following characteristics were more likely to experience one or more child deaths: large number of children; in which the mother married early, had little education, or was married to a farmer or blue collar worker; and those who had already experienced a child loss. (Williamson, 1982)

FOOD EXPENDITURES AND NUTRIENT INTAKE: Food expenditure had a positive and consistent effect on both intake and consumption of energy, protein, and vitamin A. Its largest impact was for families with more members or those with better educated mothers. (Florencio, 1980)

FOOD PREPARATION TIME AND NUTRIENT INTAKE: The time spent on food preparation had a positive effect on nutrient intakes of energy, protein and vitamin A; however, there was a point beyond which this relationship no longer held. (Florencio, 1980)

DIARRHEA AND FEEDING METHOD: Among forty-six infants up to 2 months old who had diarrhea, 36 (78.2%) were artificially fed and only 5 each (10.9% each) were mixed and breast fed, according to an urban and rural study of 1836 infants. (Barranda-Bautista and Cruz, 1979)

FAMILY SIZE AND NUTRIENT INTAKE: For both rural and urban families, as family size increased, intakes of energy, protein and vitamin A decreased, as did the overall quality of the diet. The effect was less severe for those who spent more money on food or those with better education. (Florencio, 1980)

VITAMIN A INTAKE CORRELATES: Correlates of increased vitamin A intake among children included increases in food expenditure and mothers who did not work outside the home. (Solon et al., 1980b)

VITAMIN A AND WORK: Vitamin A, the nutrient obtained from foods requiring the greatest time to feed, was found to be in shorter supply

among children of working mothers compared with those of nonworking mothers. (Popkin, 1978)

RURAL

BREAST FEEDING DURATION CORRELATES—LAGUNA: Among breast feeding rural Laguna women, the mean duration of breast feeding was 11.4 months. The major factors identified as related to breast feeding duration were: 1) the household wealth (positive); 2) the belief that breast is best (positive); 3) the number of boys 7 to 15 in the household (positive); 4) the number of children 1 to 6 years of age in the household (positive); 5) the age supplemental food was first fed (positive), and 6) the number of 13 to 15 year old girls in the poor households (negative). A regression analysis only accounted for 14% of the variance in breast feeding duration. (Popkin, 1978)

NUTRITIONAL STATUS AND DIETARY INTAKE: The best single predictor of nutritional status of infants and toddlers was the energy adequacy ratio, which alone accounted for 53% of the weight for age variance. Of the independent variables used, dietary intake, illness, and sociodemographic factors, only the dietary intake variables, nutrient adequacy ratios, and diet rating were significantly associated with nutrition status. (Barba et al., 1982)

QUALITY OF DIET CORRELATES: The quality of the family diet in 97 rice farming households was found to be significantly related to the five independent variables measured (family size, mother's education, total food preparation time, per capita food expenditures, and mother's employment status). Together they accounted for 22% of the total variance in the dietary quality. All the variables were positively related to diet except family size. (Florencio, 1980)

NUTRIENT INTAKE AND INTERACTIVE INFLUENCES: Although food expenditure and food preparation time had positive effects on nutrient intake individually, when taken together their joint or interaction effect was negative, that is the marginal improvement in intake attributable to increased food expenditure was less in families which spent more time preparing their food. (Florencio, 1980)

EFFECT OF DIET SUPPLEMENTATION ON NUTRITIONAL STATUS: In a random-controlled study, young toddlers in the experimental treatment group receiving dietary supplements were heavier and had greater weight for age, weight for length, and arm circumference for age percentages than the control children after one year. Well-nourished subjects with adequate food intake were able to maintain their nutritional status while those with inadequate food intakes became malnourished over the one year study period. (Barba et al., 1982)

EFFECT OF DIETARY SUPPLEMENTATION AND NUTRITIONAL ADEQUACY: In a random controlled study, the overall dietary quality of the 21 toddlers receiving dietary supplements was rated 84.4 compared to the rating of 57 for toddlers in the control group. Deficiencies in the nutrient intakes of the control children were largest for calcium, niacin, riboflavin, thiamin, iron, vitamin A, and energy. (Barba et al., 1982)

4. NUTRITION STATUS CORRELATIONS (Cont.)

CHILD NUTRITIONAL STATUS AND MOTHER'S WORK STATUS: A study of households in rural Laguna indicated that mother's participation in market work had a negative effect on the average nutritional status of children age 1 to 71 months. The presence of a working mother was significantly associated with increases in household food purchases but not with higher calorie and protein consumption for the total household or for young children. Working women also spent significantly less time in child care activities than non-working women, while older siblings spent significantly more time in child care when the mother was working than when she was not. The young children (0 to 35 months) had significantly lower weights and heights for age when their mothers were engaged in market production compared to those whose mothers did not, even when other household factors were controlled. The probability of a child having third-degree malnutrition increased by 10%. The associations for older children were not significant. (Popkin, 1980)

CHILD NUTRITIONAL STATUS AND MOTHER'S JOB: In the rural Laguna study sample, children of mothers with jobs compatible with child care did not eat significantly better than other children. Increased child care time and other advantages of the mother's market work being near the home produced a small but insignificant increase in the nutritional status of young children 0 to 35 months of age. (Popkin, 1980)

MALNUTRITION CORRELATES: Analysis of the 1974 Laguna household survey data showed that malnutrition (<75% of Harvard standard) was highest among small fishermen households (70%) and least among the larger farmer, livestock raisers, and skilled person households (23%). The analysis suggests that preschool malnutrition was primarily due to inadequate effective family income, that is, the size of income in relation to the cost of calories. (Omawale, 1980)

NUTRITIONAL STATUS AND FAMILY OCCUPATION: In a study of six village households in Luzon province, a significant relationship ($p=.05$) was found between family occupation and child nutritional status. The mean weight for age was highest for farmers (81% of standard) and lowest for commercial/government workers (78%). No other nutritional variables showed a significant relationship although the trend was consistent. (Taylor et al., 1978)

NUTRITIONAL STATUS, WEALTH, AND INTAKE: The proportion of households who consumed less than 60% of their recommended daily allowance of calories and the proportion of wealthy households were both significantly associated with the proportion of malnourished preschool children in the community, in an analysis of data from 34 rural Laguna villages. (Popkin, 1981)

NUTRITIONAL STATUS AND INCOME: In a study of Luzon households, there was no relationship between income and four child nutrition status variables. In fact, the poorest families had the highest values for three of the four indices. The authors suggest that children may have such high social value that parents strive to meet their nutritional needs despite their income, or that there may be a lower priority on improving nutrition beyond what is considered an adequate level. (Taylor et al., 1978)

NUTRITION EDUCATION AND NUTRITIONAL STATUS: Changes in maternal beliefs related to health care and nutrition reflected a significant increase in knowledge over the course of the study in both experimental (food distribution) and control groups. Both groups received extensive nutrition and health education (discussions and materials). However, in the control group, even though their knowledge and attitudes improved significantly, the growth of their children showed no benefit. The experimental subjects were sick as often as the control subjects despite their higher nutrient intakes. (Barba et al., 1982)

BREAST FEEDING AND ILLNESS: In a longitudinal study of 68 children followed to the age of 36 months, no relationship was found in the overall illness patterns of the children and the feeding method used. However, breast fed babies had a significant advantage over the bottle fed infants during the first 6 months of life for the category of gastroenteritis. (Guzman, 1976)

URBAN

MOTHERS NUTRITIONAL STATUS AND BREAST FEEDING: In a 1973 study of 794 women in Manila, mother's nutritional status did not significantly influence either the prevalence or duration of breast feeding. (Osteria, 1978)

DURATION AND AGE, EMPLOYMENT, AND EDUCATION: Among the breast feeding women in a 1973 study of 794 Manila women, 10.3 months was the average length of breast feeding. Younger women (under 30 years old) breast fed for a shorter period than older women (9.1 months vs. 12.8 months). Duration of breast feeding was inversely related to educational level: less than high school, 12.3 months; high school, 8.1 months; and college, 4.3 months. Duration also decreased with increasing employment; none, 11.4 months; part time, 5 months; and full time, 1.7 months. (Osteria, 1978)

CORRELATES OF BREAST FEEDING: Among the low to middle income Manila mothers interviewed, breast feeding was more common among the younger, less educated mothers. (Rivera and Marso, 1979)

CORRELATES OF BREAST FEEDING: A study of 319 poor urban women found the following factors significantly and negatively related to breast feeding: income, educational level, employment outside the home, hospital delivery, and unpreparedness to breast feed. Age, religion, and prenatal check-ups were not found to be related to infant feeding choice. (Ignacio et al., 1980)

QUALITY OF DIET CORRELATES: Among 100 urban households, the quality of the family diet was found to be positively related to the mother's education, the total food preparation time, and the per capita food expenditure. (Florencio, 1980)

FORMULA/BOTTLE FEEDING AND NEONATAL INFECTION: 90% of the 98 cases of neonatal infections recorded during a four-year period at Baguio General Hospital and Medical Center were being formula/bottle fed, 7% were on mixed feeding, and only 3% were being exclusively breast fed. During

4. NUTRITION STATUS CORRELATIONS (Cont.)

this period the rate of exclusive breast feeding averaged 65%. 90% of the infection cases occurred prior to the implementation of a breast feeding promotion program featuring rooming-in. During this earlier period only 40% of mothers were breast feeding their babies in the hospital. These figures strongly indicate that the widespread use of formula/bottle feeding in the hospital directly increased the risk of neonatal infections. (Relucio-Clavano, 1981)

MORTALITY AND BOTTLE FEEDING: A study in Manila (Osteria, 1976) reported higher mortality rates for artificially fed infants, particularly during the first month of life. In another study of 513 living 5 to 48 month old children, no relationship between morbidity and bottle feeding was found. The apparent difference in results could be the result of early deaths of bottle fed children. (Zeitlin et al., 1978)

DIARRHEA AND INFANT FEEDING: During the four year study at Baguio General Hospital 138 cases of neonatal diarrhea developed and of these 38 died. 130 (94%) of the cases occurred during the period prior to the implementation of a breast feeding promotion program. The incidence of diarrhea was 27.5 per 1000 neonates during the first period and only 1.5 per 1000 during the second period. All 38 neonatal deaths occurred in this first period, and all 38 were bottle fed. Out of the 138 neonates, 124 (90%) were bottle fed, 8 (6%) were on mixed feeding, and 6 (4%) were breast fed. (Relucio-Clavano, 1981)

ORAL THRUSH AND INFANT FEEDING PRACTICES: In a study of the breast feeding promotion program in Baguio General Hospital, 67 cases of oral thrush (fungal infection) were diagnosed either singly or concomitantly with other infections. Of these, 63 (94%) were bottle fed, 2 (3%) were on mixed feeding, and 2 (3%) were exclusively breast feeding. Given that the average rate of breast feeding in the hospital was 65%, this data suggests a protective role of breast feeding against fungal infections. (Relucio-Clavano, 1981)

FORMULA/BOTTLE FEEDING AND MORTALITY RATES: Following the implementation of a breast feeding promotion program at Baguio General Hospital and Medical Center, the neonatal mortality rate dropped from 13.5 per 1000 (64 of 4720) to 0.5 per 1000 (3 of 5166). Out of the total 67 deaths, 96% (64) were bottle fed, 3% (2) were exclusively breast fed, and 1% (1) were on mixed feeding. (Relucio-Clavano, 1981)

BREAST MILK REPLACEMENT: Mothers who undertook formal employment would have to spend 15 to 20 percent of their earnings to replace 70% of their breast milk with a calorically equal quantity of cow's milk. (Popkin and Solon, 1976)

5. NUTRITION AND HEALTH POLICIES AND PROGRAMS

5.1 NUTRITION AND HEALTH POLICIES AND PROGRAMS, POLICIES

NATIONAL

PHILIPPINE NUTRITION PROGRAM (PNP): The current 5-year PNP emphasizes a family centered approach to the "package" delivery of five intervention schemes to help arrest malnutrition. They are: (1) food assistance, (2) health protection, (3) nutrition information and education, (4) food production, and (5) family planning. Support activities include nutrition planning at the local level, locating the malnourished, training, research, monitoring, surveillance, and evaluation. (USAID, 1978)

NATIONAL NUTRITION COUNCIL (NNC): In July 1974, the National Nutrition Council was created by law to formulate and coordinate an integrated Philippine Nutrition Program. The Executive Director of the NNC is currently also the Executive Director of the Nutrition Center of the Philippines, in order to allow close coordination between the two agencies in the implementation of the Philippines Nutrition Program. In its first year ₱ 3.4 million were appropriated for the nutrition program. (Solon, 1978)

NUTRITION PRIORITY THEMES: Based on the Policy Directions of the Philippine Nutrition Program formulated by the NNC in 1975, the Information Education and Communication campaign shall emphasize the following priority messages: 1) breast feeding, 2) supplementary feeding, 3) feeding the preschool and school child, 4) food for the sick child, 5) family meals, 6) pregnant and nursing mothers, 7) family planning, 8) food production, 9) food sanitation, 10) signs of malnutrition, and 11) monitoring of child's health. Each message will be aired for a five-month period. (National Nutrition Council, 1977a)

INFANT AND YOUNG CHILD FEEDING PLAN: A comprehensive long-term infant and child feeding plan has been developed, including an educational program for key Ministry of Health officials, health workers, and personnel of nongovernmental organizations. The program includes surveys of health workers' knowledge of and attitudes towards breast feeding and a series of seminars and training sessions for all health personnel cadres. (WHO, 1982)

TASK FORCE ON MATERNAL AND CHILD NUTRITION: In January 1980 the National Nutrition Council organized a Task force on Maternal and Child Nutrition. The Task Force identified the following areas of concern regarding breast feeding: 1) institutional practices including weak enforcement of rooming-in and demand feeding in hospitals, lack of restraint on misleading advertising of breast milk substitutes, failure of breast feeding due to women's working and health conditions, and influences from other sectors; 2) information, education, and communication needs included lack of knowledge on the importance of breast feeding and colostrum, lack of focus on the instructional and teaching materials on maternal and child nutrition, lack of promotional materials for the public, existence of advertising that tends to discourage breast feeding, lack of emphasis on nutrition and breast feeding in health-related curricula, and lack of time spent on

5.1 NUTRITION AND HEALTH POLICIES AND PROGRAMS, POLICIES (Cont.)

these topics in training programs; and 3) need for research studies and dissemination of existing information. (Dela Rosa et al., n.d.)

RECOMMENDATIONS OF TASK FORCE ON MATERNAL AND CHILD NUTRITION: The Task Force recommended that several specific steps be taken by the Philippine Government to promote breast feeding. These included: 1) issuance of a policy memorandum by the Ministry of Health regarding the promotion of breast feeding in hospitals through rooming-in practices; 2) formulation and implementation of a national code of ethics for manufacturers of breast milk substitutes; 3) regulation of the content of advertising materials on infant milks; 4) improvement of educational materials and training programs regarding maternal and child nutrition, and breast feeding in particular; and 5) further research on factors influencing maternal and child health practices, with an emphasis on breast feeding. (Dela Rosa et al., n.d.)

PHILIPPINE FOOD AND NUTRITION PROGRAM 1974-1977: The Philippine Food and Nutrition Program (PFNP) was developed by the National Food and Agriculture Council and involved multiagency participation. Based on the concept that nutrition problems required simultaneous efforts to provide adequate food supply, nutrition education, manpower training, enhanced family life and social environment, and family income generating activities, it included five different projects: 1) nutrition training; 2) nutrition education; 3) supplementary feeding; 4) food production; and 5) nutrition rehabilitation wards, each under supervision at the provincial level. Originally it was confined to 11 of the more than 70 provinces, with each starting with 5 pilot barrios in five pilot municipalities, and expanding according to available resources. In July 1974, 42 provinces throughout the country were covered. (Solon, 1978)

PHILIPPINE NUTRITION PROGRAM: Before 1974, there existed no clearly defined policy on nutrition supported from the highest levels of national leadership. On July 2, 1974 Presidential Decree No. 491, creating a National Nutrition Council, became law. It claimed that nutrition would become a priority of government action to be implemented by all agencies in an integrated fashion. At this time President Marcos created the National Nutrition Council (NNC) which was charged with the formulation and coordination of the Philippine Nutrition Program (PNP). With this program, the improvement of nutritional levels became a major objective of national development. The struggles against malnutrition began to be viewed within the developmental framework, with long-term policies designed for prevention, rather than merely stopgap feeding schemes. (Solon, 1978)

NUTRITION ACT OF THE PHILIPPINES: In June 1974, Presidential Decree 491 was issued to 1) declare that nutrition is a priority of the government to be implemented by all branches of government in an integrated fashion, 2) order the drafting of a Four Year Food and Nutrition Program, 3) create a National Nutrition Council under the office of the President, and 4) designate July as National Nutrition Month. (USAID, 1978)

1978-1982 FIVE YEAR PLAN: The Plan aims to correct existing disparities in the level of health, nutrition, and family planning services among the regions. However, it is faced with serious resource constraints in view

of rising costs, inadequate funds for the sector, and the unavailability of professional and medical workers in the rural areas. The development of primary health care facilities will be top priority. The Philippine Nutrition Program covers the major nutritional aspects of the Plan. (Five Year Philippine Development Plan 1978-1982, 1977)

NUTRITION EXPENDITURES: The Five Year Philippine Development Plan for 1978-1982 called for the Government to spend about 1.64 billion pesos for health, nutrition, and family planning services in 1978, but the nutrition element of the budget was not isolated for comparative purposes. The National Nutrition Council prepared a more detailed Five-Year Nutrition Plan, 1978-1982, in March 1977 which indicated that government expenditures for nutrition would total about 196 million pesos in 1978 (including UNICEF and USAID contributions). The private sector, including voluntary agencies, was expected to contribute an additional 83 million pesos. However, these data only provide a general estimate of financial support for nutrition but are inadequate for meaningful comparisons. (USAID, 1978)

NATIONAL DEVELOPMENT PLAN 1974-1977: The four-year National Development Plan was revised in 1975 to reflect the new emphasis on social development and the importance of the Philippine Nutrition Program. It became a social plan with specific, defined objectives aimed at eliminating malnutrition in the country and raising the nutritional status of the people. In addition the plan set forth the following objectives: 1) promotion of employment; 2) maximum feasible economic growth; 3) more equitable income distribution; 4) regional development and industrialization; 5) promotion of social development; and 6) maintenance of acceptable levels of price, and balance of payments stability. (Solon, 1978)

NATIONAL HEALTH PLAN: The National Health Plan called for the strengthening of health services, especially in the rural areas. The main strategy adopted was the training and use of medical auxiliaries to be assigned to villages. These subprofessionals, mainly midwives, staffed the front line health services, the Barangay Health Centers. (Solon, 1978)

NATIONAL FOOD AND AGRICULTURE COUNCIL: In 1971, the National Food and Agriculture Council (NFAC) was created by Executive Order No. 285, not by law, to replace the National Coordinating Council for Food and Nutrition. It was assigned the task of coordinating and supervising all activities in the twin areas of nutrition and food production, and was headed by the Department of Agriculture. As with most such councils, there were inter-ministerial jealousies which weakened the whole operation. The Council evolved a four-year Philippine Food and Nutrition Program. (Solon, 1978)

NATIONAL NUTRITION COUNCIL (NNC): The Presidential Decree that created the NNC assigned the Council broad powers and responsibilities in the area of nutrition, including: 1) formulation of an integrated national plan on nutrition, 2) supervision, coordination, and evaluation of implementation of the plan, 3) coordination of the request for and release of public funds, loans, and grants for nutrition purposes, and 4) promotion of fund raising. (USAID, 1978)

5.1 NUTRITION AND HEALTH POLICIES AND PROGRAMS, POLICIES (Cont.)

NUTRITION CENTER OF THE PHILIPPINES (NCP): In July 1974, First Lady Mrs. Marcos founded the Nutrition Center of the Philippines, a private foundation to gather the resources of the private sector and to enlist these sectors to active participation in support of the Philippine Nutrition Program. The NCP is organized around its three activity areas: project development, finance, and information and education. For example, it has responsibility for the conduct of the massive nutrition information campaign. NCP is also the lead agency for the training needs of the PNP. It supports research projects in applied nutrition as well. (Solon, 1978)

PHILIPPINE NUTRITION PROGRAM (PNP) OBJECTIVES: The specific objectives of the PNP were to: 1) reduce third degree malnutrition among infants and preschoolers by at least 25% and lower mortality by at least 25%, 2) decrease the prevalence of second degree malnutrition among the target group by at least 10%, 3) motivate 50% of pregnant and nursing mothers to adopt desired nutrition, health, family planning, and food production practices, 4) improve nutritional status of at least 40% of school children suffering malnutrition, 5) identify and treat cases of vitamin A deficiency and anemia, and 6) promote nutrition among all families so that no more than 50% of infants and preschool children will have weights below 90% of normal. The implementation strategy relied on local organization at regional, provincial, municipal, and village levels. The PNP is grass roots originated in that it is the sum total of individual local nutrition programs developed as close to the people as possible, organized by local political leaders and based on local needs and capacities. (Solon, 1978)

PHILIPPINE NUTRITION PROGRAM (PNP) INTERVENTIONS: The PNP is based on five intervention schemes. Food assistance interventions include food supplements for third degree malnourished children (Nutri-Pak); existing feeding programs such as the National Secretariat for Social Action-Catholic Relief Service retargeted under the PNP to children in most need; and individualized instruction by the village health worker on how to prepare Nutri-Pak and better use of the family food pot. Health protection interventions consist of integrating nutrition into each level of basic health services. Nutrition Information and Education interventions include the use of mass media, schools, and nutrition classes. The Food Production interventions will include food shops for the production of nutritious food supplements and the production of selected crops in homes, schools, and communities. Family Planning interventions will consist of the integration of family planning information into PNP materials and the use of nutrition workers to locate and refer family planning acceptors. (Solon, 1978)

DEPARTMENT OF LOCAL GOVERNMENT AND COMMUNITY DEVELOPMENT: Under the guidelines of the Philippine Nutrition Program, the Department of Local Government and Community Development is to establish nutrition committees in every region, province, city, and municipality, which are to formulate plans for their local areas, to be complied and integrated at the different levels and culminating in a National Nutrition Plan. Approximately 1400 municipalities have nutrition committees and over 900 of them have prepared Municipal Nutrition Action Plans at the request of the NNC; however, they are not coordinated attacks on malnutrition based on functional classification of target groups and analysis of major determinants. (USAID, 1978)

1977 NUTRITION EDUCATION POLICY DIRECTIONS: The policy directors of the Philippine Nutrition Program in 1977 direct nutrition education information and communications programs to maximize the use of the broadcast media and the interpersonal approach using existing channels such as home visits, individual consultations, and group classes. (National Nutrition Council, 1977a)

CODE ON MARKETING OF BREAST MILK SUBSTITUTES: The Government of the Philippines held national consultations in December 1981 with World Health Organization collaboration for the development of a national code of marketing of breast milk substitutes. The draft code is being reviewed by the Ministry of Health before its submission to the competent authorities for adoption as national legislation. (WHO, 1982)

ADVERTISING OF BREAST MILK SUBSTITUTES: Advertising of breast milk substitutes was intensive, with promotion being carried out through all available media and by visits of baby food representatives to homes and health services (including free samples). Such products were widely available to all three socioeconomic groups studied. (WHO, 1981)

BRAND NAME RECOGNITION: Among the urban poor and rural mothers interviewed in the WHO Collaborative Study, most mothers knew of formula products by their brand names. (WHO, 1981)

FREE MILK SAMPLES: According to the WHO Collaborative Study, 41% of poor rural mothers, 9% of urban poor mothers, and 27% of economically advantaged mothers who delivered in hospitals received free milk samples. A comparison with other hospitalized mothers in the same group suggested no obvious association with the prevalence of breast feeding in the rural group. (WHO, 1981)

PROMOTIONAL ACTIVITIES: While mass media promotion of milk was rare in 1978, extensive promotional activities occur to and through the health care system, including the use of free samples, posters, calendars, baby care books, and gifts and support for doctors and professional societies. (Baer, 1978)

PROMOTIONAL ACTIVITIES: In 1976 and 1977, up to 1.5 million cans of infant formula, representing 7% of the total sales volume, were provided free to health institutions. Mass media advertising was still widely used. Evaporated milk, milk powder, and feeding bottles were also widely advertised. (WHO, 1981)

FORMULA COMPANY ADVERTISING: Observations in April 1983 discovered the following formula company advertising activities: 1) free formula samples were given to Camiling District Hospital in Tarlac Province (Wyeth's SMA); Rural Health Unit #2 San Raphael, Bulacan Province (Wyeth's Bonna); Fabella Hospital, Manila (rotating companies); Benguet General Hospital (rotating among Nestle, Mead Johnson, and Wyeth); and Baguio City District Clinic at City Camp (Wyeth's Bonna and others); 2) literature from companies found at Moncado Rural Health Unit, Tarlac Province (Nestle booklet); Banaban and Lourdes Barangay Health Station, Tarlac Province (Wyeth booklet with product ads); Rural Health Clinic #2, San Raphael, Bulacan Province; and Baguio city Hospital (Wyeth's Bonna

5.1 NUTRITION AND HEALTH POLICIES AND PROGRAMS, POLICIES (Cont.)

circular chart); 3) posters by Nestle, Wyeth's in seven locations; and 4) financial support of weekly Pediatric Conference by Nestle. (Lamb, 1983)

PRICE CONTROLS: To attempt to keep prices within the reach of low income families, price controls have been imposed on basic commodities and consumer items, including rice and oil. By the early 1970s price control had not yielded the desired result; the buying power of the average Filipino family had not increased. (Solon, 1978)

MATERNITY LEAVE LEGISLATION: The legislation on maternity leave and benefits permits 6 weeks on full pay (2 pre-natal and 4 post-partum) with job tenure guaranteed. These benefits are limited to the first 4 deliveries. However, only a small percentage of women were eligible for these benefits. Rural and urban poor women engaged in farm work or in small scale ventures offering little regular employment do not benefit. (WHO, 1981)

WORK AND DAY CARE FACILITIES: Establishments employing 15 or more "married" women workers are required by law to provide adequate facilities for breast feeding close to the mothers' place of work and to provide qualified health staff to supervise children in day care facilities. (WHO, 1981)

MATERNITY LEAVE: In the WHO study, 71% of working mothers from the economically advantaged urban group stated they had received paid leave after delivery. Of the 9% urban poor mothers in paid employment during pregnancy, 24% received paid leave after delivery. In the rural poor group only 5% of mothers were in paid employment during pregnancy and 21% received paid leave. (WHO, 1981)

5.2 NUTRITION AND HEALTH POLICIES AND PROGRAMS, PROGRAMS

NATIONAL

OPERATION TIMBANG (OPT): As a central part of the Philippine Nutrition program, a nationwide body-weight survey, entitled "Operation Timbang," has been started. Its goal is to locate the malnourished by weighing all children under 6 years old. The mass scale of OPT is also hoped to arouse community awareness about nutrition and thus help prevent malnutrition among the vulnerable groups. By 1975 over 1 million children had been weighed. One major obstacle was the expense to villages of a weighing scale, until a cheaper bar scale, called an espada, was developed. (Solon, 1978)

OPERATION TIMBANG: In 1976 the Philippine Nutrition Program (PNP) conducted a nation-wide weight survey known as Operation Timbang (OPT) covering over 4 million children of preschool age. (Lamprey et al., 1981)

PARTICIPATION RATES: The 1978 National Nutrition Survey found the following participation rates in food and nutrition-related programs: Operation Timbang, 34%; Agricultural Development/Food Production, 30%; Family Planning, 30%; Health Protection, 22%; Nutrition Education, 20%; Food Assistance, 14%; and Income Generating Programs, 5%. (NSDB, 1981)

NATIONAL NUTRITION SURVEILLANCE PILOT PROJECT—ALBAY: As part of the Philippine Nutrition Program, a National Nutrition Surveillance system is planned. The system would provide for a continuous collection of data, their analysis and dissemination in a timely manner. The aims of the system are to describe the nutritional status of high risk groups and the total community, monitor the causes of malnutrition, and predict the evolution or worsening of nutrition problems. Before its implementation, the system underwent a field trial in the Province of Albay in Region V in 1977. The pilot project tested the feasibility and usefulness of the system. (Solon et al., 1980a)

NUTRITION INTERVENTION EVALUATION: Under contract with USAID from 1979 to 1982, Abt Associates developed and tested a nutrition intervention evaluation model on three nutrition intervention programs in the Philippines: the Barangay Nutrition Scholar Program, the Malnutrition Prevention Program, and the Day Care Services. Multivariate geographic analysis of secondary municipal-level data was used to evaluate the programs in 60 municipalities. This approach is both feasible and useful. Because of its non-random sample of municipalities, the policy implications must be viewed with caution. (Kerpelman et al., 1982)

CORNELL NUTRITION SURVEILLANCE PROGRAM: Under a U.S.A.I.D./Cornell University cooperative agreement, the Cornell Nutrition Surveillance Program (CNSP) is providing assistance in FY 82 to the Philippine Government through the National Nutrition Council in developing its nutrition surveillance system. (USAID, 1982a)

NATIONAL NUTRITION SURVEY—1982: The findings of the 1978 survey were used in developing a new National Nutrition Survey in 1982, the results of which are not yet available. The survey is being funded by a World Bank loan for agricultural development. (USDA, 1981)

AD-HOC INFORMATION, EDUCATION, AND COMMUNICATION (IEC) COMMITTEE: The IEC Committee was created in October 1975 to determine the education and information needs of the Philippine Nutrition Program and to recommend a plan of action for implementation. The Committee formulated IEC policy guidelines that outlined the PNP priority messages as well as strategies for the implementation of the information campaign. (National Nutrition Council, 1977a)

NUTRITION INFORMATION MATERIALS: The National Media Production Center, the NCP, FNRI, Department of Health, Catholic Relief Service, and PBSP are all engaged in information materials development to meet the demands of extension workers. The Information, Education, and Communication (IEC) Committee will oversee the development, production, and distribution of all future IEC materials in order to minimize duplication of efforts. (National Nutrition Council, 1977a)

BARANGAY NUTRITION SCHOLAR PROGRAM: The Barangay Nutrition Scholar program (BNSP) was developed in 1977 as a pilot project in six regions of the country as a strategy for providing each barangay with a trained community worker to deliver basic nutrition and health-related services. Initially, the indigenous Barangay Nutrition Scholars (BNS) were trained by the national level Mobile Training Team. After the first year

5.2 NUTRITION AND HEALTH POLICIES AND PROGRAMS, PROGRAMS (Cont.)

implementation and management of the program was turned over to the local nutrition committees. By 1982 more than 9,750 BNS had been trained by provincial level trainers. Training includes a practicum conducting a barangay weighing survey. Supervision is by the Municipal Action Officer and the Municipal Nutrition Officer, where there is one. The BNS stipend generally ranges from P20 to P100 per month for an average of 20 hours per week. The Barangay Nutrition Action Plan outlines the seven activities for which BNS are responsible: 1) outreach and detection of malnutrition through regular weighings; 2) nutrition and health-related services including information, education, referrals, and distribution of supplements; 3) environmental sanitation services; 4) targeted food production services; 5) supplemental feeding; 6) family planning; and 7) administrative reporting and monitoring. Weighings have the highest priority. BNS activities are coordinated with other interventions in the barangay. (Kerpelman et al., 1982)

BARANGAY NUTRITION SCHOLARS: BNS have frequent contact with mothers of malnourished children, weekly or even daily. They monitor the child's condition, give advice on feeding, and distribute supplementary food if locally available. Recently, BNS have begun to provide education on the following topics: environmental sanitation; detection and prevention of malnutrition and vitamin and mineral deficiencies; promotion of inoculations; and symptoms and treatment of malnutrition. The BNS adapt their activities to the local conditions in each barangay. (Kerpelman et al., 1982)

BARANGAY NUTRITION MANUAL: The Nutrition Center of the Philippines produced the Barangay Nutrition Manual that has been distributed to various municipal level workers. (National Nutrition Council, 1977a)

BARANGAY HEALTH AIDE PROJECT: The Barangay Health Aide Project was jointly undertaken by the Cebu Institute of Medicine, Philippines, and the Virginia Polytechnic Institute and State University, USA, with support from USAID and the National Nutrition Council. The Project was designed to study the practicability of training and utilizing para-professional workers to deliver primary health care, to undertake the training and supervision of Barangay Health Aides for service in the study areas, to develop a training plan for nationwide adoption, and to evaluate the results of training as reflected by the impact on health status. (Solon, 1977)

BARANGAY NUTRITION SCHOLAR PROGRAM EVALUATION: BNS activity appears to be somewhat concentrated in the more prosperous municipalities with smaller household sizes. BNS activity also tends to overlap with the Malnutrition Prevention Project activities. Multiple regression analyses show that over half the variance in either 1980 malnutrition levels or the percentage decline in malnutrition from 1977 to 1980 can be explained by four non-project variables: the 1977 malnutrition levels, per capita income, mean household size, and low levels of female education. Nevertheless, the BNS measures add a significant increase in the predictive power of the regression equation. For example, each additional BNS per 1000 preschoolers results in a 1.2% decline in the 1980 malnutrition level and a 3.86% increase in the 1977 to 1980 decline in malnutrition. The analysis also showed that for every 1% increase in the number of

barangays covered by BNS there is a .09% decline in the 1980 malnutrition level and a .31% increase in the decline in malnutrition. The effects were significantly stronger when the MPP was also present. (Kerpelman et al., 1982)

PANAY UNIFIED SERVICES FOR HEALTH (PUSH) PROJECT: In FY 1982 USAID is providing approximately \$150,000 in loans for the nutritional inputs to the PUSH primary health care project. The lead agency is the Region VI Development Council. The project is training and placing in the field 600 Barangay Health Workers (BHWs) in 600 targeted barangays to deliver primary health care services and implement environmental sanitation projects. The BHWs coordinate with the Philippine Nutrition Program to establish nutrition outreach service points and to provide nutrition services and commodities to an estimated 10,000 malnourished children. (USAID, 1982a)

BIGOL INTEGRATED HEALTH, NUTRITION, AND POPULATION PROJECT: In FY 82 USAID is providing approximately \$80,000 in loans to the Region V Office of Ministry of Health to support the Bigol Project, which is similar to the PUSH project. 400 Barangay Health Aides are being trained and deployed in two provinces of the Bigol region. As in the PUSH project, the village workers will provide nutrition education, weigh and keep records of children under six, assist in the distribution of food commodities, conduct feeding programs for malnourished children, refer severely malnourished children, and assist in the Barangay Food Production Campaign. Food grinders and scales will be provided to home management technicians for the preparation of weaning mix and for the weighing of children. (USAID, 1982a)

BOHOL MATERNAL AND CHILD HEALTH/FAMILY PLANNING PROJECT: The Bohol Project was originally designed as a family planning project by the Population Council and funded by UNFPA. The five-year project began in 1975 in the northwest half of Bohol Province with a population of 400,000, including 47,000 mothers and 67,000 children under five. The intervention package consisted of basic primary health care with an emphasis on MCH and family planning. Health services were in place by mid-1976 and by 1979, 100 small Primary Health Care Centers, each staffed by a midwife, were established. The main innovation was the recruitment, training, and deployment of the increased number of midwives, with expanded MCH/FP functions, to rural areas. Compared to the other half of the Province, which had about the same number of health staff as the project area (due to a World Bank loan and the Ministry of Health), health service coverage increased more noticeably in the project area. However, evaluation data suggest there was no clear decline in overall infant and child mortality. (Williamson, 1982)

EVALUATION OF BOHOL PROJECT: The most plausible explanations for why the Maternal and Child Health/Family Planning project in the Bohol area did not affect mortality are: 1) the lack of fit between health services and local health conditions; 2) the intractability of local health problems to available health technologies; 3) the lack of resources for comprehensive primary health care; and 4) the short time period of the intervention. (Williamson, 1982)

5.2 NUTRITION AND HEALTH POLICIES AND PROGRAMS, PROGRAMS (Cont.)

ADVERTISING--BOHOL: Rural Health Units in Bohol Province occasionally display posters stating that certain brands of powdered milk are more convenient than mother's milk. This may be one of the reasons for the shorter breast feeding durations found among younger women. (Jimeno, 1978)

MALNUTRITION PREVENTION PROJECT: The Malnutrition Prevention Project (MPP) is a Ministry of Agriculture Bureau of Agricultural Extension (BAEx) project begun in July 1975 in 24 of the country's 75 provinces and designed to prevent malnutrition among infants and young children. The MPP is implemented by Home Management Technicians (HMT) who are required to have a baccalaureate degree and to pass a civil service exam. After a 6-month to 1-year apprenticeship, they are assigned three barangays in which to implement MPP. In 1975 there were 130 HMT, but by 1980 there were 1,425 HMT serving more than 5,000 barangays. In each barangay, the membership of the Rural Improvement Club (RIC) becomes the project's outreach arm. The goal is that after the first year the RIC will assume responsibility for running the MPP, and the HMT is assigned one new barangay each year. Project activities include: identifying all 0 to 6 month old children to enroll them in the program; homemakers' classes for pregnant and lactating women offering nutrition education on breast feeding and supplementary feeding, home and community gardens, and technical planning; and monthly weighing of all 0 to 18 month olds. RIC members assist the HMT in outreach and services, including setting up an Infant Food Supply Center and an Infant Supplementary Mix Center to provide information and weaning foods. (Kerpelman et al., 1982)

MALNUTRITION PREVENTION PROJECT EVALUATION: The goals of the MPP are to enroll 80% of the eligible "normal" children from 0 to 6 months old and to prevent at least half of the participants from becoming malnourished before the age of 18 months. An internal evaluation in 1978 shows that the MPP tends to exceed its goals, often achieving a rate of malnutrition prevention (greater than 80% weight for age standard) of 70% upon graduation. Among infants weighed in the evaluation, 66.6% were above 80% of weight standards (normal or only mildly malnourished) and only 0.5% were severely malnourished. 82.2% of the sample studied had maintained the nutritional level in the acceptable range one year after graduation as well. (Kerpelman et al., 1982)

EVALUATION--MALNUTRITION PREVENTION PROJECT: The same evaluation process used for the BNSP showed that MPP activity appears more in less prosperous municipalities but with smaller household sizes and higher female education levels. When the program measure used in the analysis is the number of Home Management Technicians per 1000 preschoolers, the coefficients are about four times stronger than the BNSP effect, reflecting the amplification of the HMT effect through Rural Improvement Club involvement, but the effect does not reach significance. Using the percentage of barangays in the municipalities covered by MPP as the project input measures, the MPP does significantly add to the decline in malnutrition and its effect is about three times that of the BNS. The detection of strong MPP effects despite much lower intensities of MPP activities relative to BNS is a promising indication for expanding its coverage. (Kerpelman et al., 1982)

MALNUTRITION PREVENTION PROGRAM: The Bureau of Agriculture Extension Malnutrition Prevention Program basically uses education for the better utilization of available food resources for child feeding. One evaluation suggests that the program has eliminated third degree malnutrition in 6 month old participants and reduced that at 18 months to 0.4%. (USAID, 1978)

TARGETED MATERNAL AND CHILD HEALTH PROGRAM (TMCHP): The TMCHP is a program for malnourished preschool children and pregnant and lactating mothers offering nutrition education and supplementary feeding. Community weighing surveys are used to identify potential participants whose mothers are then required to go to monthly nutrition classes (for 18 months) held in conjunction with the distribution of supplemental foods and child weighings. Food production, socioeconomic, income, health, and training projects are also included in TMCHP. Evaluation analysis seems to suggest that this project is targeted more to areas of high malnutrition than other projects. (Kerpelman et al., 1982)

NUTRIBUS PROJECT: About six mobile Nutribus vans, each staffed by a communicator and a driver technician, serve as a flexible support resource for the Barangay Nutrition Scholar Program. It carries communication support materials and plans to have refresher training for BNS. Evaluation analysis indicates that the project has a statistically significant beneficial impact on nutritional status. (Kerpelman et al., 1982)

RADIO BROADCAST PROGRAM: In November 1976, a nationwide Radio Broadcast Program was launched in which nutrition priority messages on breast feeding and supplementary feeding were distributed through 257 KBP (Kapisanan ng mga Brodkaster sa Pilipinas) member radio stations. The program was jointly sponsored with the National Nutrition Council. The plan follows the principle of a single idea being given each time for a given period or time frame. (National Nutrition Council, 1977a)

NUTRITION SCHOOL-ON-THE-AIR RADIO PROGRAM: The National Media Production Center through DZRP-VOP (Voice of the Philippines) produced a three-month nationwide Nutrition School-On-The-Air radio show in cooperation with the Food and Nutrition Research Institute of the National Science Development Board. The weekly program graduated 10,800 students. (National Nutrition Council, 1977a)

DEPARTMENT OF SOCIAL SERVICE AND DEVELOPMENT: Under the Philippine Nutrition Program (PNP), the Department of Social Service and Development is the principal agency in charge of a nationwide food assistance program for malnourished children, focusing on second degree malnutrition. (USAID, 1978)

FOOD ASSISTANCE—NUTRI-PAK: As part of the Philippine Nutrition Program, Nutri-Pak food supplements are distributed to mothers of children with third degree malnutrition, usually for a period of six weeks, one pack a day. The contents are ground so that the food is specifically for the young child, and adults are discouraged from sharing it. It serves both rehabilitation and education functions in that it provides 50% of a child's requirements and its contents are traditional foods with high

5.2 NUTRITION AND HEALTH POLICIES AND PROGRAMS, PROGRAMS (Cont.)

nutritional value. The production involves simple processes of cooking, drying, grinding, and packaging. The packets are distributed free or given at token cost. The cost is about 10 centavos a packet, so the cost of a six-week rehabilitation of one child is about \$0.60. (Solon, 1978)

NUTRI-PAK CONTENTS: Nutri-Pak is a high calorie and protein ready-to-cook food supplement. Each pack contains packets of ground rice, a high quality protein food (rice/mini-shrimp powder, anchovy powder, or mung grits), skimmed milk powder, and cooking oil. (Solon, 1978)

DEPARTMENT OF HEALTH: Under the Philippine Nutrition Plan, the Department of Health, through its National Nutrition Service, is responsible for the treatment and rehabilitation of severely malnourished children, using the Mal-Wards in hospitals and Rural Health Clinics for this purpose. Food commodity support from the Nutrition Center of the Philippines will be supplied as needed. (USAID, 1978)

NUTRITION REHABILITATION: The hospital-based unit for nutrition rehabilitation is called "nutriward," and the non-hospital rural health center-affiliated unit is known as "nutrihut." 78 nutriwards and 250 nutrihuts have been built to date. The nutriwards have more trained staff and less community support and lodging capabilities than the nutrihuts. Both undertake nutrition education during the confinement of PEM cases. However, only 4,000 (0.1%) of the moderate and severe cases of PEM were being treated. (Lamprey et al., 1981)

NUTRITION REHABILITATION UNITS--MINDANAO: Nutrition rehabilitation units are unevenly distributed in the northern Mindanao region. Of the seven provinces in the region, only two had nutrihuts, despite the fact that malnutrition is about evenly distributed. (Lamprey et al., 1981)

NUTRIWARDS AND NUTRIHUTS: A comparison of these two types of nutrition rehabilitation showed that they did not differ in the characteristics of their patients, but that patients in nutrihuts stayed longer and had a lower mortality rate during confinement than patients in nutriwards. There was a significant improvement in nutritional status during confinement in both nutriwards and nutrihuts and after discharge. The relapse rate was 23%. The mortality rate after discharge was 12.4% with patients of nutriwards having a mortality 12 times higher than that of patients discharged from nutrihuts. (Lamprey et al., 1981)

VITAMIN A INTERVENTION PROGRAMS EVALUATION: Among three intervention approaches evaluated, each showed a reduction in active clinical signs of xerophthalmia among the children studied. The reductions were significant at the 0.01% level for the mass dosage capsule and the fortification of monosodium glutamate interventions, but were not significant for the public health and horticulture intervention. Only in the monosodium glutamate group did the mean serum vitamin A levels rise significantly. Analysis showed this latter intervention to be the most cost effective and the one most quickly and inexpensively implemented on a widespread basis. (Solon et al., 1980b)

GOITER CONTROL PROJECT: The Department of Health launched a Goiter Control Project in 1967 which has increased awareness of the goiter problem. (Solon, 1978)

DEPARTMENT OF AGRICULTURE: Under the Philippine Nutrition Program, the Department of Agriculture is responsible for mounting a program to increase the production of legumes, beans, vegetables, fruits, livestock, poultry, and fishing products (in coordination with the Department of Education and Culture) and for extending nutrition education to farm housewives through the Bureau of Agriculture Extension. (USAID, 1978)

DEPARTMENT OF EDUCATION AND CULTURE: Under the Philippine Nutrition Program, the Department of Education and Culture is to include nutrition subjects in the curricula of public and private schools at all levels and in the curricula of Schools of Medicine, Nursing, Agriculture, Midwifery, Social Work, and Education. (USAID, 1978)

BREAST MILK VOLUME AND COMPOSITION STUDY: The second phase of the World Health Organization's Collaborative Study of Breast feeding is being completed in the Philippines. It is studying breast milk volume and composition among Filipino women. (WHO, 1982)

NUTRITION FOUNDATION OF THE PHILIPPINES (NFP): The NFP continues to render technical assistance to communities and organizations desiring to undertake nutrition programs. NFP nutritionists help in all stages of program development and implementation. NFP has also participated in Operation Timbang and in the Philippine Nutrition Program training project. (Solon, 1978)

PHILIPPINE BUSINESS FOR SOCIAL PROGRESS (PBSP): The PBSP is involved in developing prototypes of community development schemes. Three communities--one in a relocation area for squatters, one urban, and another in a small town in southern Luzon--are working models for the applied nutrition program of PBSP. The program consists of nutrition education, nutrition rehabilitation, food production, food preservation, income-generating projects, and evaluation. (Solon, 1978)

NATIONAL SECRETARIAT FOR SOCIAL ACTION-CATHOLIC RELIEF SERVICE (NASSA-CRS): NASSA-CRS is a religious group that has provided food commodities for feeding programs. Coordination with the Philippine Nutrition Program is being developed in order to ensure that recipients are those most in need: the third degree malnourished preschoolers. (Solon, 1978)

CATHOLIC RELIEF SERVICES: CRS conducts eight nutrition projects aimed at improving the nutrition of high risk groups through nutrition education and supplementary feeding. The eight projects are: Mothercraft Project, Targeted Maternal and Child Health Project, Day Care Service Project, Other Child Feeding Project, Adult Feeding Project, Snack Food Project, and Targeted School Feeding Projects. Medical assistance is integrated with the nutrition program in all free clinics. (TAICH, 1980)

CARE: In cooperation with the Government of the Philippines, CARE supplies PL-480 foods for Nutribuns for 1.5 million primary school children and operates a maternal child health feeding program in 750 centers throughout the Philippines providing corn-soy-milk and nonfat dry milk to 40,000 recipients including pregnant/lactating mothers, malnourished children 13 to 72 months old, and infants one to 12 months old. These same PL-480 foods are provided to 154,000 pregnant/lactating

5.2 NUTRITION AND HEALTH POLICIES AND PROGRAMS, PROGRAMS (Cont.)

mothers and children 13 to 72 months old in 1300 Rural Health Centers and 122 hospitals. Nutrition classes are offered to mothers as well. CARE is also providing 50% funding for the construction of 6 multi-purpose nutrition/health centers. (TAICH, 1980)

INTERNATIONAL INSTITUTE OF RURAL RECONSTRUCTION—CAVITE: The International Institute of Rural Reconstruction supports a broad program of health education, nutrition, maternal and child care, and environmental sanitation as part of its grass roots development programs based in the province of Cavite. (TAICH, 1980)

INTERNATIONAL NUTRITION COMMUNICATION SERVICE: The USAID-funded International Nutrition Communication Service sent Dr. Lyra Srinivasan as a consultant to help the International Institute for Rural Reconstruction design and develop educational strategies and materials aimed at facilitating active community involvement. The project will give special attention to the nutrition component although the strategy will be applicable to all aspects of rural reconstruction. Her major task was to conduct a series of workshops for IIRR staff on participatory methodology applied to nutritional and health needs as components of an integrated development program. (Srinivasan, 1981)

SOCIETY OF ST. COLUMBAN: The Society of St. Columban operates a nutrition program in Iligan providing food to 25,000 children. (TAICH, 1980)

OTHER NON-PROFIT US ORGANIZATIONS INVOLVED IN NUTRITION ACTIVITIES: Many non-profit U.S. organizations have some nutrition component in their assistance activities, including the American Baptist Churches in the U.S.A., the Asia Foundation, the Christian Reformed World Relief Committee, Claretian Fathers, Foster Parents Plan, the International Human Assistance Programs, Inc., Lutheran World Relief, Inc., the Salvation Army, United Church Board for World Ministries, the United Presbyterian Church in the U.S.A., the Wheat Ridge Foundation, World Education, Inc., World Neighbors, Inc., World Vision Relief Organization, and the Young Men's Christian Association of the U.S. (TAICH, 1980)

HEALTH EXPENDITURES: The per capita central government health expenditure for 1978 was calculated to be \$3.00 (1975 dollars), up from \$1.00 per capita in 1972. (World Bank, 1981)

HEALTH EXPENDITURES: In fiscal year 1973/4, 3.4% of the total Philippine government budget was spent for health. In 1975 this portion declined to 2.4%. In 1974, the per capita expenditure on health was \$0.81. (Solon, 1978)

INTERNATIONAL ASSISTANCE: International assistance agencies have played a major role in the Philippine Nutrition Program. These agencies include USAID, CARE, CRS, UNICEF, and IDRC of Canada. (Solon, 1978)

DONATED FOODS: The Philippines receives donated food from U.S. PL-480, Australia, EEC, and the World Food Programs. (USAID, 1978)

USAID NUTRITIONAL COMMITMENTS: In FY 1979 U.S.A.I.D. obligations for nutrition programs (i.e. Nutrition Planning and Policy Analysis,

Nutrition Improvements) were \$270,000. The estimate for FY 1981 is \$2,300,000, and the FY 1982 request is \$550,000. This does not include numerous central nutrition programs because of the difficulty in calculating the amounts. (USAID, 1982b)

COMMUNITY DEVELOPMENT PROJECT: In FY 82, USAID is providing approximately \$15,600 for the nutritional component of a two-year project of the Institute of Cultural Affairs (ICA) to expand community development activities in Cebu and Davao affecting 30 villages. The major nutrition component is the establishment of a preschool nutrition center in each village. (USAID, 1982a)

PL-480 TITLE II SUPPLEMENTAL FOODS: In FY 1982, the dollar value of the total PL-480 Title II program for the Philippines will be about \$17.5 million. Approximately 80% of this will go to the maternal and child feeding programs conducted by two U.S. voluntary agencies, Catholic Relief Service (CRS) and CARE. These programs are coordinated with the Ministry of Social Services and Development, the Ministry of Health, and the National Nutrition Council. (USAID, 1982a)

PL-480 TITLE II FOOD PROGRAM: PL-480 Title II food donations totaled 63,556 metric tons valued at \$24,042,000 in FY 1981. The estimate for FY 1982 is 46,900 metric tons at \$16,198,000, and the quantity proposed for FY 1983 is 40,800 metric tons at \$14,293,000. The estimated number of recipients in FY 1982 is 2,540,000 people. (USAID, 1982b)

PRIVATE GROUPS INVOLVED IN THE PNP: Other private groups involved in the Philippine Nutrition Program include Tulungan Foundation and the Green Revolution Project, both projects of the First Lady. The former is concerned with mothercraft centers in communities not reached by the government. The latter emphasizes backyard and community gardening as well as livestock raising to augment income and improve family nutrition. (Solon, 1978)

RURAL

NUTRITION INTERVENTION: The use of two forms of reinforcement strategies was experimentally tested in a nutrition education intervention to promote nutritional and growth goals in three upland villages outside Cebu City. In spite of reinforcing of early supplementation and of continued breast feeding, few of the 0 to 5 month old children were able to maintain satisfactory weight gain. Only 25% and 38% of the two experimental reinforcement groups, compared to 17% of the control group, were of normal weight at the end of the study year. Reinforcement of improved feeding practices, however, did significantly reduce the number of children who remained seriously underweight after 1 year of age. (Guthrie et al., 1982)

6. COMMENTARIES

NATIONAL

NUTRITION PLANNING APPROACH: The approach by nutrition planners has been to attempt to use small interventions as building blocks toward a larger structure of nutrition programs. Food giveaways were rejected from the start in favor of massive community weighing of children and education because these latter activities were felt to have greater potential for creating awareness in the community and for stimulating community demand for continued action beyond weighing. (Winikoff, 1978)

CAUSES OF MALNUTRITION: Malnutrition appears to be caused by the interrelationships of the following factors: the low purchasing power of the population, inadequate food supply, ignorance and lack of education, limited health services, and high rate of population growth. (Solon, 1978)

CAUSES OF MALNUTRITION: The causes of malnutrition are traceable to poverty, maldistribution of food within the family and among the various regions, inadequate food availability at both household and farm levels, large families, lack of information on correct food habits, poor dietary practices, and infectious diseases. (National Nutrition Council, 1977a)

DETERMINANTS OF NUTRITIONAL STATUS: The significant inter-village variation in nutritional status and its various determinants indicate that caution must be used in basing food and nutrition policies on even extensive data from limited geographic units. (Popkin, 1981)

POLITICAL COMMITMENT: Many Filipino nutritionists concede that the local malnutrition problem had been known for a long time, but that attempts to solve it had been sporadic because there was no political decision. The 1974 presidential decree declared that the 400,000 cases of third degree malnutrition in the country represented a "disaster point." Political responsibility was assigned by notifying mayors that if more than 5% of children in their jurisdiction had third degree malnutrition and if more than 50% of them died, their locality would be declared an "emergency" state. (Winikoff, 1978)

EVALUATION OF NUTRITION EDUCATION PROGRAM: Evaluations of the Nutrition Education Program by Manoff, Inc. in 1974 and by Sycip, Gorres, and Velays in 1975 suggested the following shortcomings: 1) messages lacked clear behavioral objectives, design, focus on specific problems and audience, and the simplicity to be successful; 2) messages were not pretested to assure comprehension, believability, and persuasiveness; 3) media strategy put too much emphasis on print over broadcast medium; 4) media were not used as part of an overall education campaign; and 5) nutrition education using mass media was not seen as part of a vertical marketing strategy insuring that the target audience had what is needed to make the desired change. Synectics Corporation, under contract with USAID, prepared an experimental methodology and field guide for the evaluation of nutrition education. The Philippine Project Team is ready to implement the evaluation plan. (National Nutrition Council, 1977a)

6. COMMENTARIES (Cont.)

EVALUATION OF THE PHILIPPINE NUTRITION PROGRAM: A six-person USAID review team visited the Philippines in February 1978 and concluded that the PNP stands out as one of the best national nutrition programs with which they were familiar. Excellent progress has been made in identifying malnutrition as a national problem, establishing a sound policy and institutional framework for attacking the problem, and initiating imaginative measures for that purpose. Local level commitment to the program appears to be strong. Initial emphasis was on supplementary feeding for severe cases of malnutrition, but now high priority is placed on local-level planning and preventive, outreach interventions centered in the municipality and village (barangay). Economic and agriculture planning has yet to integrate nutrition concerns. A series of recommendations are given. (USAID, 1978)

LACK OF COMMUNICATION AND COORDINATION: Maternal and child nutrition workers expressed concern that communication and cooperation between the various organizations working on nutrition was not very good. Examples included the production of two separate Food Groups education materials by the Food and Nutrition Research Institute and the Nutrition Center of the Philippines, and independent efforts of the two organizations to formulate supplementary foods. Some of this may be due to professional rivalries. (Lamb, 1983)

COMMUNITY LEVEL NUTRITIONAL ANALYSIS: Analysis of nutrition data has shown significant inter-village variation in nutritional status and its various determinants. The author recommends the use of community level analyses in the evaluation of nutrition resource allocations, because both prevalence data and in-depth socioeconomic and epidemiological findings from limited geographic units may be quite misleading. (Popkin, 1981)

REASONS FOR BREAST FEEDING TERMINATION: There may be too much emphasis among health professionals on intrinsic causes of breast feeding termination, rather than on external circumstances. Mothers do not stop for trivial reasons, but rather when they perceive they have to. They act on beliefs shared widely in their social matrix. Thus it may be an attribution error to interpret the termination of breast feeding as, for example, unknowing acceptance of the idea that feeding by bottle is modern. (Guthrie et al., 1983)

SUPPLEMENTARY FOOD INTERVENTION: In this experiment, it was shown that good nutritional status among infants and toddlers in rural communities can be attained by the provision of an adequate diet without extensive changes in their environment. (Barba et al., 1982)

URBAN

HOSPITAL PRACTICE RELATED TO BREAST FEEDING: The present arrangements in maternity hospitals, where promotional milk samples are given to the nurseries, mothers are automatically asked what brand of milk they prefer for their babies, and rooming-in is not practiced, seem to be partially responsible for the decline in breast feeding. Data from the author's study showed lower rates of breast feeding among low income women delivering in hospitals or clinics than among those with home deliveries. (Ignacio et al., 1980)

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- 1981 Nutrition Interventions in Developing Countries: Study III, Fortification. Cambridge, MA: Oelgeschlager, Gunn and Hain.

The purpose of this monograph is to discuss the use and design of fortification programs as they have been implemented and as they could be adopted for more effective and widespread use. It is one of seven special studies, undertaken by the Harvard Institute for International Development for the Office of Nutrition, Development Support Bureau, U.S. Agency for International Development, to examine the major types of nutrition programs operating in developing countries. A case is presented as a detailed comparison of a mass-dose intervention, fortification, and a public health intervention using a cost-benefit methodology.

Baer, E.

- 1978 Infant formula and infant nutrition in the Philippines. In "Marketing and Promotion of Infant Formula in the Developing Nations, 1978." Hearing before the Subcommittee on Health and Scientific Research of the Committee on Human Resources, United States Senate, May 23, 1978 (Washington, D.C.: U.S. Government Printing Office), pp. 760-779.

This report is the result of a fact-finding trip undertaken to monitor the marketing and promotional practices of infant formula companies.

Barba, C. V. C., Guthrie, H. A., and Guthrie, G. M.

- 1982 Dietary intervention and growth of infants and toddlers in a Philippine rural community. Ecology of Food and Nutrition, 11(4):235-44.

Original data

Method: two communities were randomly assigned to experimental and control treatments of dietary intervention; intervention in the experimental community consisted of take-home food supplements (Nutripak, vegetables, fruit, and egg); nutrition education was received by both groups; baseline and outcome measures at one year.

Sample: 24 matched pairs of 5 to 12 month old infants

Location: two coastal communities in a rural area 15 km from a major city in the central Philippines

This article presents the results of a field experiment on dietary intervention. Results are discussed in terms of their policy implications.

Barranda-Bautista, A. and Cruz, C.

- 1979 Infant feeding trends in Philippine urban and rural communities. In Proceedings of Philippine Pediatric Society, Malnutrition and Infection-Filipino Child Health Priorities.

BIBLIOGRAPHY (Cont.)

Original data

Method: cross-sectional design; interview; hemoglobin and hematocrit measures for small subsample

Sample: 1836 children ranging in age from 3 weeks to 6 years; 1068 rural children and 768 urban children; method of selection and enrollment not given

Location: rural areas of Pampanga and Bicol Provinces; urban metropolitan Manila

The purpose of this paper is to determine trends in infant feeding, both in rural and urban communities. Although the sample size is large, the study is cross-sectional and thus confounds recall bias with the duration data. The discussion of trends is also hindered by the methodological differences between studies.

Bonga, D. C. and Hernandez, T. B.

- 1975 Volume, Protein, and Calcium Content of Milk of Some Filipino Mothers. Nutrisyon, 1(1):53-70, August-October.

Original data

Method: cross-sectional design; 24-hour dietary recall for both mother and infant; breast milk sample; weighings after each feeding for 24 hours

Sample: 21 lactating women non-randomly chosen, ranging from 18 to 38 years of age

Location: Krusina Ligas, Old Bulara, and Area XI around the University of Philippines, Quezon City

This study was conducted to determine the efficiency of lactation in some Filipino mothers by measuring the protein and calcium contents and quantity of breast milk, calculating the total nutritive contribution of the breast milk and comparing it with recommended intakes. Conflicting data are reported in that infant growth was satisfactory among the exclusively breast fed infants through the fourth month, although measured breast milk quantity and nutrients were less than RDAs used. Growth continued to be satisfactory through the eighth month even though the milk plus supplement intakes remained below RDAs. Nevertheless, the authors claim that breast milk was insufficient both in quantity and quality as early as the third to fourth months.

Burgess, A. P.

- 1980 Breastfeeding: The knowledge and attitudes of some health personnel in metropolitan Manila. Journal of Tropical Pediatrics 26:168-171, October 1980.

Original data

Method: personal interview using a questionnaire

Sample: 40 doctors (50% of total in Pasay City), 29 nurses (41% of total in the city dealing with mothers and children), 31 midwives (76% of the total in the city), and 51 teachers (4% of city total). Only 21 of the sample were male.

Location: Pasay, a city of 250,000 that forms part of Metropolitan Manila.

This study reports on the knowledge and attitudes of urban health workers toward breast feeding. By examining what doctors, nurses, and midwives know and think about breast feeding, the study aimed to find out if they are likely to be effective promoters and managers of lactation. The results suggest that even though everyone claimed breast feeding was best, their specific attitudes and knowledge were insufficient for them to be successful promoters of breast feeding. A control group of teachers were also interviewed, and their level of understanding of breast feeding was similar.

Dela Rosa, M. J., Guzman, V. B., and Paragas, B. P.

n.d. Towards a comprehensive view breast feeding in the Philippines. Unpublished, supported by funds from Population Center Foundation.

This review article summarizes a large body of research on infant feeding practices in the Philippines conducted over the last several decades. It highlights the many benefits of breast feeding for Philippine society. In addition, it presents the conclusions and recommendations of the newly formed Task Force on Maternal and Child Nutrition. It is the most comprehensive document on breast feeding trends in the country; however, it has yet to be published or widely distributed.

Engel, R. W.

1979 The Malnutrition Problem in the Philippines. Manila: USAID/Manila, Office of Nutrition, June.

This paper presents a summary of research on nutrition in the Philippines, up to the time of the 1978 National Nutrition Survey, with particular emphasis on probable underlying causes of malnutrition to be addressed by intervention programs.

Five Year Philippine Development Plan 1978-1982

1977 Chapter 9, "Health, Nutrition and Family Planning."

This chapter of the Five Year Philippine Development Plan document reviews health sector indicators and sets out existing and new policies and priorities for the country. The package of action programs planned for the period are briefly reviewed.

Florencio, C. A.

1980 Comparison of the Determinants of Nutrient Intake of Rural and Urban Families. Ecology of Food and Nutrition 10:97-104.

Original data

Method: interviews of members of households on food consumption and weighing of foods on two consecutive days for the urban group and on

BIBLIOGRAPHY (Cont.)

three days over a 6-month period for the rural group
Sample: 100 urban households and 97 rice farming households;
stratified sampling from each of 14 urban barangays and 16 farm
villages
Location: Metropolitan Manila and rural households in Laguna (80 km
from Manila)

This study was conducted to identify the factors that determine what
and how much food people eat and to determine the relative impacts of
these factors on rural and urban families. In addition the study
looked into the interaction effects of some of the five independent
variables studied (i.e., mother's education, family size, food
expenditure, mother's employment status, and total food preparation
time). The findings suggest the importance of looking at the
interactive effects of variables in understanding the underlying
relationships.

FAO

Food and Agriculture Organization of the United Nations

- 1979 The Fourth World Food Survey. FAO Statistics Series No. 11, FAO Food
and Nutrition Series No. 10. Rome: FAO, 1979.

This document reviews recent trends in food production and supply
against the background of increasing population and more recent
evidence regarding the incidence of malnutrition. Some aggregate data
on the Philippines is presented.

Guthrie, G. M., Guthrie, H. A., Fernandez, T. L., and Estrera, N.

- 1983 Early termination of breast feeding among Philippine urban poor.
Ecology of Food and Nutrition 12:195-202.

Original data

Method: longitudinal study; one year of monthly interviews on feeding
practices starting in mid-1979

Sample: 187 urban mothers followed for 6 to 14 months

Location: two urban poor areas and two fringe squatter settlements of
Cebu City

This study was undertaken to identify factors that influenced the
initiation, continuation, and premature termination of breast feeding
(defined as less than one year). The longitudinal study followed a
cohort of mothers drawn from a socioeconomic group in which infants
were at high risk.

Guthrie, G. M., Guthrie, H. A., Fernandez, T. L., and Estrera, N.

- 1982 Cultural influences and reinforcement strategies. Behavior Therapy
13:624-37.

Original data

Method: field experiment; intervention to improve infant feeding
practices and growth; reinforcement strategy using tickets to a

lottery used in pilot; 2 other strategies added in study--use of picture of mother and baby as reinforcement and no specific reinforcement

Sample: 60 mothers of infants 6 to 24 months of age in pilot study, 1977-78; approximately 430 children up to the age of 30 months in the three village study during 1978-1979

Location: three upland villages in a municipality 15km south of Cebu City

This article is based on a talk presented at the 12th Banff International Conference in 1980. It discusses the use of reinforcement strategies in generating compliance with improved dietary practices. This field experiment showed some success with mothers of children over 1 year of age but was less successful for infants under one year of age. Cultural considerations are emphasized. At the end of the study period the use of a lottery reinforcement strategy was dropped due to cultural notions of justice. It was replaced with a trading stamp approach.

Guthrie, G. M., Guthrie, H. A., Fernandez, T. L., and Estrera, N.

1980 Maintenance and termination of breast-feeding in rural and urban Philippine communities. Ecology of Food and Nutrition 10:35-43.

Original data

Method: interview schedules, clinical experience, and data collected as part of an intervention study

Sample: three samples of mothers: 1) 75 living in a rural community; 2) 121 mothers of 420 babies in two poor urban areas and two squatter areas; and 3) 209 mothers from the same urban settings.

Location: a rural area 15 km. from Cebu city and a squatter area in that city

This report summarizes the findings of three separate studies and the authors' clinical experiences in the Philippines. It offers an in-depth look at some aspects of breast feeding practices and summarizes a series of culture-specific beliefs surrounding breast feeding.

Guzman, V. Balderrama

1982 Breast-feeding in the Philippines Today. Southeast Asian Journal of Tropical Medicine and Public Health 13(3):392-98.

This paper presents a discussion of the Philippine portion of the WHO Collaborative Study on Breast-Feeding (see WHO 1981, p. 68).

Guzman, V. Balderrama

1976 Patterns of care, illness, nutrition, growth, and development during the first three years of life in a rural setting. Journal of the Philippine Medical Association 52(5-6):91-128.

BIBLIOGRAPHY (Cont.)

Original data

Method: longitudinal cohort design; conducted 1972-76; continuous data collection on nutrition, growth, patterns of care and illness
Sample: 100 children enrolled at one month of age; 68 children followed up at 3.5 years
Location: rural town of Victoria, Laguna; on the Laguna Bay

This article reports on a detailed cohort study. Data collected included breast feeding patterns and their relationship to other nutritional, growth, illness, and developmental parameters of the under-4-year-old children.

IBFAN

International Baby Food Action Network

1981 Infant Formula Promotion. Minneapolis, MN: IBFAN, May 1981.

This report by the International Baby Food Action Network (IBFAN) exposes the aggressive promotion of powdered milk products for babies throughout the world. Since the October 1979 WHO/UNICEF meeting on Infant and Young Child Feeding which introduced a series of recommendations to curb the promotion of powdered baby milks, IBFAN has attempted to monitor the practices of the infant food industry. This report is the fourth in a series, and it documents 365 violations of the WHO/UNICEF recommendations involving 35 companies in 31 countries. This brings the total number of violations recorded since October 1979 to over 1000. Over 50 violations occurred in urban areas of the Philippines.

Ignacio, M. S. E., Ona, L. N., and Azares, F. A.

1980 Factors related to mother's choice of infant feeding method. Philippine Journal of Nutrition 33(4):209-13, October-December.

Original data

Method: cross-sectional study; interview; questionnaire
Sample: 319 mothers ranging in age from 13 to 69 years old; low income group with incomes below ₱500
Location: two depressed urban areas in San Francisco del Monte and Bo. Capri, Novaliches, Quezon City

This study was undertaken to determine the factors related to the mothers' choice of infant feeding method and to gather information on beliefs regarding breast feeding. The findings were used to make some recommendations about an educational campaign to promote breast feeding and government support for better conditions for working mothers.

Jimeno, J. A.

1978 Some factors explaining differences in duration of breast feeding in a rural province: Bohol, Philippines. Research Note No. 38. Tagbilaren City, Philippines: Bohol Province MCH/FP Project, March 1978.

Original data

Method: cross-sectional recall study; data collected in March-April 1976; questionnaire-interviews covered fertility, maternal and child care practices, contraceptive use, family health practices, and socioeconomic characteristics.

Sample: representative sample of 1505 households in four barrios in the MCH/FP Project area and the Non-Project area; 1588 respondents of whom were eligible (i.e., ever married and/or ever-pregnant women 15 to 55 years old); last live-born index child (excluding those still breast fed), N=720.

Location: Bohol Province, island about 350 miles south of Manila; most of the area is rural, with some town centers and one city, Tagbilaran City.

This paper describes the demographic, socioeconomic, and childbearing practice characteristics of the sample women. The objectives of the study were: 1) to identify variables that influence the duration of breast feeding, 2) to identify subgroups of women who are most or least likely to breast feed, and 3) to establish whether there were differences between Project and Non-Project areas. The study was part of the Bohol Province MCH-Family Planning Project.

Kent, M. M.

- 1981 Breast-feeding in the Developing World: Current Patterns and Implications for Future Trends. Washington, D.C.: Population Reference Bureau, 1981.

This report uses the data provided by the World Fertility Surveys to examine the breast feeding initiation and duration patterns in nineteen developing countries. Data from the Philippines are presented and compared with that from the other countries. Twelve comparative figures and tables are presented and briefly discussed. Two basic measures are used: 1) the percentage of ever-married women who breast-fed their next to the last child for any length of time; and 2) the percentage of all children born in the three years prior to the survey who were breast fed for any length of time. Limitations of the data are also mentioned.

Kerpelman, L. C., Wilson, S. Y., Hodgdon, J. D., Oostenbrug, P., Himes, J., Poppe, D., and Zeitlin, M.

- 1982 Development of a Nutrition Intervention Evaluation Methodology for Developing Countries. Final Report and Executive Summary. Cambridge, Mass.; Abt Associates, Inc.

This document is the final report submitted to U.S.A.I.D. by Abt Associates on its three-year contract to develop a nutrition intervention evaluation methodology using the nutrition program of the Philippines as a basis. The first five chapters comprise a manual for implementation of the model developed and Chapter 6 reports the results as applied to the Philippines. The analyses reported indicate first that the model is feasible and useful and second that both the preschooler nutrition interventions show statistically significant effects on malnutrition rates.

BIBLIOGRAPHY (Cont.)

Lamprey, P. R., Florencio, C., and Picar, B.

- 1981 Comparison of Nutriwards and Nutrihuts in the Northern Mindanao Region (Region X) of the Republic of the Philippines. Food and Nutrition Bulletin 3(1):8-16.

Original data

Method: case review of PEM admissions to nutriwards and nutrihuts; follow-up of available cases (random selection was not possible)

Sample: 397 cases of PEM representing all cases of PEM in 1978 admitted to the 13 selected institutions were studied; 152 cases from 7 institutions were followed (69% of nutrihut cases and 40% of nutriward cases)

Location: Five of eight nutriwards and 7 of the 11 functioning nutrihuts in Region X, the northern Mindanao region. The Provinces sampled for nutriwards were Agusan del Norte, Misamis Oriental, and Surigao del Norte, and for nutrihuts were Agusan del Sur and Surigao del Norte.

This study reports a systematic evaluation attempt of two forms of nutrition rehabilitation: the hospital-based nutriwards and the health center-based nutrihuts. Detailed data on admission, discharge, and follow-up status of children with malnutrition are presented and evaluated. Some of the differences between the two unit type may represent differences in case characteristics not captured in the weight for age criteria (e.g. infection, complications) rather than real differences in facility effectiveness. Recommendations are given.

Magbitang, J. A., Alcaide, P. V., Bulatao-Jayme, J., Alcaraz-Bayan, A., and Cilindro, P. A.

- 1983 First nationwide anthropometric survey: Philippines, 1978. Philippine Journal of Nutrition 36(2):83-94.

Original data

Method: A cross-sectional survey of a representative sample of urban and rural populations was undertaken in 1978 to determine the nutritional status of preschoolers. Anthropometric measurements were recorded by medical technologists using FNRI Clinical Survey Form 1978. The results were compared among rural and urban groups, and compared with Filipino standards (weight for age, height for age, and weight for height); underweight was defined as those below 85% of the "standard" (median?) weight-for-height.

Sample: 14,000 people representing 90% of the individuals covered in the First Nationwide Food Consumption Survey, from 2,800 households.

A stratified three-stage sampling design was used.

Location: National

The highest rate of underweight-for-height (22.6%) was found in the group of children under one year old. Nutrition status improved with age; among children 4 years old, the rate was only 8.1%.

National Nutrition Council, Information-Education-Communications
Committee

- 1977a The nutrition education program in the Philippines. Paper presented at the International Conference on Nutrition Education: The Philippine Experience Case Study, April 18-22, 1977, Manila.

This paper summarizes the efforts of the Philippine Nutrition program to intensify nutrition education as a vital component of the overall program. It gives a brief historical review of nutrition education activities and evaluations in this country. The Information Education Communication Program Implementation Guidelines are presented as a statements of where the PNP currently stands on nutrition education.

National Nutrition Council

- 1977b The Philippine Nutrition Program 1978-1982. Manila: National Nutrition Council, September.

This document represents the National Nutrition Council's definition of national directions for nutrition and guidelines for the years 1978 to 1982. The report provides information on the magnitude and type of nutrition problems in the Philippines, particularly protein-energy malnutrition, specific nutrient deficiencies (iron, iodine, and vitamin A), and child mortality rates. Tables are provided that project the number and percent distribution of 0 to 6 year olds, by nutritional status, at 5-year intervals, from 1978 through 2000. The second chapter sets out the priorities, programs, and policies of the National Nutrition Council for the period.

NSDB (National Science Development Board)

- 1981 First Nationwide Nutrition Survey: Philippines, 1978 (Summary Report). Manila: Food and Nutrition Research Institute; FNRI Publication No. GP-11; second revision, January.

Methodology: see Magbitang, 1983

This report presents, in tabular form, many of the findings of both the intake and anthropometric portions of the 1978 Survey. Brief descriptions of the methodology are given but not standards such as those for anemia and underweight. An introduction summarizes the data presented in the tables, and an appendix lists project staff.

Ocampo, P. D. Santos and Rabor, I. F.

- 1982 The role of parents and auxiliary agencies in the Philippines. Southeast Asian Journal of Tropical Medicine and Public Health 13(3):447-50.

This article offers a brief review of the health situation in the Philippines. It stresses the efforts of both government and non-government agencies to promote breast feeding.

BIBLIOGRAPHY (Cont.)

Omwale

- 1980 Nutrition Problem Identification and Development Policy Implications. Ecology of Food and Nutrition 9(2):113-121.

Original data

Method: functional classification analysis of 1974 data collected as part of the Multipurpose Laguna Rural Household Survey; multiple regression analysis

Sample: 570 households

Location: 34 rural Laguna villages

The author offers the use of a functional classification procedure as an example of a systematic socio-economic analysis of nutrition problems. Functional classification identifies a target group as being at risk of malnutrition on the basis of a set of unique causative socio-economic characteristics. Using the data from the Multipurpose Laguna Rural Household Survey, malnutrition in Laguna is linked to household occupation type (e.g., small farmer, small fisherman, livestock raiser, etc.). Policy implications of the analysis are presented.

Osteria, T. S.

- 1978 Variations on fertility with breast-feeding and contraception in urban Filipino women: implications for a nutrition program. In W. H. Mosley (ed.) Nutrition and Human Reproduction. New York: Plenum, 411-32.

Original data

Method: 24-month prospective, longitudinal study starting in June, 1973; monthly interviews on background characteristics, infant feeding practices, contraception, pregnancy, and amenorrhea

Sample: 794 married women who delivered at J. Fabella Maternity Hospital

Location: City of Manila

This prospective study attempted to answer the following questions: 1) what are the socioeconomic and demographic correlates of breast feeding practices, 2) how does the duration and type of breast feeding affect the period of amenorrhea, 3) what is the duration of the menstruating interval and its correlates, 4) is there a correlation between contraceptive use and breast feeding practices, and 5) what is the relationship between contraceptive use and postpartum amenorrhea. Besides giving information on breast feeding prevalence, the author concludes that breast feeding does increase the period of amenorrhea but that the introduction of contraception (i.e., the pill) does not appear to prolong the birth interval.

Paredes, W. C., et al.

- 1977 The prevalence of breast and bottle feeding in Pasig. Philippine Journal of Nutrition 30: 9-11.

Popkin, B. M.

- 1981 Community level considerations in nutrition planning in low income nations. Ecology of Food and Nutrition 10(4):227-236.

This article examines the nature of nutrition data generated on several administrative levels: regional, provincial, municipality, and village. This analysis documents the very large range of variation at the lowest levels of data analysis. Data from the Laguna household survey is used to show that it is possible to use socioeconomic and other community-level factors to predict community nutritional need as measured in terms of the proportion of third degree malnourished children. This implies that consideration should be given to community level factors in the allocation of nutritional resources.

Popkin, B. M.

- 1980 Time allocation of the mother and child nutrition. Ecology of Food and Nutrition 9:1-14.

Original data

Method: cross-sectional data collected in 1975; household dietary intake, economic, demographic, and nutritional factors information collected during five visits to each house; random samples from each of four rural village-occupational groups; additional subsample data collected four months later included detailed time and consumption data
Sample: 573 households for base study; 99 households in subsample
Location: 34 barrios in the province of Laguna

This paper extends earlier work on the relationships between the role of mothers and child welfare by focusing on the relationships between the market work status of the mother in the Philippines and specific dimensions of her preschool children's nutritional status. A conceptual framework of the maternal time allocation--child nutrition relationship is presented.

Popkin, B. M.

- 1978 Economic determinants of breast-feeding behavior: The case of rural households in Laguna, Philippines. In W. H. Mosely (Ed.) Nutrition and Human Reproduction. New York: Plenum Press.

Original data

Method: data for this theoretical reanalysis came from a multipurpose multivisit survey; cross-sectional data
Sample: larger data base is 573 households; smaller subsample of 99 households; 314 infants for whom infant feeding information was available
Location: 34 barrios in province of Laguna

This study attempts to examine the determinants of breast feeding behavior in light of some socioeconomic and demographic forces. It analyzes the correlates of breast feeding behavior within a multivariate framework, emphasizing household factors. The use of a

BIBLIOGRAPHY (Cont.)

conceptual model to guide the analysis is a unique and important contribution toward efforts to understand breast feeding behavior.

Popkin, B. M. and Solon, F. S.

- 1976 Income, time, the working mother, and child nutrition. Journal of Tropical Pediatrics 22:156-166.

Relucio-Clavano, N.

- 1981 The results of a change in hospital practices: A paediatrician's campaign for breast-feeding in the Philippines. In Breast-feeding and health, Assignment Children 55/56 (United Nations Children's Fund), 139-65.

Original data

Method: Chart review of hospital medical records for two years before and two years after the introduction of a breast feeding promotion program in the hospital consisting of breast feeding on demand, rooming in, and shortened initial starvation times.

Sample: 9886 newborn babies delivered at the Baguio General Hospital and Medical Center from January 1973 to April 1977.

Location: Baguio General Hospital and Medical Center, Baguio City, Region I, Northern Philippines.

In this paper the author describes the trends in infant feeding practices at her hospital over a four-year period. Between 1973 and 1975 the predominate feeding pattern in the hospital was mixed feeding. In 1975 a major breast feeding promotion program was implemented. The results of these changes are documented in terms of breast feeding rates, the incidence of clinically septic newborns, and the incidence of diarrhea during the two years prior and the two years following the changes in hospital routine. The annexes outline the types of hospital facilities required to promote breast feeding and the hospital's policy in relation to breast feeding and rooming-in.

Reynes, J. and Davis, S.

- 1979 Trends in Child Malnutrition in the Bohol Project Area: 1976-1979. Research Note No. 57. Tagbilaran City, Philippines: Bohol Province MCH/FP Project, September.

Original data

Method: cross-sectional; data collected included weight for age, clinical records and interviews with mothers of severely malnourished children; January-February 1979

Sample: about 93% coverage of all children 0 to 6 living in the five sample areas (73% of the original 1976 sample plus new children); total sample 4833 children

Location: five project areas in the Bohol province project area: 1) three off-shore islands, 2) middle of rice farming basin, 3) coastal fishing barrios, 4) a town center (Poblacion), and 5) Tagbilaran city district.

This paper reports on the follow-up nutrition status survey conducted as the "post" evaluation survey of the Bohol MCH/FP project. Comparisons between surveys are discussed in light of the similar methods. The replication study was supplemented by interviews with mothers of severely malnourished children and a clinic-based investigation of causes of death and morbidity to infants, young children, and mothers. Case samples are presented. Recommendations for intervention and future research are presented.

Rivera, E. F., and Marso, J. J.

- 1979 Variables in Current Infant Feeding Practices. In Proceedings of Philippine Pediatric Society: Malnutrition and Infection-Filipino Child Health Priorities.

Original data

Method: cross-sectional design; interview while in the hospital; enrolled between September 1978 and October 1978

Sample: 250 women delivering in the study hospital

Location: Manila Central University Filemon D. Tanchoco Memorial Foundation Hospital, Manila

This article summarizes the findings of a hospital-based study of infant feeding practices. It identified demographic, socioeconomic, and attitudinal factors related to the choice of feeding method. Similar information from earlier studies is also reported.

Solon, F. S., Florentino, R. F., Adorna, C., Jagolino, R., Moreno, L., and Mendoza, O.

- 1980a The Nutrition Surveillance pilot Project: First Phase, Albay, Philippines. Makati, Metro Manila, Philippines: Nutrition Center of the Philippines.

Original data

Method: mixed designs; cross-sectional household survey questionnaire; longitudinal 6-month follow-up of live births; anthropometry; vital statistics; socioeconomic and demographic variables

Sample: 322 households with 634 children 0 to 6 years old; 235 live births followed at 6 months of age

Location: Albay Province, 21 barangays

This document is the final report of the first pilot phase of the National Nutrition Surveillance. It describes the overall system and its field test in Albay Province in 1977. Data from two nutrition surveys are presented and discussed. The methodology and results were shown to be both feasible and useful.

Solon, F. S., Popkin, B. M., Fernandez, T. L., and Latham M. C.

- 1980b Control of vitamin A deficiency in the Philippines--A pilot project. Food and Nutrition 6(2):27-36.

BIBLIOGRAPHY (Cont.)

Original data

Method: first phase: July to September 1973, epidemiological, clinical, and biochemical study; dietary intake data for 130 children. Three intervention programs were implemented in the second phase: public health and horticulture, mass dosage capsule and fortification of monosodium glutamate

Sample: 1,715 children age 1 to 16 years from 626 families (approximately 1200 age 1 to 6)

Location: 3 barrios in each of four ecological areas of Cebu Island: urban slum, urban fringe barrios, rural coastal barrios, and rural hinterland semi-mountainous barrios

This report reviews the results of a large scale survey of vitamin A deficiency and of three intervention programs for controlling vitamin A deficiency and xerophthalmia in the Philippines. The major goals were: to determine the extent of the problem; to analyze the determinants of xerophthalmia; to design three different prevention programs; and to implement and evaluate these three programs. Based on this project, a decision was made to fortify monosodium glutamate in two provinces (Marinduque and Nueva Viscaya) and use Cebu as a control. If this phase is successful, a national fortification program will be considered.

Solon, F. S.

- 1978 Nutrition and Government Policy in the Philippines. In B. Winikoff (Ed.) Nutrition and National Policy, Cambridge, Mass.: The MIT Press, 1978, 233-295.

This is a comprehensive review presented at a 1975 conference on Nutrition and Government Policy of the history of nutrition issues and programs in the Philippines, of the first year of the Philippine Nutrition Program and of the future direction of nutritional efforts in the country. The author was the Executive Director of both the National Nutrition Council of the Philippines and the Nutrition Center of the Philippines. Using data from the late 1960s and early 1970s, he describes the malnutrition problem in the country. The Philippine Nutrition Program is the major focus of the chapter. The paper is followed by an informal discussion among conference attendees.

Srinivasan, L.

- 1981 Consultant Report for the Philippines (March 7-21, 1981). Newton, MA: International Nutrition Communication Service, Education Development Center, March.

This consultant report gives a brief background for the mission, presents the terms of reference, and details the actual activities of the consultant during the two-week mission. The report contains a detailed discussion of her participatory learning approach and of the activities of the International Institute for Rural Reconstruction in the Philippines.

Tabatabai, H., Mason, J., Macalalag, A., Bondad, M., Garcia, M., and Morrison, E.

- 1982 Changes in Nutritional Status in the Philippines from 1979 to 1980. Ithaca, New York: Cornell University, Cornell Nutritional Surveillance Program, Paper No. 13, October.

This paper presents results and discussion of a study of growth-monitoring data collected through Operation Timbang in a broad sample of children from a broad sample of communities. The authors discuss in detail the reliability of their data, concluding that there apparently has been an improvement in the overall nutrition status, and that the extent of improvement appears to be roughly the same whether municipalities are grouped by their nutritional situation in 1979 (relatively better or worse than average) or regionally.

Tabatabai, H., Mason, J., Garcia, M., Elliott, T., and Mitchell, J.

- 1982 Methods Used to Identify Priority Municipalities for Intervention Based on Operation Timbang and Socio-Economic Data. Ithaca, New York: Cornell University, Cornell Nutritional Surveillance Program, Paper No. 7, September.

This paper presents an analysis of nutrition status data collected through Operation Timbang, a municipally-based weighing program, together with selected socioeconomic data, to determine the "nutritionally worst affected municipalities" for national and lower administrative purposes. Two listings of worst-affected municipalities and a municipal-level mapping of malnutrition were produced. The least affected municipalities and provinces were found predominantly in the northern regions, and central regions included the majority of worst-affected municipalities or provinces.

TAICH

- 1980 TAICH Country Report: Development Assistance Programs for Philippines. New York: American Council of Voluntary Agencies for Foreign Service, Inc., Technical Assistance Information Clearing House, August.

This report describes the programs of 93 private, non-profit U.S. organizations that were providing the people of the Philippines with developmental assistance and material aid in 1979. This is one of a series of periodically revised country reports on developmental assistance activities of the U.S. non-profit sector. The information presented is based on data supplied to TAICH by the organizations cited.

Taylor, C. A., Emanuel, I., and Morris, L. N.

- 1978 Child Nutrition and Mortality in the Rural Philippines: Is Socioeconomic status important? Journal of Tropical Pediatrics and Environmental Child Health, 24(2):80-87, April.

BIBLIOGRAPHY (Cont.)

Original data

Method: cross-sectional study in 1974; interviews of mothers and anthropometric measures of children; use of anthropometric means in analyses; standard deviations not given

Sample: non-random sample of 367 families and 587 children aged 0-59 months; villages were non-randomly chosen

Location: six villages in Nueva Ecija and Bulacan Provinces in Central Luzon, 75 miles north of Manila

This study was initially designed to determine whether the earlier government land-reform program had had any effect on child nutritional status or mortality. However, this could not be tested. The hypothesis that family socioeconomic status has a significant effect on child growth and mortality was not supported, according to the authors. Possible reasons for these non-intuitive findings are discussed.

USAID (United States Agency for International Development)

1982a Survey of A.I. D. Activities in FY82 in Maternal and Infant Nutrition. Washington D.C.: USAID.

USAID, Economic and Social Data Services Division, Development Information Utilization Service, Bureau for Science and Technology.

1982b Indicators of Nutrition in A.I.D. Assisted Countries: Statistical Profile Series. Washington, D.C.: USAID.

This statistical report was compiled to serve as a reference for U.S.A.I.D. personnel interested in indicators of food supply and nutrition in the 74 AID-assisted countries. The measures of nutrition are grouped into four categories: 1) Indicators of food and nutrient intake, 2) Nutrition status indicators, 3) Selected indicators related to nutrition; and 4) Food for Peace Program indicators.

USAID

1978 Technical Review of the Philippine Nutrition Program. Manila and Washington, D. C.: February.

This review of the Philippine Nutrition Program was conducted in February 1978 at the request of AID/Washington. The six-person team's general conclusion was that excellent progress has been made in identifying malnutrition as a national problem, establishing a sound policy and institutional framework for attacking the problem and initiating imaginative measures for that purpose. Local level commitment to the program appears to be strong. Initially the program emphasized supplementary feeding to reduce more severe cases of malnutrition but is now placing high priority on local-level planning and preventive outreach interventions centered in the municipality and village or barangay. However, integration of nutrition concerns into economic and agriculture planning has not yet been achieved.

USDA (U.S. Department of Agriculture)

- 1981 Report on Activities and Accomplishments Under Contract 53-319R-1-160, Between Marguerite C. Burk and the Office of International Cooperation and Development, U.S. Department of Agriculture. July 28.

This report summarizes the consultant's activities over a 3-month period, assisting the staff of the national Food and Nutrition Research Institute in an analysis of the data from the 1978 National Nutrition Survey, and in the development of plans for the 1982 survey of household food consumption and young children's diets and anthropometry.

Williamson, N. E.

- 1982 An attempt to reduce infant and child mortality in Bohol, Philippines. Studies in Family Planning 13(4):106-117.

The present paper describes the experience of the area of Bohol that, despite an active maternal and child health/family planning program, failed to have a decline in the mortality during the project period 1975 to 1979. Because of the project evaluation, it is possible to explore in depth how and why such a situation occurred and to suggest future strategies.

Winikoff, B.

- 1978 "Political Commitment and Nutrition Policy." In Nutrition and National Policy, ed. B. Winikoff. Cambridge, MA: The MIT Press.

Wooley, P. O., Perry, C. A., Gangloff, L. J., and Larson, D. L.

- 1972 Syncrisis: The dynamics of health: Volume IV: The Philippines. Washington D.C.: Division of Planning and Evaluation Office of International Health, U.S. Department of Health, Education, and Welfare.

This country case-study is an attempt to identify important problem areas in health and socioeconomic development for the Philippines. Particular attention has been devoted to the definition of those problem areas amenable to change by cooperation between the Government of the Philippines and the international assistance agencies. No specific plan for action is presented, but rather the focus is on identification of problem areas in which planning might be fruitful. The study is not a comprehensive view of the health sector, although there are chapters on the health care system and on nutrition. Rather, it is a survey of the various influences that combine to produce the conditions found in the health sector. One of the seven major areas of concern is the poor nutritional status of the population, which is the result of socially induced subsistence agricultural production and consumption.

BIBLIOGRAPHY (Cont.)

World Bank

- 1981 World Development Report 1981. New York: Oxford University Press.

This document offers an integrated discussion of international and national economic policy issues. Food, health, and nutrition issues are dealt with briefly in Chapter 7. Country-specific development indicators (gross aggregate figures) are presented in chart form in the appendix.

World Fertility Survey

- 1979 Republic of the Philippines Fertility Survey, 1978: A summary of findings. Voorburg, Netherlands: International Statistical Institute, November 1979.

This report contains the salient findings of the Republic of the Philippines Fertility Survey, 1978--First Report. The standard World Fertility Survey questionnaire instruments which were used included questions concerning the incidence and duration of breast feeding. Respondents for the individual questionnaire were ever-married women aged 15-49 years. 9,268 women met the necessary criteria and were successfully interviewed. The breast feeding data is compiled from a smaller subsample of this representative sample.

World Health Organization

- 1982 Infant and Young Child Feeding: Progress Report by the Director General. A35/8. Geneva: WHO March 30, 1981.

This report by the Director General of the World Health Organization is intended to inform the Health Assembly on steps taken in the promotion of breast feeding and improved infant and young child feeding since the presentation of the first progress report on this topic to the 34th World Health Assembly in May 1981. Five themes are discussed: 1) promotion of appropriate weaning practices with local sources; 2) strengthening of education, training, and information; 3) the development of support for improved health and social status for women; 4) the promotion of breast feeding; and 5) the appropriate marketing and distribution of breast milk substitutes. The information on the final theme is provided in accordance with Article 11.7 of the International Code of Marketing of Breast-milk Substitutes.

World Health Organization

- 1981 Contemporary Patterns of Breast-feeding: Report on the WHO Collaborative Study on Breast-feeding. Geneva: World Health Organization.

Original data

Method: Two basic questionnaires; one on community background information and one for use in interviewing mothers; other data collection guides were used for the health care system and formula marketing.

Sample: Typical examples of three main population groups; 495 mother-child pairs from economically advantaged, educated families in an urban area; 793 mother-child pairs from a poor urban areas; and 808 mother-child pairs from rural areas: quota sampling by each month of child age was used (minimum of 25 per month).

Location: economically advantaged group from Paranaque, adjacent to Manila; an urban poor group from Pasay within metropolitan Manila; and a rural group from San Rafael on the island of Luzon.

This book presents the results of the first phase of the World Health Organization multinational study on breast feeding, undertaken to lay the ground for meaningful action programs adapted to national needs. The organization and implementation of the field work were carried out between 1975 and spring 1978 in nine countries including the Philippines. In addition to the primary breast feeding incidence and duration data collected, mothers' opinions were gathered as was information on the health care services and infant formula marketing practices.

Zeitlin, M., Masangkay, Z., Consolacion, M., and Nass, M.

1978 Breast feeding and nutritional status in depressed urban areas of greater Manila, Philippines. Ecology of Food and Nutrition 7:103-113.

Original data

Method: cross-sectional study; interview and anthropometric data collection

Sample: cluster sampling; 267 boys and 258 girls ranging from 5 to 48 months of age

Location: ten depressed neighborhoods located in Quezon City, Pasay, Manila, and Pasig in the greater Manila area

The purpose of this study was to examine the significance of breast feeding within the context of other socioeconomic and demographic determinants of nutritional status in the poorest urban areas of greater Manila. Feeding mode and age of weaning were not found to be significant factors in this context.

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