Palestinian Central Bureau of Statistics and Birzeit University/ICPH

Nutrition Survey – 2002

Child Nutrition in Exceptional Circumstances
The Case of Palestinian Children Aged 6-59 Months in the Palestinian Territory (Policy Report)

January, 2003

Suggested Citation:

Palestinian Central Bureau of Statistics, 2002. *Nutrition Survey - 2002: Policy Report*. Ramallah - Palestine.

All correspondence should be directed to:
Dissemination and Documentation Department/Division of User Services
Palestinian Central Bureau of Statistics
P.O.Box 1647 Ramallah, Palestine.

Tel: 970-2-2406340 Fax: 970-2-2406343
E-Mail: diwan@pcbs.pna.org web-site: http://www.pcbs.org

Acknowledgment

Dr. Samia Halileh (Assistant Professor/Birzeit University) prepared this report. Mr. Khalid Abu-Khalid and Mr. Khalid Qalalweh contributed to the preparation of the report, including editing and finalization.

Dr. Hasan Abu-Libdeh (President, PCBS), Dr. Rita Giacaman (Director, ICPH/Birzeit University), Mr. Luay Shabaneh (Assistant of President for Statistical Affairs) and Mr. Mahmoud Jaradat (Director General, Population and Social Statistics Directorate) reviewed the report material and provided valuable comments.

PCBS would also like to express its gratitude to the United Nations Children's Fund (UNICEF) for providing the necessary financial support for preparing this report.

Table of Contents

List of Tables

List of figures

Executive Summary

Introduction

Anemia, stunting and wasting are nutritional diseases that have been the focus of attention worldwide, taking up the significant consideration of researchers and policy makers alike, as what is common among them is the fact that they are preventable. These are the same reasons that prompted those who can influence health policies and practices in the Palestinian Territory to be especially concerned about child nutrition.

The continuing severe closures, curfew and siege in the PT have disrupted the lives of families and children, escalated poverty rates, disrupted access to and availability of food, and can only point to a continued worsening of Palestinian children's nutritional status. These conditions of life have been described as "the most severe sustained mobility restrictions imposed on the West Bank and Gaza Strip since 1967."[1] Furthermore, it is believed that "even if the closure is removed tomorrow, it would take longer than two years to recover to pre-crises real per capita incomes. Conversely, a sustained further tightening of closure will impoverish Palestinians and will lead to economic implosion and a scale of hardship so far only hinted at"[2]. That is, we can only expect the conditions of children to worsen in these difficult times, increasing the need to act immediately as a matter of top priority, at least to decelerate a rapid deterioration in Palestinian children's nutritional status before it is too late. Indeed, the results on child nutritional status presented in this report are only the indicators of the tip of the iceberg of the Palestinian child's health profile.

Objectives

The Nutrition Survey-2002 addressed various indicators that influence child nutrition, in addition to measuring hemoglobin levels and growth parameters for children aged 6-59 months. In this executive summary, only the main findings will be highlighted.

Methodology

The target population consisted of all Palestinian households that usually reside in the Palestinian Territory. The master sample is the sample frame of the 1997 census data. The number of households in the sample was 5,228 households; 2,994 in the West Bank and 2,334 in the Gaza Strip. The sample was stratified by governorates, place of residence, localities, and size of locality (number of households). Overall, 85.0% of the questionnaires were completed, with a response rate of 95.7%. Data collection took place from March to June 2002.

Results

Anemia

The survey found that 37.9% of children aged 6-59 months were anemic, with hemoglobin levels lower than 11 gm/dl. Anemia was found to be at its highest levels (53.4%) among children 12-23 months (cut off point 11gm/dl), followed by 42.2% for 6-11month olds (cut off point 10.5 gm/dl). Girls aged 12-59 months were significantly less anemic than boys in the same age group (33.7% females vs. 37.3% males). Gaza Strip children aged 12-59 months were significantly more anemic than West Bank children (38.7% GS vs. 33.5% WB), and

[1]World Bank Report, 2002. Fifteen months of Intifada, Closure and Palestinian Economic Crises - An assessment, p.10

[2]Ibid, p.12

refugee camp-dwelling children were significantly more anemic than rural or urban children (40.1% anemia in the camps vs. 34.0% in rural areas and 34.2% in urban settings).

Anemia was significantly higher among children in families with a low standard of living (37.2%) than those in families with a high standard of living (33.8%). Anemia was also found to be significantly associated with types of weaning foods among children 12-23 months old (53% amongst those who did not consume iron and protein rich foods vs. 43.1% amongst those who did consume these foods). Anemia levels were higher among children reported to have taken iron medications at some point in their lives (38.3%), compared to children reported as never having had any iron medication (31.4%).

Stunting

Stunting, defined as height by age below -2 standard deviation below the mean of the referenced population, appears to have increased among children aged 6-59 months over the years, from 7.7% in 1996 to 8.0% in 2000 and 9.0% in 2002. In all three surveys, stunting significantly varied with the child's age, with the lowest percentages of stunting found in the age group 6-11 months. The highest levels of stunting were found among those aged 12-23 months in 2000 and 2002. Significant differences in stunting levels between both sexes appeared in the 2000 survey only, at 8.6% for females compared to 7.5% for males.

Significantly higher levels of stunting were found among the children of the Gaza Strip during 2000 (8.9%) and 2002 (10.5%), compared to West Bank children (7.5% and 8.0% respectively) and significantly higher levels of stunting were also found among rural children in both 2000 (8.5%) and 2002 (10.9%), compared to urban children (8.1% and 8.6%) and those living in camps (6.7% and 7.0%), with camp children having the lowest levels of stunting overall. In the 2002 survey, children of mothers with higher education and children of families with a high standard of living had less stunting than those with less educated mothers and those from families with a low standard of living. A lower level of stunting (7.6% vs. 9.9%) was also observed in children whose weaning diet included food rich in iron and protein.

Wasting

Wasted children were defined as those whose weight by height is below -2 standard deviation below the mean of the referenced population. Comparing the data sets of the three survey years, we noted that wasting was at its highest in 1996, affecting 2.8% of children, declined in 2000 to 1.4%, and rose again in 2002, reaching a level of 2.5%. Wasting was found to be most prevalent among children aged 6-11 months in the three survey years (7.0% in 1996, 4.1% in 2000 and 7.3% in 2002).

Significant differences were noted in wasting between sexes in the 2000 survey only (1.5% among males vs. 1.3% for females). In 1996, significantly more children from the Gaza Strip were wasted, compared to children from the West Bank. By 2000, the pattern had reversed, with significantly more West Bank children found wasted, compared to Gaza Strip children. The differences in 2002 were not statistically significant. No significance by locality was noted for the 1996 survey period. For 2000, urban and rural children had significantly higher levels of wasting compared to refugee camp dwellers. By 2002, a significant rise in wasting levels affected the rural areas (from 1.5% in 2000 to 4.6% for 2002 and a rise in levels in refugee camps from 1 to 1.9%).

Conclusion

It is evident that anemia is at high levels in the Palestinian Territory -- especially in the refugee camps of the Gaza Strip -- while stunting, the most important growth parameter in children, increased between 1996 to 2002 and is at highest levels in the rural areas, especially the rural Gaza Strip.

Chapter One

Introduction

Torn by years of chronic conflict, superimposed on periods of acute deterioration, the Palestinian Territory (PT) is not an ideal environment for healthy childrearing. Palestinian children have not known a life other than life under Israeli occupation, and have suffered the consequences of their homeland's occupation in many ways, especially in terms of economic, social and psychological deprivation.

Since the beginning of the current uprising (Intifada) in September 2000, living conditions in the PT have worsened considerably, adding heavy burdens to the lives of adults and children. This is especially true for children under the age of five, who are the focus of this survey. These children have suffered grave violations of their basic human rights: the right to life, food, shelter and education. Moreover, they have also suffered the consequences of psychological abuse, distress, fear and the feeling of insecurity and instability in their family life. No one, whether parent, family or the Palestinian Authority, has been able to guarantee the protection of any of the internationally recognized rights of Palestinian children, including their right to good health, as the country continues to suffer from closures, siege, rampant destruction of infrastructure and homes, systemic collapse, and economic collapse. War-like conditions have become the normal and only way of life that Palestinian children know.

While the detrimental effects of such violations can manifest themselves in many ways, this report focuses on selected child health indicators, perhaps uncovering only the tip of the iceberg of the child health profile in the PT. The indicators included in this survey are: children's weight, height and hemoglobin levels. In the analysis of nutritional status of children, weight for height (wasting), height for age (stunting) and anemia were the only indicators analyzed with other independent variables. This is because weight for age, which has been omitted from the analysis, but presented in the results, is a general indicator for trends in a population and is highly dependent on the height of the child, therefore not useful for detailed analysis.

This report is divided into four chapters: the introduction, definitions and explanations, methodology and the main results of the survey, including the nutritional status of the children, the children's socio-economic and family settings -- such as mothers' educational levels and family standards of living -- as well as behavioral indicators such as those related to breast feeding, weaning and feeding practices. This chapter also includes relevant survey results related to the general impact of Israeli measures, like family access to food and ways by which families coped with a reduction in the quantity of food available for consumption.

Other indicators that were examined include access to basic health care services, vaccination and acute care. The report also presents the main findings of an analysis linking the dependent variables -- anemia and growth parameters -- to their determinants, whether behavioral or socio-economic, in order to identify priority groups for action.

Finally, the chapter concludes with a summary of the findings, and policy and operational recommendations aimed at alleviating the nutritional conditions of children in the Palestinian Territory.

Chapter Two

Definitions and Explanations

Growth Charts:
The normal growth of children in a given population can be determined by following a group of healthy children from birth to a certain age or by doing a cross sectional survey of healthy children at all ages.
In the USA, data were assembled by the National Center for Health Statistics (NCHS) that met the criteria for a reference population. Since it was found that children living under optimal conditions in different countries have similar growth patterns resembling those of the NCHS data, the WHO has since encouraged the use of NCHS charts by all countries.

Nutritional Status:
A nutritional status survey measures and allows us to describe the current status of the child, both in terms of immediate acute factors such as inadequate current intake of food, childhood diseases, and diarrhea leading to wasting, as well as the accumulated impact of chronic deprivation leading to stunting.

Malnutrition:
The term malnutrition is used to cover a multiplicity of disorders, ranging from deficiencies of specific micronutrients, such as vitamins and minerals, to gross starvation or (at the other extreme) obesity. This discussion is largely limited to protein and calorie malnutrition, which is manifested primarily by retardation of physical growth in terms of height and weight.
Abnormal anthropometry is statistically defined as a value below –2SD or Z score (2.3rd percentile), or above +2SD or Z score s (97.7th percentile), relative to the reference mean or median. These cut off points define the central 95% as the normality range. These measures are used as a guide to facilitate screening or monitoring of growth.

Height for Age:
This parameter reflects the achieved linear growth and its deficit indicates long-term cumulative inadequacies of health or nutrition. Two related terms are used when describing this parameter: length and stature. Length is the measurement while in a recumbent position and is used for children under 2 years of age, while stature refers to standing height. For simplification, the term height is used for both measurements in this report. Low height for age (below –2SD of the NCHS/WHO reference) ranges from 5 to 65% among less developed countries. In low prevalence countries, it is most likely due to normal variation, i.e. shortness; in less developed countries it is likely to be due to a pathological process, resulting in stunting. A pathological process can be from the past or a continuous process.
Weight for Height:
This parameter reflects body weight to height. Its use carries the advantage of requiring no knowledge of age. However it is not a substitute for the other indicators. Low weight for height is called thinness if normal or wasting if pathological and can reflect a recent or chronic condition. Prevalence in non-disaster areas is around 5%. Lack of evidence of wasting in a population does not imply the absence of current nutritional problems.

Weight for Age:
This parameter is influenced by both the height and weight of the child. It reflects the long and short-term health of an individual or population. Lightness and underweight have been used to describe normal and pathological processes. High weight for age is not used to describe obesity.

Anemia:
Iron-deficiency anemia is the most prevalent of all micronutrient deficiencies, affecting one third of the population worldwide (UNICEF, WHO, 1999). Iron deficiency anemia develops when there is an inadequate intake or bioavailability of dietary iron. Infants, children, and pregnant and lactating women are the population groups most vulnerable, due to their increased dietary requirements for growth and reproduction. The functional consequences of iron deficiency are: reduced tolerance to exercise, growth retardation, and impaired mental development.

Chapter Three

Methodology

3.1 The Survey Questionnaire:
The Palestinian Central Bureau of Statistics (PCBS) developed the survey questionnaire by combining and adapting questions contained in the following standard questionnaires:

1. the Health Survey 2000 questionnaire, implemented by the PCBS in 2000;
2. the UNICEF questionnaire for Multiple Indicator Cluster Surveys (MICS II);
3. the Standard Demographic and Health Survey questionnaire;
4. other demographic and health survey questionnaires (DHS).

The resulting questionnaire consisted of the following sections:

a household questionnaire, which included the following sections:

- a control sheet: items related to quality control sample identification, interview schedule, and interview results;
- a household roster: demographic variables such as age, sex, relation to head of household, date of birth, and health services-related variables such as health insurance;

a housing questionnaire, which included questions on housing conditions, such as water sanitation, source of disposals and number of rooms; main sources of income; difficulties facing families in obtaining food during the *intifada*; and food modules;

3. a *child health questionnaire***,** which included questions on breastfeeding status, prevalence of chronic diseases among children, vitamin supplementation, complementary feeding, child weight at birth, and maternal nutritional behavior during the first years of the child's life;

4. *an anthropometry and Hb level questionnaire,* which included questions on anthropometrical and hemoglobin levels measurements for children aged 6-59 months.

3.2 Sampling:
The Nutrition Survey-2002 sample is a sub-sample obtained from the Health Survey-2000 (HS2000) sample.

Target Population
The target population consisted of all Palestinian households that usually reside in the Palestinian Territory. The survey focused on the nutritional status of children aged 6-59 months.

Sample Frame
The master sample is the sample frame of the 1997 census data. The selected Enumeration Areas (EAs) were divided into small units called cells. One cell per EA was selected.
Sample Size
Different criteria were taken into account when sample size was determined. The level of sampling error for the main indicators, the ability to generalize results by region and locality, and a 10% incomplete questionnaire yield were main considerations.

The overall sample contained 225 EAs; 133 in the West Bank and 92 in the Gaza Strip. The sample cells were increased to 234 cells; 142 in West Bank and 92 in the Gaza Strip.

The number of households in the sample was 5,228 households, with 2,994 in the West Bank and 2,234 in the Gaza Strip.

3.3 Sample Design:
The sample is a stratified multi-stage random sample, in which four levels of stratification were made:

1. stratification by governorate;
2. stratification by place of residence, which comprised:
   (a) urban (b) rural (c) refugee camps
3. stratification by classifying locality, excluding governorate capitals, into three strata based on household ownership of durable goods within these localities;
4. stratification by size of locality (number of households).

A compact cluster design was adopted because the sample frame was not up-to-date. As mentioned above, the first sampling units were divided into small units (cells). Then one cell from each EA was randomly selected.

3.4 Response Rates:
Overall, 85.0% of the questionnaires were completed; 80.6% in the West Bank, and 90.9% in the Gaza Strip. The response rate was about 95.7%; 93.5% in the West Bank and 98.3% in the Gaza Strip.

3.5 Weighing:
Weights have been calculated for each sampling unit, reflecting the sampling procedures. To make the weighing procedure feasible and simple, we assumed that the households had been selected directly within the EA.

3.6 Variance calculations:
It is important to calculate the sampling error and show it beside the estimates, as this gives the data user an idea about the efficiency and accuracy of the estimates.

Total survey errors are divided into two types: sampling errors and non-sampling errors. Non-sampling errors arise during data collection and data processing, such as due to a failure to interview the correct unit and/or mistakes made by the interviewer or the respondent. It is still difficult to estimate non-sampling errors; however, many procedures were adopted during training, fieldwork and data processing to reduce such errors. Sampling error, on the other hand, is a measure of the variability between all possible samples and can be estimated from the survey results.

The Ultimate Clusters method was used for variance calculations; the variance formula depends on the type of estimate (ratios, means, totals…etc.). The statistical package CENEVAR was used for variance calculations.

3.7 Pilot Study:

The aim of the pilot study was to test all activities related to the main survey, including: the questionnaire, training of interviewers, survey instructions and procedures, the sample, the conducting of interviews, data entry, and data processing.

The pilot study took place in February 2002 in three West Bank governorates (Ramallah and al-Bireh, Hebron, and Bethlehem), with a sample size of 136 households.

The survey results were evaluated using several methods, including debriefing meetings with fieldwork teams. Changes in the survey plan were required.

3.8 Fieldwork Operations:

Recruitment

The recruitment of fieldworkers was restricted to women. The Fieldwork Directorate at the PCBS screened all available female applicants and designed a scale to rank applicants using objective criteria. Subsequently, 51 interviewers and 24 supervisors and editors were selected to work in the West Bank and Gaza Strip.

Training

The draft fieldwork manual prepared for the pilot survey was reviewed, edited, and utilized for training.

Due to the Israeli closure of the Palestinian Territory, the main training was conducted at each governorate separately using videotapes. A 12-day intensive training course for 128 trainees (74 in the West Bank and 54 in the Gaza Strip) was also performed.

The training materials consisted of basic survey documents such as questionnaires and interviewer and supervisor instruction manuals.

The training course for interviewers consisted of:

- classroom lectures on the objectives and organization of the survey;
- a detailed explanation of the questionnaire;
- instruction on the “art of asking questions.”

Training on the principles of interviewing included a demonstration of interview techniques through role-playing and practice interviews. A training course for Ramallah and the Gaza Strip was conducted via videoconference for three days in order to unify the training. Also, a two-day intensive course was conducted in Nablus for the Nablus team, after the completion of the 12-day training course.

3.9 Fieldwork organization:
As mentioned above, due to the strict Israeli closure and occupation of many areas in the Palestinian Territory, data collection did not start on the same date in all governorates. Also, because of the Israeli incursion into various governorates within the West Bank during April 2002, data collection was stopped during this time.

The main fieldwork started in the central West Bank and Gaza Strip on March 25th, 2002 and was completed in all governorates on June 30, 2002.

Thirteen fieldwork teams in the West Bank and Gaza Strip undertook fieldwork. Each team consisted of three - five interviewers, one supervisor, one assistant, one field editor, and one laboratory technician.

3.10 Measures of data quality control in the field:
A set of rules and measures were used to ensure data quality:

- Fieldwork supervisors were responsible for data quality in the field. A supervisor followed up with the field team on a continuous basis, evaluating their work by reviewing questionnaires and attending interviews, as necessary.

- Completed questionnaires were reviewed by the editor to ensure that the fieldworker had completed all questions, followed-up on skipped questions, accurately calculated age, and completed all data for eligible children and women.

- Fieldwork coordinators carried out quick reviews of samples of received questionnaires at headquarters. Field coordinators also followed up with the editors on questionnaires returned to the field.

3.11 Data Processing:
The statistical package BLAIS was used in data entry, which was organized in a number of files corresponding to the main parts of the questionnaire.

A data entry template was designed to reflect an exact image of the questionnaire. It included various electronic checks such as logical checks, consistency checks, and cross-validation. Continuously thorough checks on the overall consistency of the data files and sample allocation were sent back to the field for corrections.

Data entry started on June 5th, 2002 and was completed on July 28th, 2002. Data cleaning and checking processes were performed simultaneously with data entry. Thorough data quality checks and consistency checks were carried out.

SPSS for Windows (version 10.0) and specialized health and demographic analysis programs were used to perform final tabulations of results.

3.12 Data Analysis
In the process of analysis, several variables were recoded to allow for the interpretation of the data available. These variables are as follows:

Standard of Living Index
Question H07 in the Dwelling and Household Economic Status section of the survey instrument inquired about 13 household amenities. Simple frequency tables showed the items owned by a small number of families (less than 12% of the total for each of the amenities

listed) --usually those who could afford these amenities and had a lifestyle influenced by education and absorption into the modern economic sector. These amenities included computers, dishwashers, dryers and microwave ovens, as well as access to the Internet. Families who owned at least one of these items were then grouped into a category labeled "high standard of living." The rest of the families were grouped into the "low standard of living" category.

Mother's education

Question HR14, found in the household roster, pertained to mothers' education. The survey results listed ten educational categories. In order to use mothers' education in the analysis, the categories were recoded into four groups: illiterate; elementary and preparatory; secondary; and higher education.

Age group of children

Question HR05, found in the household roster, calculated the child's age to the nearest month using the date of birth. Infants (those less than one year) were then grouped into one category (6-11 months), with the rest of the children grouped into four categories: 12-23 months, 24-35 months, 36-47 months, and 48-59 months.

Age group of mothers

Question HR04, found in the household roster, pertained to the mother's age and was calculated to the nearest year using date of birth. The ages of the mothers were then grouped into two categories, using the median age of mothers in the sample (29 years) as the cut-off point.

Weaning food

Question CH26, found in the child health section, inquired about seven different weaning food items given to children in the first year of life. Since mothers of infants are more likely to report no intake of some of the food items (in cases where the child was too young to be supplemented with certain weaning foods), children under the age of 1 year were excluded from the analysis of the section on weaning foods

To allow for adequate analyses to be made, a new variable was computed using responses obtained regarding three different food items, all high in iron and protein. This variable was then recoded into two categories, the first containing children who were weaned on foods high in protein and iron during the first year of life (Cerelac, eggs and meat/chicken/fish), and the second containing the rest of the children.

Feeding practices

Question CH27, found in the child health section, inquired about the child's present diet (type and ingestion frequency of specific foods) regardless of the child's age. In order to avoid bias specific to children under the age of one year, given that some of these children are too young to consume certain food items and that a solid diet will not reflect on hemoglobin levels or growth parameters at this age (as these children are still dependent on milk for their growth), children below one year of age were excluded from the analysis of this question.

Responses to the questions on feeding practices in the questionnaire were categorized into five variables, reflecting the frequency of consumption of specific food items: once daily, twice or more weekly, once weekly, less than once weekly or no intake at all. To facilitate analysis, responses reflecting the frequency of consumption were re-grouped for most of the variables as follows: adequate or frequent intake (more than once weekly), moderate intake (once weekly or less), or no intake.

For the rest, such as consumption of frozen and fresh fish, because of data limitations it was only possible to re-group those into 'some intake' and 'no intake at all.' Other variables were re-grouped into 'adequate intake' and 'inadequate intake' only when analyzing these variables with regard to wasting (weight for height), such as for meat and chicken intake, where ingestion once weekly or more was considered adequate. The rest of the responses were grouped as inadequate. For vegetables with green leaves, adequate intake was considered any intake.

Anemia

The analysis of anemia excluded children under the age of one year, as the factors that influence the presence or absence of anemia in this age group, including breastfeeding, are different from those that precipitate anemia at the age of one year or more. Moreover, the cut-off point used in this survey for ascertaining the presence of anemia (11gm/dl) does not really apply to infants. This is due to the fact that at this age, hemoglobin levels have a range of normal values that are very high at birth and decline gradually to reach a minimum of 10.5gm/dl of hemoglobin at six months[3]. After the age of one year, a minimum of 11 gm/dl of hemoglobin is generally accepted as normal.

[3] Nelson Textbook of Pediatrics, 16th edition, 2000. (Edited by) RE Berhman, RM Kliegman, HB Jenson. Saunders USA. pp.1466 &1462 (check this footnote against the one in 'references)

Chapter Four

Main Results

4.1 Health indicators

4.1.1 Anemia:

Hemoglobin levels were measured using a portable hemoglobinmeter. The results were then grouped into two categories: anemic (less than 11gm/dl) and normal (11 gm/dl or more), using World Health Organization (WHO) cut-off points. The results showed that 37.9% of children of all ages in the sample were anemic; with hemoglobin levels lower than 11 gm/dl (Table 1).

Table 1: Percentage distribution of children aged 6-59 months by anemia status

Anemia Status	Percentage	No. of children
Anemic	37.9	1234
Not anemic	62.1	2023
Total	**100**	**3257**

4.1.2 Growth parameters:

Growth parameters (weight and height) were measured for each child (see methodology). The results were used to calculate new variables: stunting (height for age), wasting (weight for height), and under-weight (weight for age), using the international definitions of values falling at two standard deviations below the mean of the referenced population for each parameter. The final results showed that 9% of children of all ages had stunted growth, while wasting and under-weight affected 2.5% and 3.5% of our sample of children respectively.

4.2 SOCIO-ECONOMIC STATUS, MATERNAL AND CHILD FACTORS

4.2.1 Socioeconomic status

Standard of Living Index:

The family Standard of Living (STL) Index divided families into two categories: 20.8% with a high STL (ownership of any one of the amenities listed in the methods section) with the rest in the low STL category (Table 2).

Table (2): Percentage distribution of children aged 6-59 months by their family's Standard of Living Index

Standards of living index	Percentage	No. of children
Low	79.2	2,217
High	20.8	581
Total	**34.0**	**2,798**

Analyzing the data by region and locality, we found that families living in the West Bank were more likely to have a high STL (28.3%) than those living in the Gaza Strip (11.3%) (see Table 3). Likewise, urban areas and refugee camps were found to be significantly better-off than rural areas in both the West Bank and the Gaza Strip, with 34.2% of urban families and 33.2% of refugee camp families in the West Bank falling into the high STL category, compared with 22% in the rural West Bank. In the Gaza Strip, 11.9% of urban families and 12.2% of refugee camp families fall in the high STL category, compared to 3.1% of rural families. According to the study, the standard of living is lowest in rural Gaza, and in the Gaza Strip as a whole, as compared to the West Bank.

Table (3): Percentage of households with a high standard of living by region and type of locality

Region	Type of Locality			Total
	Urban	Rural	Camp	
West Bank	34.2	21.6	33.2	28.3
Gaza Strip	11.9	3.1	12.2	11.3

West Bank x^2=37.976, p≤.00005
Gaza Strip x^2=7.522, P=. 023
West Bank and Gaza Strip x^2=134.277, p≤.00005

4.2.2 Maternal Characteristics

Age:
The results indicate that the median age of mothers was 29 years, while the mode was 26 years. The recoded mothers' ages revealed that almost half (53.1%) of the mothers were below the age of 30 years (Table 4). These results are compatible with expectations, as these mothers are the mothers of young children.

Table (4): Percentage of children aged 6-59 months by mother's age

Mother's age	Percentage	No. of children
15-29 years	52.7	1,757
30+	46.6	1,554
Total	**99.4**	**3,311**

Education:
As Table 5 demonstrates, 12% of mothers were found to be illiterate, 60% had up to preparatory schooling (nine years of education), 6.7% had secondary schooling, and 10.4% had post-high school education. These results are comparable to those obtained by the PCBS Health Survey 2000.

Table (5): Percentage of children aged 6-59 months by mother's education

Mother's education	Percentage	No. of children
None	12.4	413
Elementary & Preparatory	60.2	2,005
Secondary	16.6	554
Higher education	10.4	346
Total	**99.6**	**3,318**

Examining the education of mothers by region and locale (Table 6), we find that the levels of post-high school education are about the same for the West Bank and Gaza Strip (10.5% and 10.2% respectively). The differences between the two regions appear to be strongest in the secondary education category, with a high of 23% of mothers from the Gaza Strip having reached this level, compared to a considerably lower 12.7% for the West Bank. The rates of illiteracy do not vary substantially by region.

Differences in educational levels by locale are also important (Table 6), with rural areas in each region and rural areas overall faring less well than other locales. Notice the 16.2% illiteracy rate in the rural West Bank and the 16.8% rate in rural Gaza, compared to 11.2% in urban areas and 6.6% in refugee camps of the West Bank, and 13.9% in the urban areas and 8.1% in refugee camps of the Gaza Strip. Higher education seems to follow a similar pattern, placing rural areas in both regions at a disadvantage, with rural Gaza women at a greater disadvantage than rural West Bankers. These results are not surprising, in view of the accessibility problem women face in rural areas, especially since the beginning of the Israeli policy of closures and siege, contrasting with the presence of UNRWA educational services that specifically cater to refugee needs, placing women living in refugee camps in this instance at an advantage, compared to rural ones.

Table (6): Distribution of Mothers' Education by Region and type of locality

Mother's education	Type of locality			Total
	Urban	Rural	Camps	
West Bank				
None	11.2	16.2	6.6	**12.6**
Elementary & Preparatory	64.9	63.2	65.1	**64.1**
Secondary	11.4	12.1	17.1	**12.7**
Higher education	12.5	8.6	11.1	**10.5**
Gaza Strip				
None	13.9	16.8	8.1	**12.2**
Elementary & Preparatory	57.9	58.4	48.2	**54.6**
Secondary	19.6	18.8	29.6	**23.0**
Higher education	8.5	5.9	14.0	**10.2**

For the West Bank x^2 =33.514, $p \leq .00005$
For the Gaza Strip x^2=37.728, $p \leq .00005$

4.2.3 Children's characteristics

Age:
The survey results indicate that the percentages of children included in this study by their age group ranged from a low of 11.5% for children 6-11 months old, to a high of 22.7% for those 12-23 months of age (Table 7).

Table (7): Percentage distribution of children aged 6-59 months by age

Child's age	Percentage	No. of children
6-11 months	11.5	383
12-23	22.7	755
24-35	22.1	735
36-47	21.6	723
48-59	22.1	735
Total	**100**	**3331**

Breast-feeding:
This survey indicates that the percentage of children who were reported to have been breast-fed was 95.8%, with a median value of 14 months for breast-feeding duration. At the time of the interview, 16.3% of children were still being breast-fed.

Weaning food:
Of the total number of mothers, only 31.6% reported introducing meat/chicken/fish (foods rich in protein and iron) into their child's diet by the age of eight months, and only 69.7% by the age of one year (Table 8). Eggs were reported as having been introduced by 72% of mothers by age eight months, and by 90.4% of mothers by the age of one year. High protein ready-made weaning foods, notably Cerelac, also seem to be introduced late, with 60.7% reporting the introduction of such foods into the child's diet by the age of eight months, and 61.9% by the age of one year. Rice/corn-flour is introduced late as well, with 57% of mothers reporting introducing these items into their child's diet by the age of eight months, and 60.2% by the age of one year.

These results indicate that the age of introduction of foods that are essential for normal growth is delayed, in comparison with what the WHO[4] and the American Academy of Pediatrics (AAP)[5] recommend. For example, for meat/chicken and fish, the AAP suggests that such foods be introduced into the infant's diet at about six months of age, yet only 31.6% of mothers reported having introduced these foods by eight months, and 69.7% by 12 months.

[4] WHO 200-2002. Home page: Nutrition-Infant and Young Child- Complementary feeding.
[5] Nelson Textbook of Pediatrics, 16th edition, 2000. (edited by) RE Berhman, RM Kliegman, HB Jenson. Saunders USA. p.166.

Table (8): Percentage of children aged 6-59 months given food by age of Introduction of and type of food

Age of introduction	Type of food						
	Eggs	Family food	Fruits	Vegetables	Meat/ Chicken/fish	Cerelac	Rice/ Cornflour
8 months	72.1	51.5	82.1	74.4	31.6	60.7	57.1
12 months	90.4	86.5	89.6	86.9	69.7	61.9	60.2

Combining weaning foods with a high protein and iron content (meat/chicken/fish, eggs and Cerelac, see methodology section) in one index, we found that, overall, only 41.5% of the children in this survey were reported to have had these three foods introduced into their diet during the first year of life. These findings again demonstrate the problem of delayed high protein food introduction into children's diets, and raises questions as to the reasons for and consequences of these practices.

Children's diets

Employing the recoded variables related to the frequency of food consumption and examining the results as they relate specifically to children one year of age or older (current reported food ingestion among children in the post-weaning stage), we found that children's diets in the post-weaning stage is also problematic. Our analysis indicates that these children's current diets are also protein and iron deficient (Table 9): 93.2% consume rice/wheat frequently (see methodology for definitions), 93.1% consume vegetables without green leaves, 85.3% consume eggs, a low of 44% consume legumes, 38.5% consume chicken, 35.1% consume fresh red meat, and a very low of 13.6% consume liver.

Very few children consume adequate amounts of fish, although 42.6% and 52.8% eat small amounts of fresh or frozen fish respectively. Surprisingly, 10.3% of children do not consume milk or dairy products at all and 24.6% consume red meat once every two to three weeks or less. These results seem to indicate that the diet of children in this sample is deficient in animal and plant protein, except for what is contained in eggs, while iron intake is probably adequate in one-third of children who frequently consume meat, green vegetables and legumes. As food quantity was not measured in this survey, these results should be interpreted with caution.

Table (9): Percentages of children aged 12-59 months eating certain food by type and categories of intake

Type of food	Category of intake		
	No intake	Some intake	Frequent intake
Eggs	5.5	9.2	85.3
Milk products	10.3	12.6	77.0
Fresh red meat	24.6	40.3	35.1
Frozen meat	69.5	9.6	21.0
Liver	29.0	57.4	13.6
Chicken	12.3	49.2	38.5
Legumes	6.9	49.0	44.0
Green vegetables	8.8	54.8	36.4
Other vegetables	4.0	2.9	93.1
Fresh fruits	6.8	37.4	55.8
Rice/wheat/pasta	2.9	3.9	93.2
Sweets	(Low intake) 12.9	(High intake) 87.1	
Fresh fish	(No intake) 57.4	(Any intake) 42.6	
Frozen fish	(No intake) 47.2	(Any intake) 52.8	

Iron

In this survey, we found that 36.3% of children aged 6-59 months had been on iron medication at some point in their life. The survey did not provide any information regarding whether they had been on such medication once or more than once. Of the total, 22% had taken iron supplements for less than a month or were still taking them at the time of the survey. The rest of the children (78%) took iron for more than a month, a period adequate for raising hemoglobin levels.

4.3 THE EFFECTS OF SIEGE ON ACCESS TO HEALTH CARE AND FOOD AVAILABILITY AT HOME

4.3.1 Difficulties in obtaining health care, vaccination and acute care

In response to a question pertaining to difficulties in accessing health services since severe closure and siege policies were implemented by Israel at the beginning of the current *intifada* (beginning September 2000), 37.9% of mothers reported that access to health services became difficult. Of the mothers reporting these difficulties, 44.3% noted that these difficulties were due to Israeli siege and curfew and 27.9% due to a lack of money to pay for such services. Vaccinations, on the other hand, appear to have been accessible to most children, as only 9.2% of mothers said they could not obtain these services because of siege and curfew. For acute medical care, 83.3% of mothers reported reasonable access to a health center. Pharmacies and medical clinics (private and public) were accessible to 79.3% and 75.3% of mothers respectively. Hospitals were found to be least accessible, with 59.6% of mothers reporting difficulty in accessing these particular services.

4.3.2 Difficulties in obtaining food, changes in food consumption and methods of coping

Analysis of the results of this survey reveal that a quarter (23.3%) of mothers reported that their families always found it difficult to obtain food, while 40.5% found it difficult sometimes -- bringing the total who faced difficulties in obtaining food since the *intifada* began to 63.8%. Of those families who faced difficulties in obtaining food, 85.4% reported that these difficulties were due to closures and siege and 37.8% reported that the difficulties were due to curfew. In addition, 54.4% reported that the difficulties were due to loss of income.

Turning to possible food consumption changes since the beginning of the *intifada*, about two-thirds of mothers (64.7%) reported that the quality of their food changed adversely, with 71.5%, 67.5% and 56.9% reporting reductions in the amount of fruits, meat and milk products consumed monthly respectively. Of the mothers who reported a change in the quantity of food consumed monthly by their family, 60.7% also reported that the family borrowed money to make ends meet, and 39.8% sold assets or used savings to buy food. Family coping mechanisms also included dependence on welfare food and other donations.

4.4 IDENTIFICATION OF PRIORITY GROUPS FOR ACTION:

In this section, the two dependent variables, anemia and growth parameters, are analyzed in relation to selected possible determinants using simple cross tabulation techniques and Chi square testing to ascertain significance. Controls were used in some instances, notably in relation to the confounding effect of the age and education of the mother. Possible determinants include: age groups of children; sex; region and locality; mother's education; family standard of living; and weaning and feeding practices. In addition, intake of iron medication was added to the analysis of anemia.

4.4.1 *Anemia*

In infants (0-12 months), the high hemoglobin concentration of the newborn falls in the first 2-3 months of life. Iron that is freed when red blood cells are broken is reclaimed by the body and is usually sufficient for blood formation during the first 6-9 months. Consequently, anemia before 4-6 months of age is unusual in full-term babies, but becomes common at 9-24 months of age because of inadequate intakes of iron coming from food consumed by the child. Other less common causes of anemia in children include blood loss, anemia of low birth weight, thalassemia minor and megaloblastic anemia caused by folic acid deficiency.

Using different cut-off points for anemia by age group to reflect these physiological considerations (see methodology), we found that 42.4% of children aged 6-11 months were anemic (hemoglobin levels below 10.5 gm/dl), and 35.5 % of children 12–59 months were anemic (hemoglobin levels below 11gm/dl). If we set the cut-off point at 11 gm/dl for all ages, we find that the rate of anemia is 37.9% for all children 6-59 months old.

Anemia by age group of children (excluding children 6-11 months old)

In this survey, we found that anemia was strongly related to the child's age and is highest (53.5%) in children aged 12-23 months. The percentages of children with anemia gradually declines with age, with 37.7% of children anemic in the 24-35 month age group, 30.4% in the 36-47 month age group, and a low of 19.8% for those 48-59 months old (Table 10).

Table (10): Percentage distribution of children aged 12-59 months by anemia status and age

Child 's age group	Anemia status		*Total*	No. of children
	Anemic	Not anemic		
12-23	53.4	46.6	**100**	743
24-35	37.7	62.3	**100**	729
36-47	30.4	69.6	**100**	707
48-59	19.8	80.2	**100**	716
Total	35.5	64.5	**100**	2,895

x^2= 190.565, , p≤.00005

This higher level of anemia among children 12-23 months old compared to the other age groups is understandable, as during the weaning period (6-11 months) it is usually difficult for the child to obtain the required iron, when weaning is delayed and the type of food given to infants is low in iron. In addition, during the latter part of the first year, breast milk, formula or any other source will not provide adequate iron to the infant. Consequently, by the time children enter their second year of life, the impact of inadequate nutrition in the weaning period takes the form of higher levels of anemia in this group than in any other age group.

To avoid anemia in the second year of life, the American Academy of Pediatrics (AAP[6]) recommends the following: exclusively breast-fed infants should have iron supplementation from the age of four months onwards. Once children are fed family foods, these should be rich in iron -- such as egg yolk and meat from age six months onward -- again to protect them against anemia. On the other hand, infant formula milk and commercial weaning food are fortified with adequate amounts of iron.

For Palestinian mothers living in poverty, these recommendations are not feasible, as iron fortified food and infant formula, although commercially available, are expensive. At the same time, iron supplementation and anemia management may not be very effective, in view of findings reported elsewhere[7]. On the whole, these findings point to the need for more concerted efforts to be made in the area of effective anemia management at the primary health care level, as well as the nutrition education of mothers.

Anemia by sex

Surprisingly, among children one year or older, female children were found to have significantly lower anemia rates than males, with 37.3 % of the males found to be anemic compared to 33.7 % of the females (x^2= 3.97, p=.046). Although speculative, these results may be related to a pattern observed in the past where attention to male children took the form of giving them milk powder (costly and therefore with status), as well as other purchased food items, while giving females breast milk as well as family foods, and paradoxically preserving girls' health.

Anemia by region and type of locality

Anemia was found to be significantly lower among the children of the West Bank, with a rate of 33.5% compared to 38.7% for the Gaza Strip (x^2=8.06, p≤.00005). Differences by locality were important as well, with 34.2% of urban children found to be anemic, compared to a similar 34% in rural areas, but a high of 40.1% (x^2 = 8.202, p=.017) in refugee camps. The differences for the Gaza Strip and West Bank, by locale, were not significant.

Anemia by mother's education

The analysis reveals that the relationship between a mother's education and the presence of anemia in the child was not statistically significant, although a rising rate of child anemia with declining maternal education was noted for all education groups, with the exception of mothers with higher education.

[6] Nelson Textbook of Pediatrics, 16th edition, 2000. (Edited by) RE Berhman, RM Kliegman, HB Jenson. Saunders USA.p165-166

[7] JH/al-Quds Universities 2003. Nutritional Assessment of the West Bank and Gaza Strip; Clinic Survey. p. 42-43.

Anemia by standard of living

In this analysis, we found no significant difference in percentages of anemia in children from families with different standards of living.

Anemia by weaning foods

While initially there was no observable relationship between anemia and the consumption of protein and iron-rich foods during the child's weaning period (6-11 months) in children 12-59 months old, controlling for the age of the child revealed that there were significantly higher levels of anemia among children 12-23 months (58.4 %) who did not consume high protein and iron-rich foods during the weaning period, compared to the lower rate (47.6%) of anemia among those who were reported to have consumed these important foods during the same period (x^2 =8.54, p= .002). These results are probably a reflection of the child's immediately past weaning history and maternal practices during this period, as those are probably better captured in this age group than in the other groups. These results also indicate that 12-23 month old children are a priority for action.

Anemia by child's diet

Examining the different types of foods consumed by children and the frequency of consumption, we found that chicken consumption was the only variable that was associated with anemia, with increasing consumption linked to decreasing anemia levels in children (Table 11). This is an expected result, as chicken has a high iron content that is well absorbed by the body, and is also generally affordable. However, caution is in order here as well, as quantities of foods consumed were not included in this survey.

Table (11): Percentage distribution of children aged 12-59 months by chicken intake and anemia status

Anemia status	*Chicken intake status*			**No. of children**
	No intake	Less than once a week	***Once a week or more***	
Anemic	53.0	47.0	33.3	1,023
Not anemic	40.7	59.3	66.7	1,863
Total	**100**	**100**	**100**	**2,886**

x^2 = 33.970, , p≤.00005

Anemia by iron intake

UNRWA and government clinics have a policy of prescribing iron medication free of charge to children found to be anemic. Children are normally screened for anemia between the ages of 6-11 months. Despite the relatively high percentage of iron medication intake (36.3%) and the long reported duration of supplementation (78% were reported to have taken the medication for more than a month), children who were reported as having been on iron medication at least once were found to be significantly more anemic (38.3%) than those reported to have never had any (31.4%) (x^2= 13.38, , p≤.00005). Two possible explanations could account for these findings. The simpler explanation is that more anemic children tend to take iron supplementation compared to non-anemic ones. The other explanation, which stems from our knowledge of the lack of technical instruction and clear guidelines on the management of anemia given at Mother and Child Health (MCH) centers, irrespective of who operates them, points to a possibly ineffective policy to reduce anemia in MCH clinics.

4.4.2 Growth Parameters

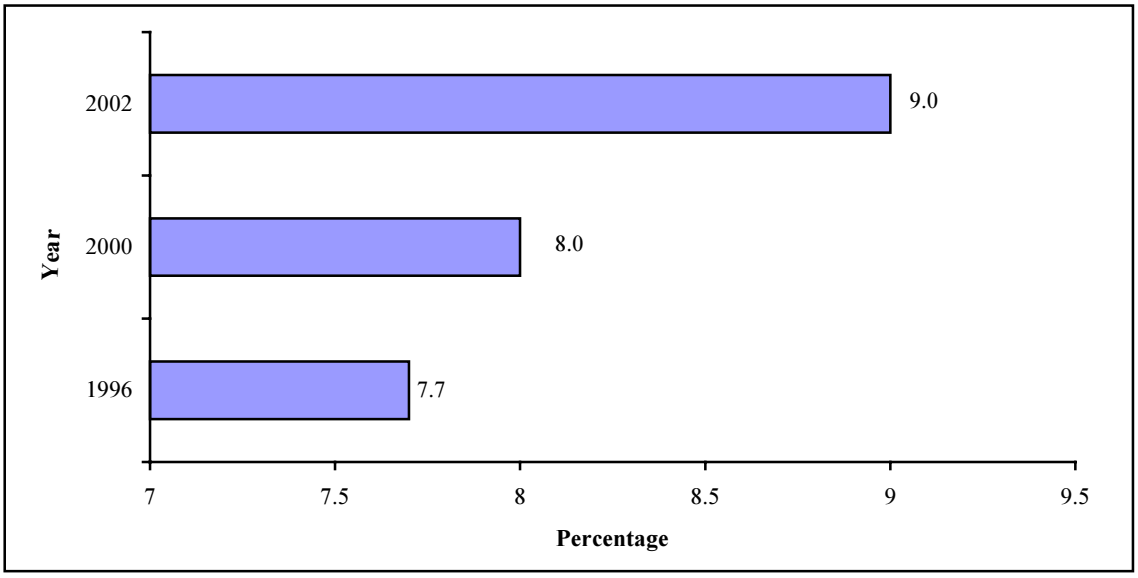
Growth is a process rather than a static quality. Birth weight is a reflection of the uterine environment during gestation, while size at age two years is a reflection of genetic predispositions. Newborns might increase or decrease their growth parameters during the first year of life, eventually normalizing to their genetic influence at 13-18 months in well-nourished children. In nutritionally compromised children, weight for height is the first parameter to drop, signaling a reduction in weight, which is an indicator of acute malnutrition. Several months or years later, depending on the age of the child, the height drops and the weight for height parameter becomes normal again. In chronic malnutrition, the circle repeats itself and wasting and stunting appear in waves. In severe, acute or chronic malnutrition situations, wasting and stunting can both increase at the same time. Because of these concrete changes in child growth in response to malnutrition, stunting and wasting are the only indicators to be discussed in this analysis section.

Height for age (stunting)

The height of healthy children is influenced by genetic factors inherited from their parents. But there are other factors affecting height, such as chronic ill health or chronic malnutrition. The effect of chronic malnutrition on height, causing stunting, is usually a result of a poor diet lacking in nutrients responsible for building the body -- particularly protein, which is obtained from an animal or a plant source.

Beginning this analysis by comparing our results, whenever possible, to two sets of nutritional data collected by PCBS in 1996 and 2000, we found that stunting increased over the years from 7.7% among children 6-59 months in 1996, to 8% in 2000, and rising again to 9% in 2002 for the same age groups (Figure 1).

Figure 1: Percentage of stunted children aged 6-59 months 1996-2002



1. Stunting by age group

In all three surveys, stunting varied with age, with the lowest percentage of stunting found among the age group 6-11 months in the three surveys, at 4.6% in 1996, a lower 3.5% in 2000 and a higher 4.7 % in 2002 (Table 12). This is probably at least partially due to the protective effects of breast milk, still consumed in this period by a large proportion of children, given that breast milk contains high amounts of protein and can act as a protector against stunting.

At the same time, the highest levels of stunting were recorded for the 12-23 month age group in the 2000 (10.5%) and 2002 (14.7 %) surveys, but not the 1996 one, indicating a pattern of rising stunting over time.

The 1996 survey provides contrasting results, however. Here, we note a pattern of rising stunting with rising age, and with 4.5% stunting in the 6-11 month olds, 7.2% for the 12-23 month olds, 7.4% for the 24-35 month olds, 8.1% for the 36-47 month olds, and a high of 9.9% for the 48-59 month olds. These results may be suggestive of improved child nutrition over time during the first half of the 1990's, a period of relative peace.

However, the overall increase in stunting rates from 1996 (7.7%), to 2000 (8%) to 2002 (9%) indicates deterioration in the adequacy of child nutrition in two periods. This is especially so for the age group 12-23 months, as stunting has increased from 7.2% in 1996 to 10.5% in 2000 and a further increase to 14.7% in 2002. What ever happened that affected child nutrition at this vulnerable age between 1996 and 2000, 4 years interval, has been intensified to cause further stunting in a shorter period, 2 years interval, between 2000 and 2002. This may be the result of a decrease in quality of food available or given to children at this age in this period of time.

Table 12: Percentage of stunted children aged 6-59 months by age 1996-2002

Child age in months	1996	2000	2002
6-11	4.6	3.5	4.7
12-23	7.2	10.5	14.7
24-35	7.4	7.4	7.2
36-47	8.1	8.3	8.0
48-59	9.9	8.1	7.9
Total	**7.7**	**8.0**	**9.0**

x^2=11.474,p=0.02 (1996)
x^2 = 2602.746, p≤.00005(2000)
x^2=43.61, p≤.00005(2002)

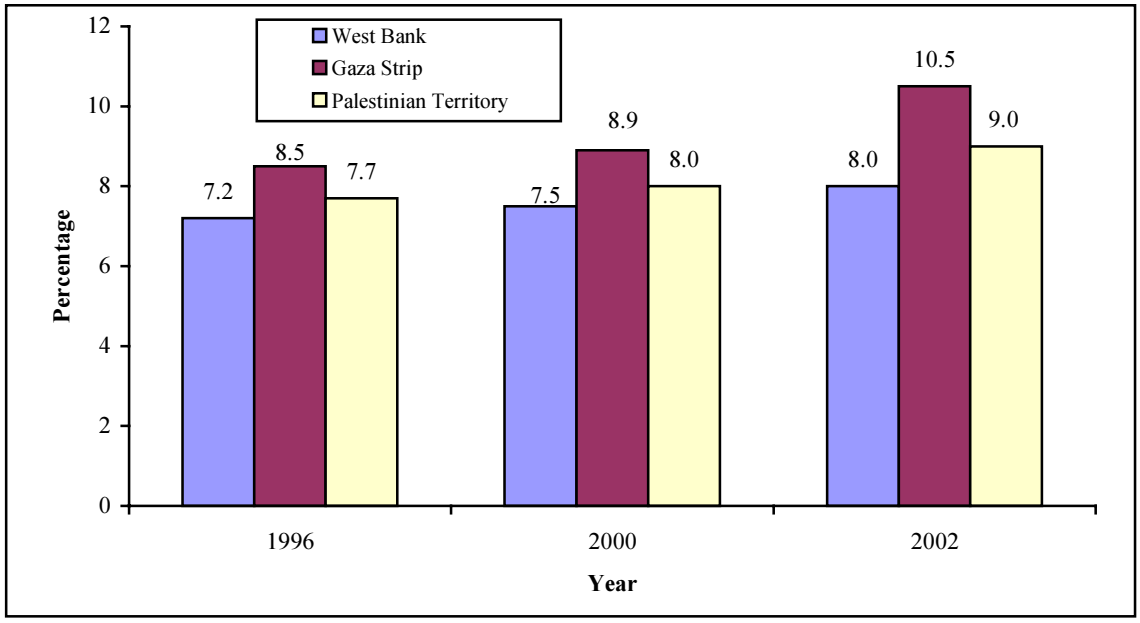
2. Stunting by sex

In the 1996 and 2002 surveys, there were no differences in stunting between the sexes. However, significant differences were noted in the 2000 survey, with a rate of 8.6% stunting among females, compared to 7.5% for males (x^2 =202.289, p≤.00005). A possible reason for these differences by survey year may be related to the number of children 6-59 months old who participated in the study for the 2000 survey (5232) being large enough to capture this difference between the sexes, in contrast to the smaller sample sizes of the 1996 (3619) and 2002 (3331) surveys, which may have been inadequate for completing such an analysis. At this stage, these results remain unexplained.

3. Stunting by region

In the 2002 survey, stunting was found to be significantly higher in the Gaza Strip, at 10.5%, compared to 8% in the West Bank (Figure 2). Similar results were obtained in the 2000 health survey, with 8.9% of the children found stunted in the Gaza Strip, compared to 7.5% in the West Bank. The 1996 survey did not reveal significant regional differences, although the pattern was the same as that of the other survey years, with Gaza seeming to be at a disadvantage. These results demonstrate that Gaza Strip children have been and continue to be a priority for action.

Figure 2: Percentage of stunted children aged 6-59 months by region 1996-2002



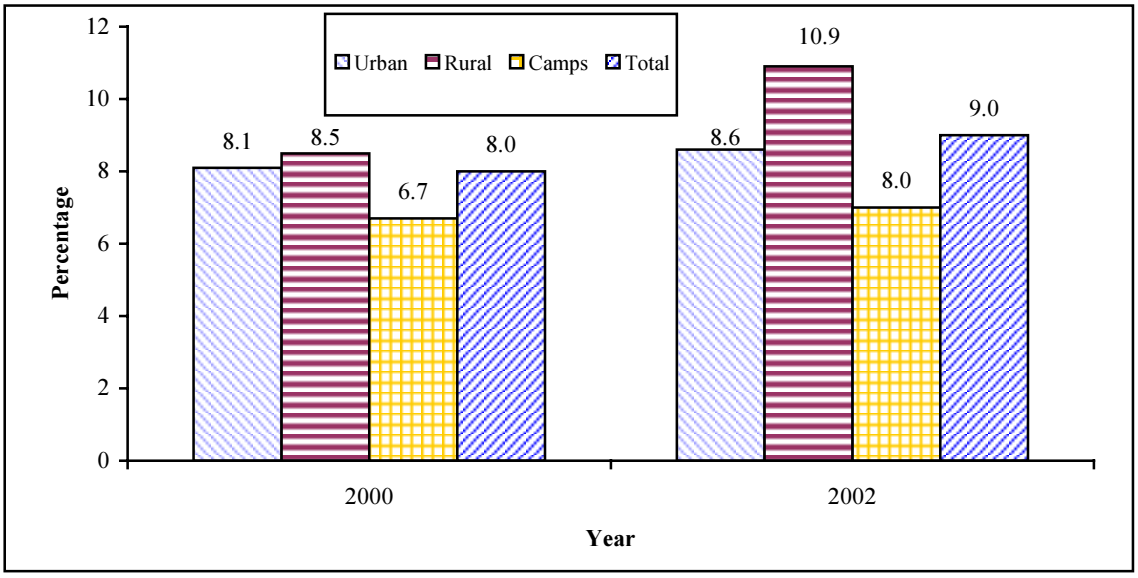
1996 differences not significant
$x^2 = 306.084$, , $p \leq .00005$(2000)
$x^2 = 5.645$, $p = 0.015$ (2002)

4. Stunting by type of locality

It was not possible for us to include results from the 1996 survey in our analysis of stunting by locality, as since 1996 the definitions of localities adopted by PCBS were reformulated, making it impossible to complete an adequate comparison without introducing serious biases.

The 2000 and 2002 surveys both demonstrate that stunting levels are higher in rural areas, compared to those in urban areas and refugee camps. Table 14 reveals that 8.5% of rural children were stunted in 2000, compared to 8.1% of urban children and a low of 6.7% of children in refugee camps, denoting that refugee camp-dwelling children fared better than children living in other localities. The figures for 2002 show a similar pattern, with a high of 10.9% of rural children with stunting, compared to 8.6% of urban dwellers and 7% of refugee camp children. Notice that the gap between the rural and urban areas has widened over time, from a 0.4% difference in the levels of stunting in 2000 to a significant 2.3% difference between the two localities by 2002. Notice also that the level of stunting remained lowest for refugee camps during both survey years, although the pattern indicates a rise in stunting rates over time there as well. In all, not only did stunting increase with time in all localities, more importantly perhaps, stunting levels increased disproportionately more in the rural areas in 2002 compared to the other locales, warranting the identification of rural children as a priority for action.

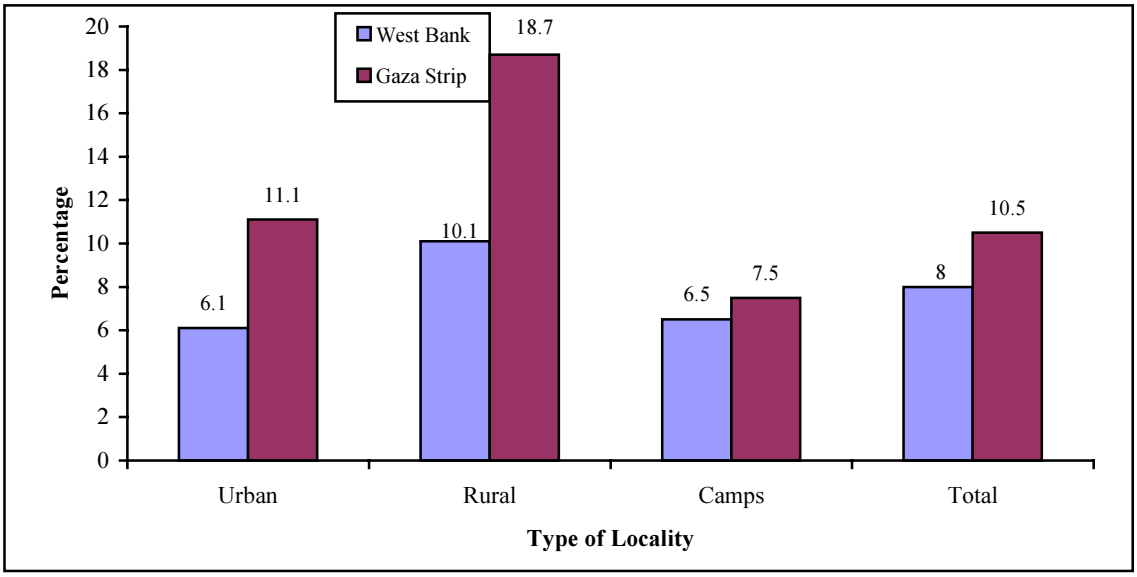
Figure 3: **Percentage of stunted children aged 6-59 months by type of locality 2000-2002**



x^2= 245.924, , p≤.00005(2000)
x^2 =8.817, p=0.012 (2002)

Combining the results for localities and regions (Figure 4), we note that stunting levels in the Gaza Strip are higher than those in the West Bank in every locale, but with differences especially pronounced in rural areas of the Gaza Strip, with a significantly higher (18.7%) level of stunting there, compared to 10.1% in the rural West Bank. However, because the sample size of the rural Gaza Strip is very small, caution is warranted in interpreting the data. What we can say at least is that the data at hand is suggestive of a serious stunting problem in the rural Gaza Strip, warranting further investigation and possibly immediate action as well.

Figure 4: **Percentage of stunted children aged 6-59 months by region and type of locality**



WB x^2= 10.85, p=. 004
GS x^2= 12.09, p=. 002

5. Stunting by mother's education

The 2002 survey reveals that women who are illiterate have the highest percentage of stunted children, at 17.5%, compared to other educational levels, where the percentage of stunting took the range of 6-8.4%. Thus, the stunting rates of children with illiterate mothers stood out. When education of the mother was controlled by mother's age, education continued to negatively influence stunting, especially among women 30 years old or older. A similar trend was observable for women under the age of 30, with an increase in child stunting with decreasing maternal education. However, the sample size in this group was too small to yield robust results.

Table 13: Percentage distribution of stunted children aged 6-59 months by mother's education

Mother's education	**Stunted children**	**Not stunted**	*Total*	**No. of children**
None	17.5	82.5	**100**	413
Preparatory &Elementary	7.9	92.1	**100**	2,005
Secondary	8.4	91.6	**100**	554
Higher Education	6.0	94.0	**100**	346
Total	9.0	91.0	**100**	3,318

x^2= 42.87, , p≤.00005

6. Stunting by standard of living

Children of families who scored high on the standards of living index had better growth and lower percentages of stunting than those who came from low standard of living families: 6% of children in the high standard of living category were found to be stunted, compared to 9.8% among those with a low standard of living score (x^2=9.443, p=0.002) This is yet further evidence pointing to the fact that a combination of wealth and lifestyle can affect child health.

7. Stunting by weaning practice and child's diet

None of the foods reported to be consumed by children significantly influenced height, with the exception of protein and iron-rich food intake in the first year of life. Table 16 demonstrates that 7.6% of children, who consumed protein and iron-rich food during the first year of life were stunted, compared to a significantly higher 9.9% of stunting among those who had a low intake of foods rich in protein and iron.

Table 14: Percentage distribution of children aged 6-59 months by stunting status and consumption of high protein and iron rich foods in the first year of life

High protein and iron diet in the first year of life	**Stunted**	**Not stunted**	*Total*	**No. of children**
Low intake	9.9	90.1	100	1,949
High intake	7.6	92.4	100	1,382
Total	**9.0**	**91.0**	**100**	**3331**

x^2= 5.29, p=0.012

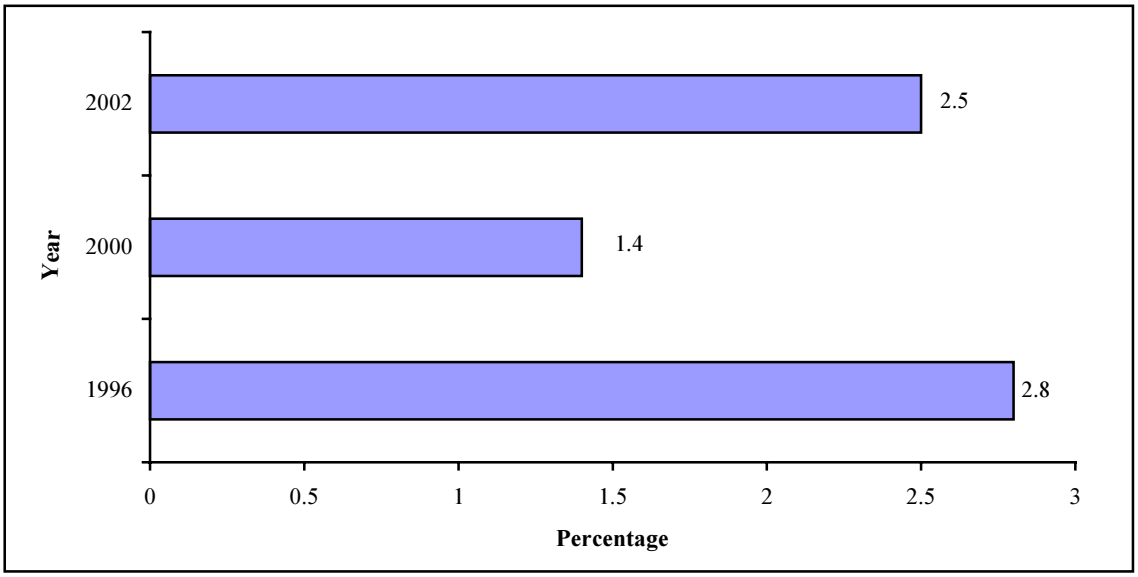
Weight for Height (Wasting)

Weight-for-height, or wasting, is a better indicator of child nutritional status than weight-for-age alone, as it takes height into consideration and will detect thin and tall children who will be missed by weight-for-age parameter alone. However, weight-for-height should not be used independently of other parameters, as it is dependent on height to screen normal from abnormal values. This means that, when using this parameter alone, abnormally short children may be considered to be normal, if their weight is appropriate for their age. Moreover, weight-for-height will not detect changes in overall child population growth parameters, specifically when children are getting shorter or taller.

However, wasting is usually the first variable that increases as the rate of malnutrition rises amongst children, reflecting the presence of acute malnutrition. This is usually followed by an increase in the level of stunting (height-for-age), reflecting the presence of chronic malnutrition.

Comparing wasting levels among the three survey years, we found that in 1996, 2.8% of children 6-59 months old were wasted, compared to 1.4% in 2000, and 2.5% in 2002 (Figure 5). That is, it appears that the level of wasting declined between 1996 and 2000, but rose again in 2002. Combining these results with the results on stunting, with 7.7% stunting in children in 1996, 8% in 2000 and 9% in 2002, it may be postulated that a nutritional deterioration was beginning to occur in 1996, affecting first children's weights -- expressing itself in higher levels of wasting but not stunting -- followed by a decline in wasting associated with the rise in stunting levels in 2000, and finally, a rise in both wasting and stunting levels in 2002 as an expression of both acute and chronic malnutrition.

Figure 5: Percentage of wasted children aged 6-59 months 1996-2002



1. Wasting by age group

In all three surveys, children in the age group 6-11 months were found to have the highest levels of wasting, with 7% in 1996, 4.1% in 2000 and 7.3 % in 2002 (Table 15). These results are consistent with our view that current conditions first precipitate wasting, followed by stunting and stabilization, as the wasting levels are highest among the 6-11 month olds, while stunting percentages are highest among 12-23 month old children.

Table 15: Percentage of wasted children aged 6-59 months by age 1996-2002

Age group in months	1996	2000	2002
6-11	7.0	4.1	7.3
12-23	5.3	2.0	2.6
24-35	2.0	0.7	1.5
36-47	0.6	0.3	1.4
48-59	0.7	1.0	2.0
Total	**2.8**	**1.4**	**2.5**

$x^2 = 76.161$, , $p \leq .00005$ (1996)
$x^2 = 4773.920$, , $p \leq .00005$ (2000)
$x^2 = 43.19$, , $p \leq .00005$ (2002)

2. Wasting by sex

We found no significant sex variations in wasting in the 1996 or the 2002 survey data. For 2000, sex variations in wasting were noted, with a 1.3% waste rate in females, compared to 1.5% in males ($x^2=42.36$, $p \leq .00005$). However, in view of the cyclical nature of the rise in nutritional parameters, and given the small sizes of the 2000 and 2002 surveys, all that can be said here is that further analysis or investigation is required to elaborate on child nutritional status by sex.

3. Wasting by region

Regional variations in wasting levels were noted for all survey years, but were only of statistical importance in 1996 and 2000. In 1996, significantly more children from the Gaza Strip were wasted (3.7%), compared to 2.2% in the West Bank ($x^2=6.448$, $p=.01$). By 2000, this pattern had reversed, with significantly more West Bank children found wasted at 1.4%, compared to 1.3% in the Gaza Strip ($x^2= 4.241$, $p=.039$). By 2002, although the differences are not statistically significant, the reversed pattern remained and the gap between the Gaza Strip and the West Bank increased, with a 2.9% level of stunting for the West Bank, compared to 2% in the Gaza Strip. Again, one of the ways to make sense of this data is to combine the wasting findings with the stunting findings, where we may have a suggestion that the wasting then stunting phases of the cycle have taken place perhaps earlier and in stronger ways in the Gaza Strip, with the West Bank -- especially rural areas -- catching up over time, and then with a continued rise in the levels of both stunting and wasting in both regions from 2000 to 2002.

4. Wasting by locality

Important results were observed for locality, excluding 1996 data, as since 1996, the definitions of localities adopted by PCBS were reformulated, making it impossible to complete an adequate comparison without introducing serious biases. Table 16 demonstrates that wasting stabilized to 1.5% for 2000 and 2002 each. Rural areas and refugee camps seem to have witnessed increasing levels of wasting during 2002 compared to 2000, with respect to rural areas and refugee camps, but not urban areas -- perhaps as a result of sudden severe unemployment due to closures (in the camps of the Gaza Strip) and the lack of access to food and employment due to siege and curfew (in the rural areas of the West Bank).

Table 16: Percentage of wasted children aged 6-59 months by type of locality 2000-2002

Type of locality	2000	2002
Urban	1.5	1.5
Rural	1.4	4.6
Camp	1	1.9
Total	**1.4**	**2.5**

$x^2 = 113.857$, , $p \leq .00005$(2000)
$x^2 = 26.166$, , $p \leq .00005$(2002)

5. Wasting by mother's education and Standard of Living Index
No relationship was observed between maternal education or family standard of living in the 2002 survey.

6. Wasting by weaning practice and child's diet
In this survey, we found that the frequency of consumption of protein and iron-rich foods in the first year of life did not influence wasting. However, the frequency of ingestion of these foods after the first year of life was important. As Table 17 reveals, an adequate frequency of consumption of chicken and meat reduced the percentage of wasting significantly, from 4.8% among children who had inadequate intakes of chicken (less than once a week), compared to 1.9% who had an adequate intake (once a week or more). A similar effect is seen for meat intake, with 3.9% of those with inadequate intake found wasted, compared to 1.6% of those with adequate intake. Green leaves, as opposed to non-leafy vegetables, seem to make a difference on wasting, with 5.8% of those with no intake found wasted, compared to 2.2% of those with any intake -- perhaps denoting that even very small quantities of green leafy vegetables are protective. Finally, some intakes of frozen fish appear to make a difference as well, with 3.8% of those with no intake found wasted, compared to 1.4% of children with any intake. Once again, these results, although suggestive, should be interpreted with caution, as they pertain to frequency of ingestion, and not quantities consumed.

Table 17: Percentage of wasted children aged 6-59 months by selected food intake

Type of food	Wasted	No. of children
Chicken		
Inadequate intake	4.8	774
Adequate intake	1.9	2,544
x^2=19.906, , p≤.00005		
Meat		
Inadequate intake	3.9	1,352
Adequate intake	1.6	1,969
x^2=16.928, , p≤.00005		
Green leaves		
No intake	5.8	291
Any intake	2.2	3,028
x^2 =13.759, , p≤.00005		
Frozen Fish		
No intake	3.8	1,565
Some intake	1.4	1,750
x^2= 19.132, , p≤.00005		

Summary and Conclusions

Summary:
This cross-sectional survey was completed during the period of March-June 2002, focusing on the nutritional status of children living in the West Bank and Gaza Strip. The ages of the children included in this study ranged from 6-59 months. Three indicators were used to assess nutritional status: hemoglobin level, stunting, and wasting. Its main findings include:

Anemia

1. Overall anemia levels were high, with 37.9% of all the children included in this study having hemoglobin levels lower than 11gm/dl.
2. Using different definitions of anemia for different ages to reflect physiological considerations, we found 42.4% of children 6-11 months old to be anemic (with hemoglobin levels lower than 10.5 gm/dl), in contrast to a rate of 35.5% anemia among older children (with hemoglobin levels lower than 11 gm/dl).
3. Anemia was strongly related to the child's age, and was found to be at its highest levels (53.4%) among children 12-23 months old, followed by 42.4% for those 6-11 months old.
4. Girls were significantly less anemic than boys, with 33.7% of girls found to be anemic compared to 37.3 % of boys.
5. Gaza Strip children were significantly more anemic than West Bank children, with 38.7% of Gaza children found to be anemic compared to 33.5% of West Bank children.
6. Refugee camp-dwelling children were significantly more anemic than rural or urban children, with a high of 40.1% anemia levels in camp children, compared to 34% for rural and 34.2% for urban dwellers.
7. Anemia in children was not related to the age or education of their mothers.
8. Anemia was found to be significantly associated with the type of weaning food the children consumed (specifically foods rich in protein and iron), but only among the 12-23 month olds. A high of 58.4% of children who did not consume these foods in this age group were anemic, compared to a lower 47.6 % among those who did consume these foods.
9. Anemia levels were higher among children reported to have taken iron medications at some point in their lives, with 38.3% of this group found to be anemic, compared to 31.4% of children reported as never having had any iron medication at all. Of those who took iron medication, 78% reported that they have taken iron for at least one month -- a time that is sufficient to raise hemoglobin levels.

Height for Age (Stunting)

1. Comparing with the 1996 and 2000 PCBS surveys, we noted that stunting appears to have increased over the years, from 7.7% in 1996 to 8% in 2000, and to 9% in 2002 among children 6-59 months old -- an indication that the nutritional status of children 6 -59 months old is deteriorating over time.
2. In all three surveys, stunting significantly varied with the child's age, with the lowest percentages of stunting found in the 6-11 month age group. The highest levels of stunting were found among 12-23 month olds in 2000 and 2002 -- the same age group that was found to also have the highest levels of anemia in the 2002 survey.
3. With no differences in stunting levels between the sexes appearing in the 1996 or 2002 surveys, significantly more females were found stunted in 2000, at 8.6%, compared to 7.5% for males.
4. Significantly higher levels of stunting were found among the children of the Gaza Strip during 2000 and 2002, compared to West Bank children.

5. Significantly higher levels of stunting were also found among rural children in both 2000 and 2002, compared to urban children and those living in refugee camps, with camp children found to have the lowest levels of stunting overall.
6. In 2002:
    a. Maternal education significantly influenced the child's stunting status, with a pattern of decreasing stunting with higher level of education.
    b. Family standards of living (a mix of wealth and lifestyle) significantly influenced stunting in children, with less stunting found among the high standard of living group.
    c. Including protein and iron-rich foods in the child's weaning diet significantly influenced stunting rates, with higher levels of stunting found among those who were reported as having had low intakes during their weaning period.

Weight for Height (Wasting)

1. Comparing the data sets of the three survey years, we note that wasting was at its highest in 1996, affecting 2.8% of children 6-59 months old, declined in 2000 to 1.4%, and rose again in 2002, reaching the level of 2.5% among the children in this age group.
2. Wasting was found to be most prevalent among 6-11 month old children in the three survey years, with 7% of these children suffering from wasting in 1996, 4.1% in 2000 and 7.3 % in 2002.
3. With no differences between the sexes found in the 1996 and 2002 surveys, significantly more boys (1.5%) were wasted in 2000 than girls (1.3%) -- taking the opposite pattern of the higher levels of stunting for girls compared to boys for the same survey year.
4. In 1996, significantly more children from the Gaza Strip were wasted compared to children of the West Bank. By 2000 the pattern had reversed, with significantly more West Bank children found wasted compared to Gaza children. The differences in 2002 were not statistically significant.
5. For 2000, urban and rural children had significantly higher levels of wasting compared to refugee camp-dwellers. By 2002, a significant rise in wasting levels affected the rural areas (4.6%), compared to the same level of wasting found in 2000 for urban areas (1.5%) and a rise in levels in refugee camps from 1 to 1.9%. That is, wasting has primarily affected rural children, and secondarily refugee camp children, although the levels are substantially less there, but not urban dwelling children.

An understanding of the changing patterns of child nutrition in the PT can only be adequately understood by placing these surveys' results into their political and socio-economic context. Malnutrition and inadequate child growth are not a genetic pre-disposition. They constitute the outcome of an unhealthy and unstable living environment. The PT have been an arena of conflict for many years, affecting economic and social relationships in radical ways and producing rising and falling patterns of child growth and nutrition in relation to context.

It is well known that the rise of malnutrition in children is related to war and poverty. In the case of the PT, war-like conditions induce increases in poverty levels in cycles, depending primarily on the political context. Although inconclusive, patterns observed in the 1996 data set indicate that child nutrition may have been improving in the first half of the 1990s, a period that can be described as enjoying relative peace. By the year 2000, the levels of stunting were beginning to rise, while wasting declined, but not in all age groups -- there was a considerable rise in wasting in children 6-11 months at the time.

The beginning of the second *intifada* in September 2000 signaled the beginning of a new phase, characterized by severely worsening life conditions, economic crisis, the sudden loss of income and serious population impoverishment[8] [9]. These conditions manifested themselves in large-scale unemployment, impoverishment and lack of access to basic services in the Gaza Strip due to the policies of closures implemented since the year 2000, as well as unemployment especially in the rural areas of the West Bank, as these areas were also severely negatively affected by siege and curfew. These conditions inevitably led to shortages in food supplies and cash, affecting the quality and quantity of food consumed by children and their families, and compromising children's growth patterns.

Conclusions:
Anemia, stunting and wasting are common nutritional diseases of childhood, affecting young children in particular. Anemia is common all over the world between the ages of 6-24 months, with variable prevalence ranging from 20-60%, and with higher levels found in developing countries, linked to poverty, compared to the developed industrial world. Stunting, on the other hand, is mainly prevalent in developing countries, as it requires continuous inadequate supplies of nutritious foods that are necessary for the adequate growth of children. Stunting is seldom seen in an otherwise healthy child in developed countries, except for those who are short due to familial or constitutional causes, and those children constitute usually a small percentage (about 5%) of the total child population. In developing countries where poverty levels are high, however, stunting levels can also be high (5%-65%), because poverty is the number one determinant of growth in children.

The short and long-term impact of these nutritional insults to the body negatively influence not only morbidity and mortality, but also cognitive abilities -- resulting in low intelligence, dullness and poor concentration, among other effects. These effects can be reversible if caught early, with vigorous intervention programs. However, the longer the disability of anemia, wasting and stunting is experienced, the less likely is the success of reversing the process. In order to proceed, one has to target priority groups for action, which were identified by the survey. These are:

For **anemia**, although interventions in this area should include all children under the age of five years, the findings of this study demonstrate that the following types of children are at an increased risk of developing anemia, and therefore need to be taken into special consideration:

a. children in the age group 6-23 months;
b. refugee camp-dwelling children, especially in the Gaza Strip;
c. stunted children;
d. children with a low family standard of living;
e. children with a history of anemia.

As for **stunting** and **wasting**, once again, effective and continuous growth monitoring is highly recommended for all children under five years of age at this stage. In addition, special attention should be paid to the following high-risk groups:

[8] World Bank, 2002; Fifteen Months – Intifada, Closures and Palestinian Economic Crises: An Assessment. pp. 31-34.
[9] PCBS April 2001, Impact of Israeli Measures on the Economic Conditions of Palestinian Households

a. children 6-11 months old, who have been shown to have the highest risk of wasting, but not stunting;
b. children 12-23 months old, who have been shown to have the highest risk of stunting;
c. children of illiterate mothers, as they are at a higher risk of stunting;
d. rural children, especially those living in the West Bank, as they are at an increased risk of wasting and stunting;
e. children of families with a low standard of living, as they are at an increased risk of wasting and stunting.

Recommendations

Any policy or operational recommendation that we may elaborate in this report will inevitably be seriously constrained or hampered altogether by the extent and severity of the closures, siege and conflict imposed by Israel on the PT. Indeed, the first recommendation should address the issue of ending Israeli occupation and the mass punishment of the civilian population, especially women, children, the elderly, and the disabled, as well as ending the severe violations of children's rights taking place in this man-made disaster that is mostly being silently observed by the international community.

In the meanwhile, in the short and medium terms, it is imperative to intervene in the hope of ameliorating the nutritional status of Palestinian children.

Effective intervention in our context requires the development of a multi-pronged approach to detection, management and prevention:

1. Growth monitoring and anemia detection are two of the key programs that the PT Maternal and Child Health centers operate. However, it has been shown that these programs, irrespective of who operates them, suffer from the problems of poor detection rates, as well as management and child follow-up inconsistencies[10]. Moreover, local experience indicates that child compliance in taking the available low-cost iron syrup is poor, as this form of the medication is unpalatable and leads to gastro-intestinal side effects. Given these considerations, it is only logical to begin the intervention process by working to improve the management of anemia, wasting and stunting at these centers.
2. Technical instructions must be developed for the detection and management of anemia, wasting and stunting, as these have still not been developed.
3. Once these instructions are developed, every effort must be made to train all staff concerned, including doctors and nurses, in the correct methods of measurement, interpretation of growth parameters, adequate record keeping, and effective methods of child follow-up. Training should also include a special focus on the high-risk groups that have been identified in this survey.
4. At the same time, effective, empowering supervision and evaluation are of the essence, perhaps requiring the retraining of supervisors to accommodate the newly emerging needs.
5. For surveillance as well as evaluation purposes, anemia detection and growth monitoring should be incorporated into a computerized health information system that can monitor changes regularly, quickly produce information detecting changes in child nutritional status, and provide a follow-up and evaluation database for prevalence and outcomes of anemia, wasting and stunting management. This aspect is also a key to effective intervention.
6. The intervention role of MCH clinics should be enhanced by including the continuous availability of palatable iron with fewer gastro-intestinal side effects in all MCH clinics, in order to increase compliance with iron supplementation, whenever needed.
7. For growth monitoring, a more aggressive program should be implemented to detect as many children as possible who are at risk of becoming wasted or stunted (including low birth weight and pre-term children, children with chronic diseases and the poor, for instance), and to develop and effectively implement an action plan for their management. This should include nutritional advice aimed at mothers, the provision of

[10] JH/al-Quds Universities 2003. Nutritional Assessment of the West Bank and Gaza Strip; Clinic Survey. pp. 42-43.

iron supplements and perhaps multi-vitamins, with regular follow-ups. High protein/iron infant foods can also be made available for special cases.

8. It is highly recommended that home visiting schemes are developed and implemented in a systematic, supervised and continuous manner in order to capture non-attenders, or those who do not appear at the clinic at the assigned time.
9. The health/nutrition education of the public, especially mothers, is also important. Much can be done in the area of helping mothers in weaning and feeding their children in nutritionally sound ways, even in poverty. Both radio and television can be used to air simple messages encouraging the ingestion of cheap foods with high nutritional qualities, such as frozen fish, frozen meats, green leafy vegetables, eggs, pulses, and fruits, when available.

In addition, three other recommendations are in order here:

1. Given the patterns observed in this study among children under the age of five years, it may be important to examine the nutritional status of older children as well, as what is precipitating anemia and growth retardation in younger children may well also be affecting the older children. The School Health Program operated by the Ministry of Health can provide the database needed for the assessment of the nutritional status of these older children without much added cost. Analysis of these records may well lead to the conclusion that these children too suffer from malnutrition, prompting for instance the initiation of programs for the provision of milk and iron supplementation in schools, in line with emergency measures in times of strife.
2. Likewise, in view of this study's findings, it is recommended that all children under five years of age be included in any MCH program activities. This is because children 3-5 years of age have also been shown in this study to suffer from nutritional problems, but are excluded from routine screenings in MCH and school health services.
3. Further investigations are needed to confirm selected initial results obtained in this survey, including, for instance, stunting levels in particular localities. This is particularly true for the rural Gaza Strip, where we noted stunting levels of a magnitude not seen in other localities, but where the sample size was too small to arrive at definitive results. Other issues that continue to require further investigation include: sex differentials in growth and anemia levels, nutritional diseases and maternal education, an assessment of nutritional intake that takes into consideration both frequency and quantity, and family income and nutritional status.

References

1. Palestinian Central Bureau of Statistics, 2003. Health Survey-1996. Survey Database. Ramallah-Palestine.

2. Palestinian Central Bureau of Statistics, 2003. Health Survey-2000. Survey Database. Ramallah-Palestine.

3. Palestinian Central Bureau of Statistics, 2001. Impact of Israeli Measures on the Economic Conditions of Palestinian Households. Ramallah-Palestine.

4. World Bank Report, 2002. http://lnweb18.worldbank.org/mna/mena.nsf/Countries/West+Bank/67FB14AF1F54168785256B85003C5F07?OpenDocument: Fifteen Months - Intifada, Closure and Palestinian Economic Crises: An Assessment.

5. WHO 2000-2002. http://www.who.int/child-adolescent-health/NUTRITION/complementary.htm: Nutrition:Infant and Young Child; Complementary Feeding.

6. Nelson Textbook of Pediatrics, 16th edition, 2000. Edited by RE Berhman, RM Kliegman, HB Jenson. Saunders USA.

7. John Hopkins / al-Quds Universities 2003. Nutritional Assessment of the West Bank and Gaza Strip; Clinic Survey. [add Place: publisher.]

Annex 1
A Comparison of PCBS 2002 data on the Nutritional Status of Palestinian Children with the Palestinian Rapid National Nutritional Assessment 2002, Johns Hopkins and Al-Quds Universities

Annex 1

A Comparison of PCBS 2002 data on the Nutritional Status of Palestinian Children with the Palestinian Rapid National Nutritional Assessment 2002, Johns Hopkins and Al-Quds Universities

During approximately the same period in 2002, both PCBS and Al-Quds/Johns Hopkins Universities completed field surveys focusing on the nutritional status of children 6-59 months old, using the same health indicators of anemia, stunting and wasting. Although, generally speaking, one survey validated the other, there were some variations in the findings as follows:

	Johns Hopkins/al-Quds	PCBS
Global chronic malnutrition (stunting)	11.7%	9.1%
Global acute malnutrition (wasting)	7.8%	2.5%
Hemoglobin levels below 11 g/dl	43.9%	37.9%

As we can observe from the above table, small differences between the two studies can be noted in stunting (height for age) and anemia levels. However, the differences in the percentage of wasting (weight for height) are higher than one would expect, given possible small level differences related to sampling and non-sampling errors. These differences may be explained as follows:

1. Sample size: as the Johns Hopkins/Al-Quds sample contained only 936 children -- one third of the 3,331 children sampled by PCBS -- the problem may be one of generalizability, given the small sample size of the Johns Hopkins/Al-Quds study. This is especially true for wasted children. For example, in the West Bank the study in question found fewer than 20 wasted children (calculated from their reported data of 4.3% wasting among 416 children living in the West Bank[11]).
2. Other causes for this discrepancy may relate to the exact methods used in weighing children, instrumental errors, or differing methods of calculating the percentage of children less than two standard deviations from the mean. These aspects were not elaborated on enough in the Johns Hopkins/Al-Quds report to allow for a comparison with the PCBS methodologies.
3. In the Johns Hopkins/Al-Quds study, a disproportionately large number of children from the Gaza Strip were included in the sample, compared to children from the West Bank, and relative to the known normal distribution of children at those ages in these regions. Since Gaza Strip children have significantly higher levels of anemia, wasting and stunting compared to children in the West Bank, this disproportionate number of children from the Gaza Strip relative to the normal distribution may have reflected itself on the results by inflating the overall findings to some extent.

[11] John Hopkins/al-Quds Universities 2003. Nutritional Assessment of the West Bank and Gaza Strip; Clinic Survey, p.4

Annex 2
Questionnaire

Palestinian National Authority
Palestinian Central Bureau of Statistics

Palestinian National Authority
Palestinian Central Bureau of Statistics
Nutrition Survey-2002

Data collected through this survey is for statistical purposes only and considered as confidential (Based on the General Statistics Law 2000)

IDH00- Questionnaire serial number ☐☐☐	**IDH05-** Number of households in the building ☐☐
IDH01- Governorate _____ ☐☐	**IDH06-** Name of household (HH) head _____
IDH02- Locality _____ ☐☐☐☐☐☐	**IDH07-** Cell code ☐☐
IDH03- EA code of locality ☐☐☐	**IDH08-** Is HH in HH list: 1.Yes 2. No ☐
IDH04- Building number ☐☐☐	**IDH09-** (if answer in IDH08 is Yes) HH Number in list ☐☐☐

Interview Record

IR01- Visits schedule	Day	Month	Year	
	☐☐	☐☐	☐☐	First visit
	☐☐	☐☐	☐☐	Second visit
	☐☐	☐☐	☐☐	Third visit

IR02- Total number of visits	☐

IR03- Interview Result

1	Interview is completed
2	Entire HH absent for extended period of time
3	Non at home
4	Refusal
5	Dwelling is vacant
6	Unit does not exist
7	Other (Specify) _____

IR04- Line number of respondent of HH questi ☐☐	**IR05-** Total members of HH ☐☐
IR06- Total number of children aged 6-59 months	**IR07-** Total number of mothers or caretakers
IR08- Number of eligible women aged 15-49 years	

IR09- Interviewer's Name _____	**IR10-** Interviewer's code _____
IR11- Supervisor's Name _____	**IR12-** Supervisor's code _____
IR13- Editor's Name _____	**IR14-** Editor's code _____
IR15- Coder's Name _____	**IR16-** Coder's code _____
IR17- Data Entry Person's Name _____	**IR18-** Data Entry Person's code _____

☐ *To the interviewer: please put sign (X) inside the square if you have used an additional questionnaire*

Section 1: Household Roaster

							For eligible children	
HR01	**HR02**	**HR03**	**HR04**	**HR05**	**HR06**	**HR07**	**HR08**	**HR09**
Line no. Circle no. of respond-ent	Names of usual HH residents (full names) Please give me the names of the persons who usually live in your HH including children and infants, starting with the head of HH.	What is the birthday of (name) in day/ month/year? ***Interviewer: Birthday should be taken from official documents if possible.*** **Day Month Year**	***Interviewer: Compute age from birthday in HR03 and record the answer in full years.*** ***In case that birthday is un- known, ask for age and record it.*** ***Record (00) if age is less than one year, and 97 if age is 97+.*** ***98 DK.***	***Interviewer: From question HR04 and HR03 identify all children aged less than 5 years then compute their age in months***	***Interviewer: Circle line no. of children aged 6-59 months (eligible for interview)***	***Interviewer: Circle line no. of woman whose age is 15-49 years (eligible woman for interview)***	***Interviewer: From HR06, if there are eligible children, ask who is the caretaker and recod mother or caretaker line no.***	***Interviewer: From HR04, HR05, if*** ***1. There are eligible children (complete the interview)*** 2. ***Eligible women only (go to women questionnaire)*** 3. ***No eligible children and women (end)***
01		___|___/ ___|___/___|___	___|___	___|___	01	01	___|___	___|___
02		___|___/ ___|___/___|___	___|___	___|___	02	02	___|___	
03		___|___/ ___|___/___|___	___|___	___|___	03	03	___|___	
04		___|___/ ___|___/___|___	___|___	___|___	04	04	___|___	
05		___|___/ ___|___/___|___	___|___	___|___	05	05	___|___	
06		___|___/ ___|___/___|___	___|___	___|___	06	06	___|___	
07		___|___/ ___|___/___|___	___|___	___|___	07	07	___|___	
08		___|___/ ___|___/___|___	___|___	___|___	08	08	___|___	
09		___|___/ ___|___/___|___	___|___	___|___	09	09	___|___	
10		___|___/ ___|___/___|___	___|___	___|___	10	10	___|___	
11		___|___/ ___|___/___|___	___|___	___|___	11	11	___|___	
12		___|___/ ___|___/___|___	___|___	___|___	12	12	___|___	
13		___|___/ ___|___/___|___	___|___	___|___	13	13	___|___	
14		__ __ /| __ __ /| __ __	__ __	__ __	14	14	__ __	
15		__ __ /| __ __ /| __ __	__ __	__ __	15	15	__ __	
16		__ __ /| __ __ /| __ __	__ __	__ __	16	16	__ __	
17		___|___/ ___|___/___|___	___|___	___|___	17	17	___|___	

Section 1: Household Roaster

					For persons 12 years and over					
HR01	**HR02**	**HR10**	**HR11**	**HR12**	**HR13**	**HR14**	**HR15**		**HR16**	
Line no. Circle no. of respond -ent	Names of usual HH residents (Full names) Please give me the names of the persons who usually live in your HH including children and infants, starting with the head of HH.	What is the relationship of (name) to the head of HH? 01 Head of HH 02 Husband/ Wife 03 Son/ Daughter 04 Father/ Mother 05 Brother/ Sister 06 Grandfather/ mother 07 Grandchild 08 Daughter/ Son-in-law 09 Other Relative 10 Non Relative	Is (name) Male or Female? 1 Male 2 Female	Does (name) have health insurance? 1 Yes, Governmental health insurance 2 Yes, Military health insurance 3 Yes, UNRWA health insurance 4 Yes, Social welfare health insurance 5 Yes, Private insurance 6 Without insurance	What is (name's) current marital status? 1 Never married 2 Legally married 3 Currently married 4 Divorced 5 Widowed 6 Separated	What is the educational status of (name)? 1 Illiterate 2 Can read and write 3 Elementary 4 Preparatory 5 Secondary 6 Associate diploma 7 Bachelor 8 High diploma 9 Master 10 Ph. D. 98 DK. ??	Employment status: 1 Employed from 1-14 hours 2 Employed for 15 hours or more 3 Unemployed, has ever worked 4 Unemployed, has never worked 5 Full time student 6 Housewife 7 Unable to work 8 Doesn't work and doesn't seek job. 9 Other ***Interviewer: If answer from 4 to 9 ⇒ h01***		What is the occupation of (name)? ***Interviewer: Ask this question if the person is working or unemployed ever worked.***	
							Pre-	Currently	Profession	Code
01		____	___	___	___	____	___	___		
02		____	___	___	___	____	___	___		
03		____	___	___	___	____	___	___		
04		____	___	___	___	____	___	___		
05		____	___	___	___	____	___	___		
06		____	___	___	___	____	___	___		
07		____	___	___	___	____	___	___		
08		____	___	___	___	____	___	___		
09		____	___	___	___	____	___	___		
10		____	___	___	___	____	___	___		
11		____	___	___	___	____	___	___		
12		____	___	___	___	____	___	___		
13		___	___	___	___	___	___	___		
14		___	___	___	___	___	___	___		
15		___	___	___	___	___	___	___		
16		___	___	___	___	___	___	___		
17		___	___	___	___	___	___	___		

Interviewer: To confirm that you recorded all HH members, ask this question: Is there any other HH member who usually lives in your household such as children or infants not recorded, or is there any member of HH usually live in your HH, but he/she is currently absent or abroad for a limited period of time? 1. Yes 2. No If yes add their names to the list and ask about them.

Section II: Dwelling & Household Economic Status

H01	Line No. of respondent	**Name of person: ……**	|__|__|
H02	**Type of dwelling you are living in?**	1. Villa 2. House 3. Apartment 4. Separate Room 5. Tent 6. Marginal 7. Other/Specify	|__|
H03	How many rooms are there in your dwelling?	Number of rooms	|__|__|
H04	**Now I want to ask you few questions about dwelling you are living in.** What is the main source of drinking water for members of your HH.	**1. Piped into dwelling** 2. Piped into yard 3. Public tap 4. Rain water collection with connection inside dwelling 5. Rain water collection without connection inside dwelling 6. Springs/ streams 7. Tanker truck 8. Bottled water 9. Other (specify) _____	|__|
H05	What is the type of sewage in the household?	1. Public sewage system 2. Cesspit 3. Other 4. No sewage system	|__|
H06	What kind of toilet facility does your household use most?	1. Flush toilet 2. Traditional toilet 3. Both 4. Other (specify) 5. No facility	|__|
H07	Does your household possess the following? 1. Yes ***2.*** No	A. Private car B. Solar boiler C. Jawwal/Israeli mobile phone D. Satellite E. Computer F. Dish washing machine G. TV H. Video I. Internet J. Clothes drying machine K. Automatic washing machine L. Radio M. Microwave	|__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__|

H08	**What is your main source of income?**	Pre-Intifada |__|__|	Currently |__|__|	***Choose one source from the list in question H09***
H09	What are the secondary sources of income? 1. Yes 2. No ***Interviewer: The selected main source should not be considered as secondary source.***	|__| |__| |__| |__| |__| |__| |__| |__| |__| |__|	|__| |__| |__| |__| |__| |__| |__| |__| |__| |__|	1. Farming, animal breeding and fishing 2. Household projects 3. Wages and government salaries 4. Wages and private sector salaries 5. Wages from Israeli work sector 6. Receiving remittances (internal) 7. Receiving remittances (abraod) 8. Receiving social aids 9. UNRWA wages and salaries 10. Others 11. Don't have source of income

H10	**Did your family face any difficulties in obtaining food supplies during the Intifada?**	**1. Yes, always** **2. Yes, some times** **3. No** (Skip to H12)	|__|
H11	**Was that due to:** **1. Yes** **2. No**	A. Siege B. Curfew C. Loss of main source of income D. Others/Specify	|__
__
__
__	
H12	When you compare the nutritional intake of your family between the period before the Intifada and currently, how did it affect the following? 1. Yes, decreased 2. Not affected 3. Yes, Increased **If the answer 2 or 3 skip to H14**	A. Food quality B. Monthly consumed meat (meat, fish, chicken) C. Monthly consumed fruit D. Monthly consumed milk and dairy	|__
__
__
__	
H13	In order to adapt to the decrease in food cosumption, does your family …… 1. Yes 2. No 3. Not applicable	A. Borrow money B. Sell from its savings C. Depend mainly on food aids	|__
__
__	
H14	Did you have a home garden farmed during the Intifada, or are you currenlty farming it with fruits and vegetables?	1. Yes 2. No **(skip to H16)**	|__|
H15	If the answer yes, what are you doing with the products?	1. Household use 2. Selling 3. Selling some and using the rest 4. Others/specify……..	|__|
H16	Does your household breed the following animals? 1. Yes 2. No ***Interviewer: If all answers are (no), then go to the next part.***	**Type** A. Cows |__| B. Chicken |__| C. Goat |__| D. Sheep |__| E. Poultry |__| F. Rabbits |__| G. Others/specify…… |__|	**Number** |__|__||__|__||__
__	__		__	__		__
__	__		__	__		__
__	__		__	__		__
__	__		__	__		__
__	__		__	__		__
__	__		__	__		__	
H17	**What are you doing with their products?**	1. Household use 2. Selling 3. Selling some and using the rest 4. Others/specify……..	|__|

Palestinian National Authority
Palestinian Central Bureau of Statistics

Palestinian National Authority
Palestinian Central Bureau of Statistics
Nutrition Survey- 2002

Data collected through this survey is for statistical purposes only and considered as confidential (Based on the General Statistics Law 2000)

IDH00- Questionnaire serial number ☐☐☐	**IDH05-** Number of HH in the building _____ ☐☐			
IDH01- Governorate _____	**IDH06-** Name of HH head _____			
IDH02- Locality _____ ☐☐☐☐☐☐	**IDH07-** Cell code ☐☐			
IDH03- EA code of locality ☐☐☐	**IDH08-** Is HH in HH list: 1.Yes 2. No ☐			
IDH04- Building number ☐☐☐	**IDH09-** (if answer in IDH07 is Yes) HH Number in list ☐☐☐			
Interview Record				
IR1- Visits schedule	Day	Month	**Year**	
	☐☐	☐☐	☐☐	First visit
	☐☐	☐☐	☐☐	Second visit
	☐☐	☐☐	☐☐	Third visit
IR2- Total number of visits	☐			
IR3- Interview Result				
	1	Interview is completed		
	2	No eligible respondent at home at time of visit		
	3	Non at home		
	4	Refusal		
	5	Dwelling is vacant		
	6	Unit does not exist		
	7	Other (Specify) _____		
IR4- Total number of mothers or caretakers	**IR5- Total number of interviewed mothers** ☐☐			
IR6- Line number of eligible woman from HH listing	IR7- Total number of eligible women 15-49 years			
IR8- Total number of interviewed eligible women 15-49 years				

☐ *To the interviewer: please put sign (X) inside the square if you have used an additional questionnaire*

Section III B: Mothers

Interviewer: The following questions for mothers or caretakers with children aged 6-59 months, use additional questionnaire if there is more than one mother with eligible children

W0A	*Interviewer: Skip to HR08* ***1. There are eligible women (continue) 2. No eligible women (end)***	⎵⎵	

W00	**Name of mother or caretaker from hr02**		
W01	**Line No. of mother or caretaker from hr08**	⎵⎵⎵⎵	
W02	**Has your family faced any difficulties in obtaining health services for children during the intifada?**	1. Yes **2.** No **(Skip to W04)** 3. No need **(Skip to W04)**	⎵⎵
W03	Was that due to? 1. Yes 2. No	a. Israeli closure b. Curfew c. Inability to pay d. No service e. Health service is far f. No medical staff g. Other/specify…….	⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵
W04	**Has your family faced any difficulties in obtaining vaccinations for children during the intifada at time due to the following?** **1. Yes** **2. No** **3. Not applicable**	A. Inability to reach the clinic due to Israeli check points. B. No vaccine C. No medical staff D. Child was sick E. Mother delayed for various causes F. Other/specify…….	⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵
W05	When your child became sick, and needed treatment, did you reach the following easily? 1. Yes 2. No	A. Hospital B. Health center C. Doctor clinic D. Pharmacy	⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵
W06	When your child becomes sick, and needs treatment, what is the preferred health service that you choose?	1. Governmental hospital 2. Governmental health center/MCH 3. UNRWA centers 4. Private clinic/Physician 5. Non-governmental health centers 6. Pharmacy 7. Other/specify……..	⎵⎵
W07	Did you receive any time health education on child nutrition from the following? 1. Yes 2. No	A. Qualified medical staff B. Mother/Mother in law/Friends C. Mass media D. Other/specify…….	⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵
W08	**In your opinion, at what age should the child receive the following?** ***Interviewer: Record child age in complete months in opposite to each type of food. Record 99 in case the mother doesn't know***.	1. Milled rice 2. Cerelac 3. Bread 4. Meat/Chicken/Liver 5. Egg 6. Fruits 7. Vegetables 8. Fruit juice 9. Chamomile/Anise/Herbals 10. Tea	⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵ ⎵⎵

W09	**Does the following cause anemia among children?** 1. Yes 2. No 3. DK	1. Not taking meat/liver/chicken 2. Not taking green vegetables 3. Not taking legumes 4. Drinking too much tea 5. Parasitic infection 6. Not taking eggs 7. Taking confectionaries/sweets 8. Not drinking milk 9. Others/specify	|__| |__| |__| |__| |__| |__| |__| |__| |__|
W10	Does the following prevent children from anemia? 3. Yes 4. No 5. DK	A. Taking meat/chicken/liver B. Taking green vegetables C. Taking eggs D. Drinking juice E. Taking iron syrup F. Drinking milk G. Others/specify……..	|__| |__| |__| |__| |__| |__| |__|

Section IIIA: Heamoglobine level for women 15-49 years

WH01	***Interviewer: Now I will measure your Hb level in the blood as part of this survey, in order to study malnutrition and anemia indicators, since anemia is considered one of the main health problems that women and children face, that may have resulted from malnutrition. I will take a drop of blood from your finger and you will get the result soon, taking into consideration the confidentiality of the data***

			First woman	Second	Third
WH01	Name of eligible woman (15-49 years) from hr02				
WH02	**Line No. from hr01**				
WH03	**What is your marital status?**	1. Single **(Skip to WH09)** 2. Married 3. Divorced 4. Widowed	⎿⏌	⎿⏌	⎿⏌
WH04	Have you ever been pregnant?	1. Yes 2. No **(Skip to WH06)**	⎿⏌	⎿⏌	⎿⏌
WH05	How old were you with your first pregnancy	Age in complete years	⎿⏌⎿⏌	⎿⏌⎿⏌	⎿⏌⎿⏌
WH06	Interviewer: only for married women. Are you currently pregnant?	1. Yes 2. No **(Skip to WH09)**	⎿⏌	⎿⏌	⎿⏌
WH07	How many months pregnant are you?	Number of months 99. DK	⎿⏌⎿⏌	⎿⏌⎿⏌	⎿⏌⎿⏌
WH08	How many pregnancies did you have during your reproductive life, including abortions?	Number of pregnancies	⎿⏌⎿⏌	⎿⏌⎿⏌	⎿⏌⎿⏌
WH09	Are you currently receiving iron tablets?	1. Yes 2. No **(Skip to WH11)**	⎿⏌	⎿⏌	⎿⏌
WH10	For how many days have you received iron tablets?	Duration in days…	⎿⏌⎿⏌⎿⏌	⎿⏌⎿⏌⎿⏌	⎿⏌⎿⏌⎿⏌
WH11	Did you agree to test Hb in your blood?	1. Yes, agree 2. No, disagree **(Skip to the second woman, if there is no other woman go to the next section)**	⎿⏌	⎿⏌	⎿⏌
WH12	Hb level in the blood g/dl		⎿⏌⎿⏌·⎿⏌	⎿⏌⎿⏌·⎿⏌	⎿⏌⎿⏌·⎿⏌
WH13	Result	1. Hb level test was done 2. Others/specify……	⎿⏌	⎿⏌	⎿⏌
WH14	Name of person who measured Hb				

Palestinian National Authority
Palestinian Central Bureau of Statistics

Palestinian National Authority
Palestinian Central Bureau of Statistics
Nutrition Survey-2002

Data collected through this survey is for statistical purposes only and considered as confidential (Based on the General Statistics Law 2000)

IDH00- Questionnaire serial number ☐☐☐	**IDH05**- Number of HH in the building _____
IDH01- Governorate _____	**IDH06**- Name of HH head _____
IDH02- Locality _____ ☐☐☐☐☐☐	**IDH07**- Cell code ☐☐
IDH03- EA code of locality ☐☐☐	**IDH08**- Is HH in HH list: 1.Yes 2. No
IDH04- Building number ☐☐☐	**IDH09**- (If answer in IDH08 is Yes) HH Number in list ☐

Interview Record

	Day	Month	Year	
CIR01- Visits schedule	☐☐	☐☐	☐☐	First visit
	☐☐	☐☐	☐☐	Second Visit
	☐☐	☐☐	☐☐	Third Visit
CIR02- Total number of visits	☐			

CIR03- Interview Result ☐

1	Interview is completed
2	No eligible children at home at time of visit
3	Non at home
4	Refusal
5	Dwelling is vacant
6	Unit is not present
7	Other (Specify) _____

CIR04 – Total number of children age 6-59 months	**CIR05**- Line number of mother or caretaker ☐☐
CIR06- Total number of children aged 6-59 months and interviewed	

☐ *To the interviewer: please put sign (X) inside the square if you have used an additional questionnaire*

Section IV: Child Health

For children aged 6-59 months

			Last child	Next to last child	Second child next to last
CH01	Mother or caretaker line No. from HR08		__| __|	__| __|	__| __|
CH02	Child line No. from HR01		__| __|	__| __|	__| __|
CH03	Child name from HR02				
CH04	Child sex from HR11		__| __|	__| __|	__| __|
CH05	Child date of birth in Day/Month/Year from HR03		…../…./……	…../…./……	…../…./……
CH06	Birth order		__| __|	__| __|	__| __|
CH07	Date of birth for previous child ***Interviewer: Ask mother about date of birth for the child born before (child name) including dead children.***		…../…./……	…../…./……	…../…./……
CH08	Date of birth for next child ***Interviewer: Ask mother about date of birth for the child born after (child name) including dead children.***		…../…./……	…../…./……	…../…./……
CH09	Does (child name) suffer from one of the following chronic diseases? 1. Yes 2. No 3. DK	A. Diabetes B. Cardiac diseases C. Asthma D. Epilepsy E. Congenital anomalies /inherited diseases F. Others/specify	__| __| __| __| __| __|	__| __| __| __| __| __|	__| __| __| __| __| __|
CH10	Was duration of pregnancy less than 37 weeks?	1. Yes 2. No 3. DK	__|	__|	__|
CH11	Was (name) weighed at birth?	1. Yes…. 2. No…. **(Skip to CH13)**	__|	__|	__|
CH12	How much did (name) weigh at birth?	Grams from card Grams from recall DK	1 __ __ __ __| 2 __ __ __ __| 3 |9_ |9_ |_9 |9_|	1 __ __ __ __| 2 __ __ __ __| 3 |9_ |9_ |_9 |9_|	1 __ __ __ __| 2 __ __ __ __| 3 |9_ |9_ |_9 |9_|
CH13	In the previous two weeks, did (name) suffer from any illness affected his health status?	1. Yes 2. No 3. DK	__|	__|	__|

			Last child	Next to last child	Second child next to last
CH14	Did (child name) suffer from parasitic infection during the last six months	1. Yes 2. No 3. DK	⎿⎿| Freq. ⎿⎿| ⎿⎿|	⎿⎿| Freq. ⎿⎿| ⎿⎿|	⎿⎿| Freq. ⎿⎿| ⎿⎿|
CH15	**Has (name) received vitamin A/D drops?** ***Interviewer: Skip to CH17 if the answer 2 or 3***	1. Yes 2. No 3. DK	⎿⎿|	⎿⎿|	⎿⎿|
CH16	For how long did (name) continue receiving vitamin A/D drops? *Record (00) if the period is less than one month*	Number of months Child still receiving vitamin A/D DK	|⎿⎿| ⎿⎿| 95 98	|⎿⎿| ⎿⎿| 95 98	|⎿⎿| ⎿⎿| 95 98
CH17	Has (name) received iron syrup? *Interviewer: Skip to CH19 if the answer 2 or 3*	1. Yes 2. No 3. DK	⎿⎿|	⎿⎿|	⎿⎿|
CH18	For how long did (name) continue receiving iron syrup? *Record (00) if the period less than one month*	Number of months Child still receiving iron syrup DK	|⎿⎿| ⎿⎿| 95 98	|⎿⎿| ⎿⎿| 95 98	|⎿⎿| ⎿⎿| 95 98
CH19	Has (name) received other vitamins other than vitamin A/D? *Interviewer: Skip to CH21 if the answer 2 or 3*	1. Yes 2. No 3. DK	⎿⎿|	⎿⎿|	⎿⎿|
CH20	**For how long did (name) continue receiving vitamins other than vitamin A/D?** ***Record (00) if the period less than one month***	Number of months Child still receiving vitamin DK	|⎿⎿| ⎿⎿| 95 98	|⎿⎿| ⎿⎿| 95 98	|⎿⎿| ⎿⎿| 95 98
CH21	Have you ever breastfed (name)?	1. Yes 2. No **(Skip to CH23)**	⎿⎿|	⎿⎿|	⎿⎿|
CH22	How many months did you breastfeed (name)?	Number of months…… 95. Child still breastfeeding	|⎿⎿| ⎿⎿|	|⎿⎿| ⎿⎿|	|⎿⎿| ⎿⎿|
CH23	Did you feed (name) with any other milk except from your breast?	1. Yes 2. No **(Skip to CH26)**	⎿⎿|	⎿⎿|	⎿⎿|
CH24	How old was (name) when you started giving him other milks except that from your breast?	Month DK	|⎿⎿| ⎿⎿| 98	|⎿⎿| ⎿⎿| 98	|⎿⎿| ⎿⎿| 98

			Last child	Next to last child	Second child next to last
CH25	What type of milk did your child receive? 1. Yes 2. No	A. Child powdered milk B. Powdered milk (Nido) C. Fresh milk D. Manufactured milk	|__| |__| |__| |__|	|__| |__| |__| |__|	|__| |__| |__| |__|
CH26	Has (name) received the following during the first year of his/her age, and how old was (name) when you started giving him/her the food? 1. Yes 2. No 3. DK ***Interviewer: Record child age if the answer is (yes), record (00) if child's age less than one month. Record (99) if the answer (no), and (98) if the answer is (DK).***				
			Age in months	Age in months	Age in months
		A. Milled rice/starch	☐ |__|__|	☐ |__|__|	☐ |__|__|
		B. Cerelac	☐ |__|__|	☐ |__|__|	☐ |__|__|
		C. Fruits	☐ |__|__|	☐ |__|__|	☐ |__|__|
		D. Vegetables	☐ |__|__|	☐ |__|__|	☐ |__|__|
		E. Meat/chicken/fish	☐ |__|__|	☐ |__|__|	☐ |__|__|
		F. Eggs	☐ |__|__|	☐ |__|__|	☐ |__|__|
		G. Family food	☐ |__|__|	☐ |__|__|	☐ |__|__|
		H. Others/specify	☐ |__|__|	☐ |__|__|	☐ |__|__|
CH27	Does (name) take the following? 1. One time a day 2. 2-3 times and more in a week 3. One time a week 4. One time every two weeks or more 5. Child don't take 6. DK	A. Eggs B. Milk and dairy C. Fresh meat D. Frozen meat E. Liver F. Chicken G. Fresh fish H. Frozen fish I. Legumes J. Green vegetables K. Vegetables L. Fresh fruit/fruit juice M. Bread/Macaroni N. Sweets	|__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__|	|__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__|	|__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__| |__|
CH28	Usually, does (name) drink tea?	1. Yes 2. No **(skip to ch31)**	|__|	|__|	|__|
CH29	Does (name) drink tea with meal or directly after meal?	1. Always 2. Often 3. No	|__|	|__|	|__|
CH30	How many times does (name) drink tea daily?	No. of times……… 98. DK	|__|__|	|__|__|	|__|__|
CH31	Is (name) in comparison with his generation: 1. Yes 2. NO 3. DK ***If the answer 2 or 3 skip to next section***	A. Thin B. Short	|__| |__|	|__| |__|	|__| |__|
CH32	Did you consult the following? 1. Yes 2. No	A. Qualified medical staff B. Nutritionist C. Others/specify	|__| |__| |__|	|__| |__| |__|	|__| |__| |__|

Section V: Anthropometry and Hb level for children aged 6-59 months

Interviewer: Measurement of height and weight and hemoglobin level is taken for all children aged 6-59 months. Use additional questionnaire if there were more than 3 children.

Interviewer: Now I will measure the height and weight and hemoglobin level for your children aged 6-59 months, as part of this survey, in order to measure malnutrition indicators, since anemia is considered one of the health problems children face that may result from malnutrition. I will take a drop of blood from the child's finger and you will get the result soon, taking into consideration the confidentiality of the data.

			Last birth	**Next to last birth**	**Second birth next to last**
M01	Mother line number from HR01		|___|___|	|___|___|	|___|___|
M02	Child line number from HR01		|___|___|	|___|___|	|___|___|
M03	Child name from HR02		_____	_____	_____
M04	Child birth date from HR03	Day Month Year	|__|__| |__|__| |__|__|__|__|	|__|__| |__|__| |__|__|__|__|	|__|__| |__|__| |__|__|__|__|
M05	Child's length or height (in centimeters)		|__|__|__| . |__|	|__|__|__| . |__|	|__|__|__| . |__|
M06	Is child height measured lying down/ standing up?	1. Lying down 2. Standing up	|__|	|__|	|__|
M07	Child's weight in kilograms		|__|__| . |__|	|__|__| . |__|	|__|__| . |__|
M08	**Result:** 1. Weight and height is measured 2. Weight is measured only 3. Height is measured only 4. Child not present 5. Child refused 6. Mother/ caretaker refused 7. Other (specify) _____		|__|	|__|	|__|
M09	Name and ID number of person who measured the child _____ |___|___|___|__| |___|___|___|___|			Name and ID number of the assistant _____	

		Last birth	Next to last birth	Second birth next to last
CHB01	Do you agree to test Hb level for your child? 1. Yes, agree 2. No, disagree **(skip to the second child or end)**	|__|	|__|	|__|
CHB02	Hb level in the blood g/dl	|__|__| . |__|	|__|__| . |__|	|__|__| . |__|
CHB03	Result 1. Hb level test was done 2. Child was not at home 3. Child refused 4. Child was sick 5. Other/specify…….	|__|	|__|	|__|
CHB04	Name of the person who measured Hb level			

Interviewer’s Notes

Notes on respondents: ----------

Notes on certain questions:----------

Any other notes: ----------

Interviewer's Name: ---------- Date: / /
Interviewer's Code: ----------

Supervisor’s Notes

Supervisor 's Name: ---------- Date: / /
Supervisor's Code: ----------

Editor’s Notes

Editor 's Name: ---------- Date: / /
Editor 's Code:----------