AZERBAIJAN NUTRITION SURVEY

(AzNS), 2013

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Acronymns

AGP	α-1-acid glycoprotein
AzNS	Azerbaijan Nutrition Survey
BMI	Body mass index
CRP	C-reactive protein
DHS	Demographic Health Survey
EA	Enumeration area
Hb	Haemoglobin
HDI	Human Development Index
MDGs	Millennium Development Goals
MICS	Multiple Indicator Cluster Survey
MOH	Ministry of Health
MUAC	Mid-upper arm circumference
PF	Plasma ferritin
PPS	Probabilityproportionaltosize
PSU	Primary sampling unit
PZn	Plasma zinc
RBP	Retinol-binding protein
RIHT	Research Institute of Haematology and Transfusiology
RNI	Recommended nutrient intake
sTfR	Soluble transferrin receptor
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Programme
WHO	World Health Organization
WRA	Women of reproductive age (15-49 years of age, pregnant or non-pregnant)

1.Executive summary

The 2013 AzNS was conducted between February and April, 2013 by the Ministry of Health of the Republic of Azerbaijan, the State Statistical Committee of Azerbaijan, and the Azerbaijan office of the United Nations Children's Fund (UNICEF). Itcollected data on anthropometric and micronutrient status of children < 5 years, non-pregnant women 15-49 years, and pregnant women.

This report provides estimates of the prevalence and severity of key nutritional deficiencies derived from the first nationally-representative micronutrient assessment survey in Azerbaijan. Azerbaijan has begun planning for a national food fortification programme, and the AzNS 2013 can provide a baseline assessment for it.

Objectives

The objective of the AzNS 2013 was to assess the nutrition and health status of children, non-pregnant women, and pregnant women. Key indicators collected for all population groups included nutritional status from anthropometric measures and haemoglobin concentration. Iron and vitamin A status indicators (see Section 4.7.2) were measured for children and non-pregnant women. Zinc status was measured in children only.

Methodology

The AzNS 2013 was a cross-sectional survey based on a probability sample to produce stratum-representative estimates of malnutrition prevalence for children aged 0-59 months of age (6-59 months for blood biomarkers) and non-pregnant women. Nine economic areas were treated as separate strata, allowing for separate estimates in each of the nine strata for children and non-pregnant women, and, after appropriate statistical weighting, estimates for combinations of strata and for Azerbaijan as a whole. Deficiency prevalence was calculated nationally and for urban/rural strata using stratum and cluster-specific survey weights. For pregnant women, only select indicators were assessed, and due to the relatively small number enrolled in the AzNS, only one nationally representative estimate was generated for the prevalence of anaemia and acute malnutrition among pregnant women.

The prevalence of nutrition and health outcomes and mean and median averages of continuous measurements were calculated using weighted analysis to account for the unequal probability of selection among the nine strata. Descriptive statistics were also calculated by population group in aggregate (i.e. across all regions), for each province separately, and by sex (for children only).

Results

Of the 4,320 households originally selected for participation in the survey, 3,926 (80.6%) household interviews were successfully completed.The principal reason for non-response was that a household was absent for a long period orhadmoved away from its former residence.The AzNS 2013 sample has similar representation as Azerbaijan's 2009 Census, except with the obvious note that the Kalbajar-Lachin and Nakhchevan regions, which were included in the census, were not included in the AzNS 2013because of security concerns.

Household nutrition indicators

Households that participated in the AzNS 2013 had an average of four household members; ninety percent of households had between one and six members. Of the households surveyed, 92.5% households are estimated to drink safe water, and 80.0% of households possessed adequate sanitation facilities. In addition, 87.9% of households were confirmed as having adequate conditions for handwashing.

Qualitative testing of salt samples for iodine content was conducted at the household level. In total, 93.8% of all samples were iodized . While no difference in salt iodization status was observed between urban and rural areas, significant differences were observed between regions with the lowest prevalence of iodized table salt (75%) observed in Sheki-Zaqatala. All other regions hadsalt iodization coverage of 90% or more.

Child nutrition indicators

The AzNS sample included 1,569 children < 5 years (0 – 59 months of age), and weight and height or length measurements were taken from 1,455 (927%) of these children.Blood samples collected from 1,075 children 6 – 59 months of age.

In general, infant and young child feeding practices were inadequate. Only 12.1% of children less than 6 months of age were exclusively breastfed, 42.9% of children 22-24 months of age were breastfeeding past 1 year, and only 21.7% of children 6-23 months of age met the criteria for a minimally acceptably diet.

Anthropometric measurements showed little wasting or underweight, but the stunting prevalence was 18.0%nationwide. Stunting was most pronounced in children residing in Ganja-Gazakh and Lenkeran regions, and from poorerhouseholds. Among children 6 - 59 months of age, 24.2% were anaemic, with anaemia prevalence declining by age.The prevalence of iron deficiency was 15.0%, and 6.5% of children had iron deficiency anaemia (i.e. concurrent anaemia and iron deficiency). Only 28.0% of anaemic children also had iron deficiency.While 8.0% of children were vitamin A deficient, vitamin A deficiency was highest in children 6-11 months and children residing in urban areas. Zinc deficiency was found in 10.7% of children, with the highest proportions of zinc-deficient children residing in Dagliq Shirvan,Ganja-Gazakh, and Lenkeran.

Non-pregnant women nutrition indicators

Complete information (i.e. questionnaire data, anthropometric measurements, and blood sample) was collected for 3,081 non-pregnant women 15-49 years. While anthropometric measurements showed little undernutrition, overweight and obesity in non-pregnant women are widespread. In total, 53.0% of non-pregnant women were classified as overweight or obese, with prevalence increasing with age. Approximately 78% and 82% of non-pregnant women 40-44 years and 45-49 years are overweight or obese, respectively.

[1] The testing used assessed the presence of iodine in salt and did not measure iodine concentration. Thus, the category "adequately iodized salt" cannot be used for results in this survey.

Anaemia was observed in 38.2% of women, with the highest prevalence observed in urban women, and women from Baku and Aran regions. Iron deficiency and IDA affected 34.1% and 23.8% of non-pregnant women, respectively. Of anaemic women, 62.8% were also iron deficient. Vitamin A deficiency was practically non-existent in Azerbaijani women.

Pregnant women nutrition indicators

Of all women included in the survey sample, 170 (5.5%) were pregnant at the time of the interview; MUAC measurements and haemoglobin measurements were taken for all of them. Although only 6.3% of women had acute malnutrition, 40.4% of pregnant women suffered from anaemia.

Conclusion

While children in Azerbaijan have relatively low levels of wasting and underweight, stunting was more prevalent, especially in some regions. Breastfeeding and complementary feeding practices are clearly suboptimal and could potentially explain the stunting prevalence observed. While under-nutrition is rare in non-pregnant women, the prevalence of overweight and obesity, especially in older women, is relatively high. Further research is needed to identify interventions to address overweight and obesity.

While the prevalence of anaemia in women and children is of moderate concern, the small overlap of anaemia and iron deficiency, especially in children, suggests that other factors besides iron deficiency are the principal causes of anaemia in Azerbaijan. While vitamin A deficiency in children could potentially be a contributor to anaemia, this could not be the case for women because vitamin A deficiency was not found. Other features, such as haemoglobinopathies, could be investigated for both children and women as factors causing anaemia.

2. Introduction

2.1. Country context

Azerbaijan is located in the South Caucasus region which lies between the Black Sea and the Caspian Sea. In 2013, the country was estimated to have a population of 9.4 million, of which 91% are of Azeri ethnicity. More than 53% of the population resides in urban areas [1]. Azerbaijan has 10 economic regions, 66 administrative regions (rayons), 13 urban districts, and the Autonomous Republic of Nakhchevan.

As a result of the conflict with Armenia over Nagorny Garabakh in the early 1990s, about 20% of the land area of Azerbaijan is occupied and controlled by Armenia. According to official data, there were nearly one million refugees and internally displaced persons, representing 12% of the country's population [2], as a result of this conflict.

In 2012, the United Nations Development Programme (UNDP) ranked Azerbaijan 82 out of 187 countries on the Human Development Index (HDI), and life expectancy at birth is estimated by SSC to be at 73,9 years [3].

2.2. Health and nutrition situation in Azerbaijan

Prior to the Azerbaijan Nutrition Survey (AzNS), information related to the health and nutrition status of women and children was patchy and largely derived from a Multiple Indicator Cluster Survey (MICS) in 2000 [4] and a Demographic and Health Survey (DHS) in 2006 [2]. The MICS and DHS assessed perinatal care, immunization, presence of respiratory infections and diarrhea, and infant and under-five mortality rates. Although 60% of children 18-29 months of age were reported to have received full immunization, 13% did not receive any vaccination at all. Of the children aged 6-59 months included in the 2006 DHS, 3% and 10.6% were reported to having suffered from acute respiratory infection and diarrhea, respectively, in the two weeks preceding the survey.

Regarding nutrition, both the 2000 MICS and 2006 DHS surveys focused primarily on anthropometric indicators for women (i.e. chronic energy deficiency measured by BMI) and children (i.e. stunting, wasting, and underweight). The level in 2006 of chronic malnutrition or stunting of 25.1%, acute malnutrition or wasting of 6.8%, and underweight of 7.7% among children 0-59 months old is of public health relevance. Overweight in the same age group was at 13%, indicating a "double burden" of malnutrition in Azerbaijani children of underweight and overweight.

In preparation for the AzNS, a thorough review of recent data related to anaemia and micronutrient malnutrition included both the MICS and DHS mentioned above and data from governmental institutions. In addition, the World Health Organization (WHO) Vitamin and Mineral Information System was examined for data related to anaemia and vitamin A deficiency [5, 6].

Previously available household data relevant to the AzNS included the coverage of iodized salt and estimates of the daily consumption of staple food products, such as wheat, vegetable oil, and sugar. Existing data on the nutritional status of pre-school age children 0-59 months of age and non-pregnant women of child-bearing age (15-49 years of

[2] In 2011, the second Demographic Health Survey (DHS) was conducted in Azerbaijan. Unfortunately, results from the 2011 DHS were not published at the time of the planning of the AzNS (mid to late 2012) and during the drafting of this report (mid 2013). Thus, information used for planning the AzNSand contained in this background section draws principally from the 2006 DHS. Of note, the 2006 was undertaken between July and November, and differs in seasonality from the AzNS 2013 which was undertaken between February and April.

age) consisted primarily of measures of anthropometry and anaemia prevalence. While there has been no assessment of the micronutrient deficiencies in children and women, the dietary intake of certain micronutrients (e.g. iron, vitamin a, zinc) was recently estimated in women [7]. Though dietary intake estimates are not a substitute for measured micronutrient status, the estimates of dietary intake were far below recommended nutrient intakes (RNI); this raised concern that micronutrient deficiencies may exist in Azerbaijan.

For both children 6-59 months of age and non-pregnant women, the anaemia prevalence observed in Azerbaijan's 2006 DHS (39% and 37%, respectively)are considered a moderate public health problem according to the WHO [8]. Although iron deficiency is often thought to be the predominant cause of anaemia, the AzNS has attempted to confirm or refute this conception because data from Azerbaijan's neighbour, Georgia, suggested otherwise [9].

The literature review identified no representative data collected on the prevalence of iron, vitamin A, or zinc status. In general there is a lack of available data on many forms of malnutrition in Azerbaijan. The AzNS was thus undertaken as a comprehensive survey to provide an insight into the current nutrition situation but also to identify information gaps that are relevant for the planning of nutrition interventions.

2.3. Programmes to combat malnutrition in Azerbaijan

The Azerbaijan Ministry of Health has not yet established a nutrition section, and nutrition-related programmes and interventions are coordinated by a nutrition focal point under the direction of the Head of Sanitary Epidemiological Surveillance Department. UNICEF, WHO and non-governmental organizations work with the Government to advocate and plan nutrition interventions, including but not limited to programmes promoting infant and young child feeding and nutrition, vitamin A supplementation, and salt iodization programmes. More recently, discussions on the establishment of a food fortification programme have taken place. A recent situation analysis has assessed the possibility of fortifying liquid milk products, wheat flour, and sugar [7]. There are currently discussions in the National Parliament to draft an amendment of the Food Products Law containing specifications related to food fortification.

3. Rationale and objectives

The AzNS 2013 was a nationwide survey covering Azerbaijan as a whole with the exception of two regions (Nakhchevan and Kalbajar-Lachin). Data were collected from four target groups: 1) households, 2) children 0-59 months of age (6-59 months for blood biomarkers), 3) non-pregnant women 15-49 years of age, and 4) pregnant women. Indicators collected varied by population groups and are detailed below.

3.1. Rationale for the study

Due to the lack of current data on micronutrient deficiencies and the forthcoming of a national fortification programme, the AzNS 2013 was commissioned to both increase the understanding of the severity of micronutrient deficiencies and provide a baseline assessment for the national food fortification programme.
The AzNS 2013 also collected height or length and weight measurements from children and women so that future analyses to assess the correlation between anthropometric and micronutrient indicators can be conducted.

3.2. Primary objectives

1. To measure haemoglobin concentration in whole blood and thus, assess prevalence and severity of anaemia among children 6-59 months of age, non-pregnant women, and pregnant women.

2. To assess the iron status of children 6-59 months of age and non-pregnant women by measuring ferritin and soluble transferrin receptor (sTfR) in blood plasma, and to assess the prevalence of iron deficiency and iron deficiency anaemia (IDA).

3. To assess the vitamin A status of children 6-59 months of age and non-pregnant women by measuring retinol-binding protein (RBP) in blood plasma.

4. To assess zinc status of children 6-59 months of age by measuring plasma zinc levels.

5. To estimate the current prevalence of acute malnutrition (wasting), chronic malnutrition (stunting) and overweight in children 0-59 months of age using indices derived from length or height, weight, and/or age.

6. To estimate the current prevalence of chronic energy deficiency and overweight in non-pregnant women.

7. To estimate the current prevalence of acute malnutrition in children 0-59 months of age and in pregnant women by measuring mid-upper arm circumference (MUAC).

3.3. Secondary objectives

Additional variables that may influence or cause various types of malnutrition have also been assessed, including the assessment of socio-economic status, household consumption of staple foods, infant feeding and breastfeeding practices, and intake of micronutrient supplements.

4.Methodology

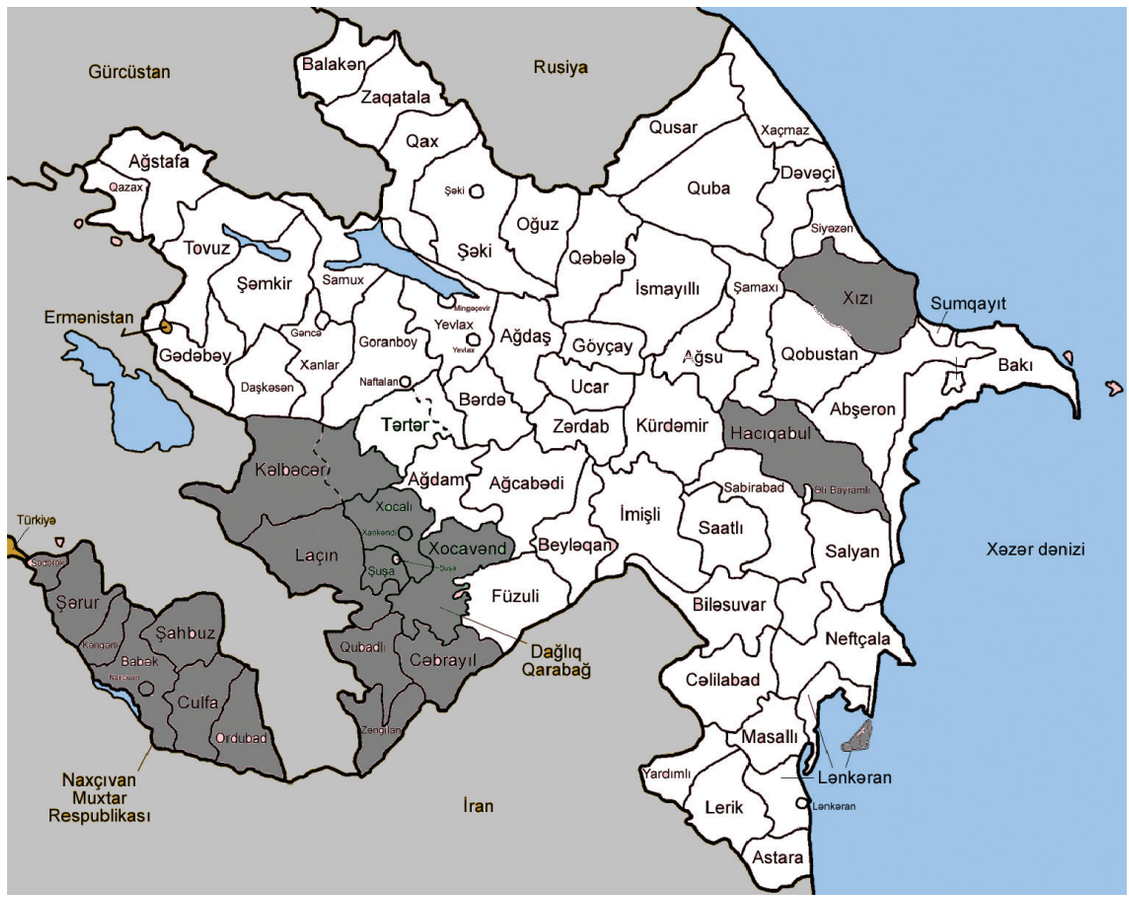
4.1. Survey Design

The AzNS was conducted as a cross-sectional survey based on a probability sample to produce stratum-representative estimates of malnutrition prevalence for children aged 0-59 months of age (6-59 months for blood biomarkers) and non-pregnant women. For pregnant women, only select indicators were assessed, and due to the relatively small number enrolled in the AzNS, only one nationally representative estimate was generated for the prevalence of anaemia and malnutrition in pregnant women.

4.2. Study sites (Geographical)

The AzNS sample included 4,320 households across Azerbaijan's nine accessible economic regions (i.e. Baku, Absheron, Ganja-Gazakh, Shaki-Zaqatala, Lankaran, Guba-Khachmaz, Aran, Yukhari Karabakh, and Dakhlik Shirvan).The regions of Nakhchevan and Kalbajar-Lachin were not included in the survey design due to security concerns. Map 1 below illustrates the areas included and excluded from the AzNS sampling universe.

Map 1 Districts and region covered by AzNS



4.3. Study populations

Individuals fulfilling inclusion criteria and currently resident in selected households were asked to participate in the survey by answering questions and providing blood samples.

Table 1 below lists the inclusion criteria for enrolment into the survey, disaggregated by targeted population group.

Table 1: Inclusion criteria by targeted population group

Target population	Inclusion criteria
Households	• Household head or other adult member gave verbal consent for survey data collection • Members currently resided in one of the nine economic regions of Azerbaijan included in the sampling universe at the time of the survey
pre-school aged children	• Age 6-59 months at the time of survey data collection (not yet reached fifth birthday) for questionnaire, anthropometry, and phlebotomy; 0-5 months for questionnaire and anthropometry only • Was usual resident of selected household which met household inclusion criteria at the time of the survey
non-pregnant women	• Age 15-49 years at the time of survey data collection • Currently non-pregnant by self report • Gave verbal consent for survey data collection • Was usual resident of selected household which met household inclu sion criteria
pregnant women	• Currently pregnant by self report • Gave verbal consent for survey data collection • Was usual resident of selected household which met household inclusion criteria

4.4. Sampling

4.4.1. Sampling procedure

Each one of the nine economic areas was treated as separate stratum, allowing for separate estimates for each of the nine strata, and, after appropriate statistical weighting, estimates for combinations of strata and for Azerbaijan as a whole. Primary sampling units were census enumeration areas (EAs). Stratified sampling (i.e. the EAs in each of the nine strata were selected separately) was used, and within each stratum, 30 EAs were selected probability proportionate to its population size from amongst all the EAs in the stratum. The sampling frame for the 2013 AzNS consisted of a list of EAs from the 2009 Azerbaijan Population and Housing Census which were located within the sampling universe. The household list for each EA was validated by the State Statistics Committee (SSC) by specialized teams which also confirmed that all households randomly selected in each EA were inhabited. The quality of the validation varied across districts, and during field work there were occasional cases where survey teams were not able to find the selected households or the household was not inhabited. Approximately 10% of total households were not in place for different reasons.

Within each selected EA, 19 households were randomly selected using simple random sampling from the household list, updated in most cases, from the 2009 census. The first 16 households selected were considered primary households and were visited by data collection teams. If household members and/or members of one of the target population groups were not available, two additional visits were made to ascertain compliance in case of absence of household members to minimize potential bias. If 13 or fewer of the 16 primary households were successfully recruited, thethree additional households were enrolled in the survey sample. If more than 13 of the 16 primary households were successfully recruited into the survey data collection, none of the supplementary three households were recruited. In total, 270 EAs were selected from each of the nine strata, leading to a target sample size of 4,320 households.

From each selected household, all children 0-59 months of age and pregnant women were asked to participate in the AzNS. However, because the sample size for non-pregnant women could be met by fewer households, they were only recruited from two out of three households selected (see Section 4.4.2).

4.4.2. Sample size determination

For each of the major indicators, the sample size required for each stratum was based on the estimated prevalence, the desired precision, and the expected intra-class correlation coefficients and the resulting design effect based on previous surveys (where data were available), taking into account an expected non-response of 6% (including refusals) at the household leveland 15-20% atthe individual level.

In addition,the sample size was calculated to detect a 10 percentage point reduction in the prevalence of micronutrient deficiencies between the AzNS 2013 and a future survey in Azerbaijan as whole. Tables in Appendix 1 show sample size calculations made prior to the implementation of the AzNS 2013, and estimated precision achieved for key indicators between the AzNS 2013 and a future survey. Taking into account the stratified sampling during data analysis can result in greater precision than shown in these tables if the nutrition indicator differs among the strata; however, it is difficult to estimate the strength of this effect when calculating sample size before data collection . For this reason, this effect was ignored in the sample size calculation illustrated below.

The Fisher's formula for estimating the minimum sample size (n), expressed as number of units of analysis, for prevalence descriptive studies was used as follows:

$$n = \frac{Z_{\alpha/2}{}^2 P(1-P)}{d^2} * DEFF * \frac{100}{R}$$

Where;
Zα/2 = 1.96 at α=0.05
P = the assumed prevalence
d = the allowable error (i.e. the width of the half confidence interval)
DEFF = Design effect
RR = Response rate expressed as a percentage
To calculate the minimum sample size for comparison of AzNS to a future survey, the following equation was used:

$$n = DEFF \times \frac{\left[Z_{\alpha/2}\sqrt{2\left(\frac{p_1+p_2}{2}\right)\left(1-\frac{p_1+p_2}{2}\right)} + Z_{1-\beta}\sqrt{p_1q_1+p_2q_2} \right]^2}{(p_1-p_2)^2}$$

x factor to adjust non-response rate
Where n= required sample size for each survey, expressed as number of units of analysis,
DEFF=design effect
p1= Proportion in the pre-intervention (or baseline) survey,
p2=Proportion in post-intervention survey,
p= (p1+p2)/2 and q= (1-p)
Zα/2= 1.96 at α=0.05 and Z1-β= (-.842) for power of the test set at 0.80

Based on the above calculations, sample size calculations (see Appendix 1) yielded an required number of 1,107 children 0-59 months of age and 2,601 non-pregnant women assuming a 94% household and an 80% individual response rate, and 144 pregnant women at a 94% household and an 85% individual response rate. Response rates for pregnant women were assumed to be slightly higher than response rates for children 6-59 months of age and non-pregnant women because capillary blood collection (used for pregnant women only) is less invasive and uncomfortable, and thus would deter fewer women.

4.5. Ethical Considerations

Prior to the commencement of the survey training and field work activities, the survey's protocol, questionnaires, and informed consent statements where all reviewed and approved by the Ministry of Health and the Office of the President. As no ethical review committee exists in Azerbaijan, authorization to implement the survey was provided via letters from the Office of the President (Letter No. 2/37 – 15 Jan 2013), the Cabinet of Ministers (Letter No. 17/4673-11, 17 Oct 2012), Minister of Health (Order No. 106, 05 Nov 2012), and the State Statistical Committee (Letter No. 3/22 – 27 Sep 2012). The seletters are attached in Appendix 2.

During the recruitment of each household during the fieldwork, the purpose of the survey was explained and verbal consent to conduct the household interview was sought from the head of each household (or otheradulthouseholdmemberin case of absence). Separate informed verbal consent was sought from each eligible woman in the household and the mother or guardian for each eligible child.

In accordance with national health policy, individuals found to be severely anaemic (haemoglobin<70 g/L) were referred to the nearest health clinic or facility. As the haemoglobin concentration of all participants was measured on-site, referrals were provided directly following the completion of data collection. To protect small children from overly invasive techniques, no blood samples were collected from children less than 6 months of age.

Confidentiality was strictly maintained. Following the completion of a cluster and review of questionnaires by the team leader and supervisor, all questionnaires were transported to UNICEF's office in a sealed pouch. Pouches were inspected and then resealed until data entry. Data entry only included the numeric identifiers for participants, which have no meaning to any outside observer. When not in use, the paper questionnaires were kept in a locked office.

4.6. Field Work and Data Collection

4.6.1. Community mobilization and sensitization

The Ministry of Health and UNICEF conducted sensitization meetings with key political, health, and nutrition leaders approximately one month prior to survey implementation in each one of the preselected urban and rural areas. In addition, the field coordinators visited each selected EA shortly before conducting the survey to inform local authorities, explain the survey, and announce the arrival of the field teams.

4.6.2. Field Team Composition

Each field team comprised five members: one team leader interviewer, one interviewer, one phlebotomist, one anthropometrist, and one driver. Blood samples were taken by pediatric phlebotomists with recent experience taking venous blood samples from children below 5 years of age who were specifically recruited as survey workers. Each team was required to carry out interviews and collect blood samples from all 16 households in each EA in approximately 2 days.

Under this schedule, each interviewer was responsible for interviewing the members of 4-5 households per day. Within each team, the anthropometrist and phlebotomist worked together and were responsible for measuring and weighing and collecting blood samples from eligibie members of 8-10 households per day. In addition to the team members, a field coordinator was assigned to assist 2-3 teams. The four field coordinators were responsible for notifying the local health and political authorities of each selected EA prior to a team's arrival. In addition, they also reviewed the questionnaires for completeness and assisted teams with logistical matters.

4.6.3. Training of survey teams

Field manuals describing the roles and responsibilities of each team member, interview, anthropometry, and phlebotomy procedures were developed and provided to all field staff. Field manuals and other materials were translated to Azeri prior to the commencement of survey training.

Two separate trainings were provided to the field teams. The first training was undertaken 5–8 November 2012, and consisted of a four-day workshop-based training covering all aspects of survey implementation (locating households, questionnaire review and interview practice, anthropometric measurement, collection and cold transport of blood samples, etc); the agenda of this training session is provided in Appendix 3. Due to administrative difficulties, the fieldwork was not able to commence directly following this training and was postponed by three months. To ensure that all survey procedures would be correctly implemented by field staff, a 2-day workshop-based refresher training was conducted 13–14 February 2013, followed by two days of field testing in a rural and urban EA not included in the survey sample. Survey trainings were conducted either directly in Azerbaijani or in English with the assistance of translators.

Anthropometrists and phlebotomists were trained together as the phlebotomist on each team assisted the anthropometrist and vice versa. This approach was utilized (rather than employing a second anthropometrist) to keep team size manageable while ensuring that each anthropometric measurement was made by two individuals, following international guidelines [10].

Team Leader and Interviewer Training

During the trainings, interviewers were given extensive training on how to conduct interviews to receive consistent unbiased information, the rationale behind each question, and how to ask each question, how to test the iodine concentration of salt samples, and how to fill in questionnaires. For interviewers also serving as team leaders, training was also provided on how to identify households using the cluster control form and how to approach households.

Anthropometry Training

As noted above, both the anthropometrists and phlebotomists were trained to measure and record the anthropometric measurements. Anthropometrists and phlebotomists were trained to take anthropometric measurements following the procedures outlined in the FANTA training manual [11]. During the trainings, anthropometrists received both theoretical and practical training in measuring height and weight of children. For weight measurements of children, particular attention was given to using the tare function on electronic LAICA bathroom scales (LAICA, Barbarano Vicentino VI, Italy). MUAC measurements were also practiced on women and children during this first training.

Because the measurement of height and weight on children can be more difficult than measurements taken on adult women, an anthropometric standardization exercise for children was undertaken. As part of this exercise, multiple children were measured by each team. Inter-measurer variability and difference from an expert measurement was measured and excess variability corrected.

Phlebotomy Training

Pediatric phlebotomists were familiarized with the blood collection materials and were trained to collect venous blood samples from women and children and capillary blood samples from pregnant women). The training included the use of the HemoCue™ 201+ device to measure haemoglobin concentration following the collection of blood via fingerstick or venipuncture. Proper care, maintenance and cleaning of the HemoCue devise was covered, with particular attention given to the quality control of the HemoCue devices using control samples. Procedures for drawing blood from women and children were practiced on adults during the training and from women and children during the pretesting. In addition, blood storage of specimens in the field was taught during the training period and closely supervised through the implementation of the field work. As was the case for anthropometry, phlebotomy training was provided to both phlebotomists and anthropometrists, with anthropometrists instructed on how best to support the phlebotomist.

A separate training manual was developed for laboratory staff, and training on the appropriate centrifugation, labelling, aliquoting, and storing procedures was provided. Laboratory staff practiced all procedures using blood samples collected during the survey training and pretesting.

4.6.4. Field work phases

Field work was undertaken between 19 February and 22 April 2013. The field work was divided into three phases: EAs within and directly neighbouring Baku conducted in Phase I, EAs located 2-3 hours drive from Baku included in Phase II, and more distant EAs included in Phase III. This phased approach to implementation of the field work enabled survey management staff to provide additional transportation support to ensure that the cold chain,as explained below, was maintained.

4.6.5. Cold chain for blood samples

In order to prevent haemolysis and ensure that vitamins and minerals did not degrade in blood specimen, a cold chain was established. Following the collection of blood samples, labelled blood collection tubes containing whole blood were placed in cool boxes containing cold bricks to ensure cold storage without freezing, as freezing whole blood samples can cause haemolysis. Phlebotomists were provided with temperature data loggers to ensure that their cold box stayed between +3°C and +8°Cinthefield. These whole blood samples were transported daily from the field to the Research Institute of Haematology and Transfusiology (RIHT) of the Azerbaijan Ministry of Health. Temperature data loggers were used during transportation and RIHT laboratory staff inspected the data logger to confirm that a stable temperature had been maintained.

Following aliquotation, plasma samples were stored in freezers between -20°C and -30°C until exported to international laboratories on dry ice (-80°C). Samples were transported on dry ice by land to Tbilisi, Georgia, from where they were shipped by air to their respective laboratories. Shipping boxes were refilled with dry ice en route as needed to ensure that the samples remained frozen.

4.6.6. Processing of blood samples at RIHT

The blood specimen arriving daily from the field teams were accompanied by a blood specimen log, which was completed by the team leader in the field before passing the specimens in the cold box to the driver who delivered them to RIHT. Staff of RIHT inspected the blood specimen log to ensure that all samples placed in the cold box by the team leader had arrived successfully.

Staff from RIHT centrifuged and prepared the aliquots either the day they were received or the following morning. In nearly all cases, blood specimens were centrifuged and aliquoted within 24 hours of their collection. However, samples from a few very distant clusters (5+ hours drive from Baku) were stored cold and delivered to the Baku laboratory within 48 hours. In these situations, the National Institute staff prioritized the centrifugation and processing of two-day old specimens over specimens that were collected that same day.

4.7. Biomarker testing methods

4.7.1. Anaemia

Haemoglobin concentration was measured on-site using a HemoCue™ (Hb201+, HemoCue, Angelsholm, Sweden) and recorded on the biological specimen form of the individual questionnaires. Quality control of the HemoCue devices was conducted and recorded on a daily basis using control materials commercially available from the device supplier. If the results provided by the Hemocue device did not fall within the permissible range of the control sample, phlebotomists were instructed to clean the devise and re-test the control samples to ensure the device was in working order.

Cut-off values to define varying degrees of anaemia are provided in Table 2.

4.7.2. Iron (plasma ferritin/sTfR), acute phase proteins (CRP, AGP), and vitamin A (RBP)

Plasma ferritin has been recommended by the World Health Organization as iron status biomarker for population-based surveys because it is responsive to iron interventions over time [12]. As plasma ferritin levels can be elevated in the presence of infection, the acute phase proteins alpha-1-acid-glycoprotein (AGP) and C-reactive protein (CRP) were used to identify inflammation status and to correct the ferritin values using the correction factors developed by Thurnham [13]. Soluble transferrin receptor (sTfR) results are reflective of more severe forms of iron deficiency after iron stores have been depleted. Its use is recommended to estimate the prevalence of iron deficiency in populations with high levels of infection because sTfR varies less with inflammation than ferritin. Using plasma ferritin and sTfR results, a composite indicator of "body iron stores" was calculated ; this indicator can be effective at estimating the distribution of iron deficiency at population level [14].

RBP was used to assess the vitamin A status of all individuals in the survey. Although plasma retinol is the biomarker recommended by the World Health Organzation, RBP can be analyzed with small quantities of plasma and is highly correlated with plasma retinol [15]. As with ferritin and serum retinol, RBP can be elevated during inflammation. An adjustment algorithm similar to the one proposed for plasma ferritin was applied [16].

Cut-off values to define iron and vitamin A deficiency, as well as sub-clinical inflammation, are provided in Table 2.

Plasma ferritin, sTfR, CRP, AGP, and RBP were all analyzed using an enzyme linked immunosorbent assay (ELISA) technique [15, 17] in blood plasma from women and children. The analysis for these analytes was conducted at 'Vit A Iron Lab' (http://www.nutrisurvey.de/blood_samples/index.htm), Germany. This laboratory is an independent service-provider laboratory that participates regularly in inter-laboratory comparisons, such as the VITAL-EQA from the U.S. Centers for Disease Control and Prevention, Atlanta and frequently analyses specimens obtained from micronutrient assessment surveys.

4.7.3. Plasma zinc

Measurement of serum or plasma zinc concentration is currently the only biochemical indicator recommended by the WHO and other international organizations to assess the zinc status of populations [18]. Plasma zinc concentrations were assessed using inductively coupled plasma-optical emission spectrometry, using Varian Vista Pro instrumentation with a detection limit of 5 parts per billion (µg/kg). Plasma zinc was measured on blood plasma collected from children using trace-element-free vacutainers. In order to further minimize zinc contamination, powder-free gloves were used during blood collection and during aliquotation. All aliquots were prepared under a well-ventilated laboratory hood; to establish a background contamination pattern of material that was not certified to be trace-element free (butterfly needles, cryotubes, disposable pipettes), seven full sets of phlebotomy supplies were sent to the same laboratory and the blood sampling procedure was mimicked using Ultrapure® water, and the water was measured for zinc. Plasma samples were analyzed at the Center for Nutrition and Metabolism at the Children's Hospital Oakland Research Institute (CHORI), USA (http://www.chori.org/Centers/Nutrition/Nutrition_Main.html). CHORI conducts a rigorous quality control using in-line (i.e. daily) addition of internal standards (Yttrium and Scandium) to all samples, National Institute of Standards in Technology-traceable calibrants and several check-standards, including Seronorm (Bio-Rad) or in-house pooled human plasma.

A randomly selected sub-sample of plasma specimens was analysed to estimate the precision of the method to measure zinc concentration. In addition, upon completion of analyses of all first replicates, those samples that were 1 standard deviation (SD) or more above the mean zinc concentration were re-run. For data analysis, for plasma levels that were outside the +2SD in the first run, the second technical replicate result was used, as it was considered that the first result was a rare but methodologically-inherent artificial zinc spike that invalidates the first replicate. This operation rendered the plasma zinc data normally distributed and statistical analysis could be conducted under the assumption of normality.

Lastly, zinc analysis was not adjusted for inflammation as descriptive analyses showed only minor differences in zinc concentrations for the four inflammation groups (none, elevation of CRP only, elevation of both CPR and AGP, elevation of AGP only).

The cut-off value to define zinc deficiency is provided in Table 2.

4.7.4. Anthropometry

As described above, all anthropometric measurements were taken by the anthropometrist/ phlebotomist pairs using standard methods. For children 0-59 months of age, all height and length measurements were taken using a standard height board, with children 0-23 months of age measured horizontally (i.e. lying down) and children 24-59 months of age measured vertically (i.e. standing up). For non-pregnant women, height was measured using a portable

[3] Body iron stores (mg/kg)= -[log(sTfR*1000/plasma ferritin)-2.8229]/0.1207

stadiometer. All weight measurements for children and non-pregnant women were taken using portable bathroom-type scales on a hard floor (e.g. wood, tile, or concrete). For small children, the tare function of the scale was used following the weight measurement of the person, usually the mother, who was given the child to hold. MUAC was also measured using a UNICEF MUAC tape. On pregnant women, because BMI is invalid during pregnancy, only MUAC was measured.

For children, in addition to anthropometric measures, the feet and lower legs of children were examined to assess for oedematous malnutrition. Nutritional oedema was considered present only if it was pitting and bilateral. These data were not included in the analysis because of the following evidence that these results were invalid: 1) 22 (weighted percent = 2.2%) of the 1,437 children examined were recorded as having oedema - this is extremely high even in famine-affected populations in very poor countries and is highly unlikely in Azerbaijan; 2) inclusion of such children would have tripled the estimated prevalence of severe acute malnutrition from 1.1% to 3.3% - this is a very unlikely result; 3) all oedema was found in children with z-scores above -2.0 -this rarely occurs even in famine situations; and 4) it is common for survey workers to overdiagnose oedema, especially if they are not familiar with it because of a lack of experience in famine situations.

Cut-off values used for the definition of malnutrition are presented in chapter 4.8.5 (children 0-59 months of age) and 4.8.6 (non-pregnant women).

4.7.5. Presence of iodized salt at the households

At the end of the household interview, the interviewer asked the respondent for a small sample of salt for qualitative testing using a rapid test kit. Because rapid test kits cannot provide accurate quantitative measurements[19], interviewers were instructed to record onlyif any iodine was detected in the salt sample, enabling results to be presented as "iodized" or "non-iodized". Analysis of iodine presence in the salt sample was conducted on-site, and the interviewers informed the respondents of the results directly following the test.

4.8. Data Management and Analysis

4.8.1. Data entry

Completed questionnaires were entered at UNICEF-Azerbaijan's office under the supervision of the survey coordinator and data entry specialist using CSPro v. 5.0. Data entry was undertaken concurrently with fieldwork. To reduce data entry errors, CSPro data-entry screens were programmed to accept only codes within a predetermined range. Data were double-entered, verified and corrected on an on-going basis during the data entry. Data entry did not include any individuals' names or identifying information. The datasets produced are therefore confidential to prevent easy identification of study subjects by users. For laboratory data obtained in electronic form, the unique individual ID's were used to match the interview information with laboratory data. Completed questionnaires and anthropometry and blood collection sheets were arranged in folders and properly kept in a locked office for confidentiality.

4.8.2. Data analysis

Data analysis was done using SPSS version 21.0 using the complex survey module. Statistical weights for household variables were calculated in several steps to account for real and potential sampling biases:

- Different selection probabilities among strata: Because the calculated sample size was identical but the population size different among the strata, the selection probability was different in different strata. As a result, statistical weights were used to correct for these different selection probabilities. In order to calculate design effects correctly, SPSS requires statistical weights to be equivalent to the number of sampling units in the population represented by each sampling unit in the survey sample. For example, in Baku, 393 households were included in the survey sample out of the 2,122,300 total households in Baku. As a result, each of the 393 households in the survey sample represents 5,400 households in Baku. The statistical weight applied to each household in the Baku stratum of the survey sample was 5,400.

- Potential bias in the first sampling stage when selecting EAs: In some EAs, several selected households were found to be vacant or addresses were invalid. As a result, the population of such EAs as listed on the sampling frame for first stage sampling may have been larger than the actual population, leading to a spuriously high likelihood of selection during the first sampling stage. The likelihood of selection of EAs is only relative to the other EAs listed in the sampling frame. Therefore, the stratum-specific weight applied to the households in each selected EA was adjusted up or down by the proportion of households found in that EA to be unoccupied or impossible to locate relative to the proportion of all households in the stratum which were unoccupied or impossible to locate. For example, in the Baku stratum, on average 6% of selected households were unoccupied or impossible to find. In one selected EA, 16% of households were unoccupied or impossible to find. The stratum-specific weight for households in this EA was decreased by 10% because the size of this EA may have been overestimated by 10% relative to other EAs in that stratum during first stage sampling. Another EA in Baku may have had no households unoccupied or impossible to find. This EA's stratum-specific weight was increased by 6% because relative to other EAs in Baku, its size was underestimated by 6% during first stage sampling.

- Adjustment for household absence and refusal: For various social reasons, in some strata, specifically Baku and Absheron, a relatively large number of households refused participation in survey data collection, or a large proportion of eligible adult household members were absent during the hours of data collection. To account for this differential loss of data, an adjustment of the stratum-specific weights was done for each household. The adjustment consisted of the inverse of the complement of the proportion of households with non-response due to short-term absence or refusal. For example, in a hypothetical EA, 16 households were selected, but two of

these households refused and in two households there was no adult household member. For all households in this EA, the adjustment factor would be 1.33 (1/ (1-0.25).

To illustrate the combination of statistical weighting factors, cluster number 3 in Baku is used as an example. In this cluster, 19 household were selected. Of these only 11 had complete data collection. Of the eight non-responding households, six were not found and two had no adult household member present during data collection. The overall stratum-specific weight for all households in Baku was 5,400, as described above. The adjustment for PSU selection probability was 0.730 because 32% of the 19 selected households could not be located (the average for Baku stratum was 6%). The adjustment for short-term absence and refusal was 1.118. Therefore, the final statistical weight for households in cluster number 3 was 4,409 (5,400 x 0.730 x 1.118).

In some clusters, a substantial proportion of children refused anthropometric measurements, blood collection, or both. To adjust for this individual item-specific non-response, separate statistical weights were calculated for variables derived from anthropometric measurements and for variables dependent on blood collection, such as iron or vitamin A measures. These weights consisted of the child's household weight adjusted for either the proportion refusing anthropometry or the proportion refusing blood collection. Each adjustment was calculated in the same way as the adjustment for household absence or refusal, as described above; that is, the inverse of the complement of the proportion not refusing that type of data collection. For example, in cluster number 6 in Baku, the household weight calculated according to the procedure described above was 8,648. Of the six children identified in households selected in this cluster, two refused both anthropometry and blood collection and three refused blood collection only, leaving only one child with both anthropometric measurements and blood collection. Therefore, two out of six children had no anthropometric measurements, and five out of six had no blood specimen collected. The adjustment to the households' statistical weight for anthropometry refusal was 1.50, or 1/ (1-0.333). The adjustment for blood collection refusal was 5.99, or 1/ (1-0.833). The resulting statistical weights applied to anthropometric and blood testing variables were 8,648 and 34,592, respectively.

In general, non-response among adult women was much lower than that among households or children. As a result, the household weight was applied to women when analyzing variables applicable to this target group.

Data analysis included calculation of proportions to derive the prevalence rates of nutrition and health outcomes and mean and median average measures of continuous variables. These measures were calculated in aggregate (i.e. for the entire sample across all regions), for each stratum separately, and by sex (for pre-school aged children only). Results are also presented by specific age sub-groups for non-pregnant women and pre-school aged children. For pregnant women, only national estimates were generated.

The statistical precision of all prevalence estimates were assessed using 95% confidence limits which were calculated

accounting for the complex sampling, including cluster and stratified sampling, used in this survey. The statistical significance of differences between subgroups was assessed using Chi square adjusted for the unequal probability of selection and complex sampling.

4.8.3. Definitions of micronutrient markers

The cut-off values for each biomarker indicator that were used to define normal and abnormal (deficient) nutritional status for each subject are presented in Table 2.

Table 2: Cut-off points and classifications for biomarker indicators

	Mild Anaemia	Moderate Anaemia	Severe Anaemia
Haemoglobin*			
Children 6-59 months	100-109/L	70-99 g/L	<70 g/L
Non-pregnant women	110-119g/L	70-109 g/L	<70 g/L
Pregnant women	100-109 g/L	70-99 g/L	<70 g/L
	Cut-off defining deficiency or abnormality		
Retinol-binding protein			
Children 6-59 months		<0.7 µM/L**	
Non-pregnant women		<0.7 µM/L**	
Plasma ferritin			
Children 6-59 months		< 12 µg/L**	
Non-pregnant women		< 15 µg/L**	
Soluble transferrin receptor			
Children 6-59 months		>8.3 mq/L†	
Non-pregnant women		>8.3 mq/L†	
α1-acid-glycoprotein			
Children 6-59 months		>1 q/L	
Non-pregnant women		>1 q/L	
C-reactive protein			
Children 6-59 months		>5 mq/L	
Non-pregnant women		>5 mq/L	
Plasma zinc		Morning, non-fasting: 65 µg/dL	
Children 6-59 months		Afternoon, non-fasting: 57 µg/dL	

* The cut-off for haemoglobin concentrations was adjusted for altitude of residence and smoking according to standard recommendations[20]
** These indicators were adjusted for sub-clinical inflammation using appropriate algorithms [13];
† There is no generally agreed upon threshold for this biomarker, but the most commonly used commercial assay (Ramco) suggests the above threshold.

4.8.4. Calculation of wealth index and socioeconomic status

A wealth index was calculated using characteristics of the household's house and ownership of durable goods using the principal component analysis method commonly employed by UNICEF MICS, the World Bank, and the World Food Programme [21-23]. Wealth index quintiles were calculated to permit the cross-tabulation of various nutrition indicators by wealth in report tables. The wealth index was calculated for each household on unweighted data, thus a disproportionate distribution in the wealth quintiles is observed in Table 3.

In addition to indicators used in the calculation of the wealth index, other socio-economic questions were included in AzNS 2013 to further elaborate the socio-economic status of the household. Specifically, households were asked basic questions about the number of individuals employed in the household, ownership of a bank account, and their ability and method of obtaining 50 Manat (US$ 63.75) in short time frame.

4.8.5. Anthropometry in children 0-59 months of age

Undernutrition (including wasting, stunting, and underweight) and overnutrition in children 0-59 months of age were defined using WHO Child Growth Standards [24]. For conditions of undernutrition, children with z-scores below -2.0 for weight-for-height, height-for-age, or weight-for-age were defined as wasted, stunted, or underweight, respectively. Moderate wasting, stunting, and underweight were defined as a z-score less than -2.0 but greater than or equal to -3.0. Z-scores less than -3.0 define severe wasting, severe stunting, or severe underweight. Although children with bilateral pitting edema in the feet or lower legs are usually automatically considered as having severe wasting, regardless of their weight-for-height z-score, for the reasons listed in section 4.7.5 above, these results were not used.

Overnutrition was defined as a weight-for-height z-score greater than +2.0. Overweight was a weight-for-height z-score of greater than +2.0 but less than or equal to +3.0. Obesity was defined as a weight-for-height z-score greater than +3.0.

4.8.6. Anthropometry in non-pregnant women and pregnant women

Chronic energy deficiency and over-nutrition in non-pregnant women was assessed using body mass index (BMI), which is calculated by dividing the weight in kilograms by the square of the height in meters. Cut-off points for BMI were as follows: <16.0 severe chronic energy deficiency; 16.0-16.9 moderate chronic energy deficiency; 17.0-18.4 at-risk for energy deficiency; 18.5-24.9 normal; 25.0-29.9 overweight; ≥30.0 obese [25].

For pregnant women, no international consensus exists for a cut-off for MUAC measurement for the identification of acute malnutrition. However, a recent review by Ververs et al [26] recommends that a cut-off of <23 cm becauseit would "include most pregnant women at risk of [low birthweight, LBW] for their infants in the African and Asian contexts". As such, a cut-off of <23 cm has been used here for the identification of acute malnutrition in pregnant women.

5. Results

5.1. Household Characteristics

5.1.1. Response rates and characteristics of households

Of the 4,320 households originally selected for participation in the survey, 3,926 (80.6%) household interviews were successfully completed. Amongst the possible reasons for non-response, a household being absent for a long period or having moved away from its residence was the major cause for non-responses, with 403 households (9.4% of the total) not interviewed for this reason (see Table 25, Appendix 4). The percentage of households absent for a long period or having moved away was similar between urban and rural areas, at 9.5% and 9.3%, respectively. Lenkeran region had the highest percent of households (16.3%) listed as absent for a long period or having moved away. Only 3.3% of all households successfully approached refused to participate in the AzNS. Refusal from urban households (5.2%) was higher than rural households (1.0%).

Table 3 below compares demographic characteristics of households included in the AzNS 2013 to Azerbaijan's 2009 Census. The percentages of the urban and rural households included in the AzNS 2013 are similar to the composition of Azerbaijan's population. Regional representation between the AzNS 2013 and the 2009 Census was reasonably consistent, with the obvious note that Kalbajar-Lachin and Nakhchevan regions were not included in the AzNS 2013.

Households that participated in the AzNS 2013 had an average of about four household members; approximately 90% of households had between one and six members (see Table 26, Appendix 4). Nearly 90% of households interviewed were headed by an Azerbaijani. Although overall approximately 7% of households were displaced by fighting in the 1990s, in the Yukhari Karabakh region, nearly 40% were displaced (see Table 27, Appendix 4).

Table 3: Distribution of various demographic variables for participating households, Azerbaijan 2013

	Survey sample			Azerbaijan population
Characteristic	n	% [a]	(95% CI) [b]	% [c]
Head of Household Sex				
Male	2,961	75.1	(73.1, 77.1)	--
Female	965	24.9	(22.9, 26.9)	--
Residence				
Urban	1,564	52.0	(46.6, 57.4)	53.1 [d]
Rural	2,361	48.0	(42.6, 53.4)	46.9 [d]
Region				
Baku	368	26.0	(23.6, 28.6)	24.7
Absheron [e]	453	8.3	(6.6, 10.3)	6.2
Aran [e]	581	22.9	(20.2, 25.8)	21.6
Dagliq Shirvan	370	2.8	(2.6, 3.1)	3.4
Ganja-Gazakh	403	12.7	(11.9, 13.6)	14.1
Quba-Khachmaz	450	5.8	(5.5, 6.2)	5.9
Lenkeran	445	10.6	(10.0, 11.3)	9.9
Sheki-Zaqatala	449	6.6	(6.1, 7.1)	6.8
Yukhari Karabakh [e]	407	4.2	(3.9, 4.6)	7.4
Number of years lived in current dwelling				
0 – 10	978	26.6	(23.8, 29.6)	--
11 – 21	912	23.5	(21.2, 26.0)	--
22 – 36	1,056	27.9	(25.2, 30.8)	--
37 +	927	22.0	(19.4, 24.9)	--

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.
[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.
[c] Population estimates from the 2009 Azerbaijan Population and Housing Census.
[d] Urban and rural population proportions from the 2009 Census include Kalbajar-Lachin and Nakhchivan regions, which were not part of the AzNS 2013
[e] Select rayons were not included in the sampling universe for certain regions, and are thus excluded from the census population column; these include: a) Absheron: Khyzi rayon, b) Aran: Hajigabul rayon, c) Yukhari Karabakh: Jabrail, Khojaly, Shusha, Khojavand, and Khandendi town rayons.

5.1.2. Socio-economic status

More than 75% households had at least one member employed or earning an income (Table 28,Appendix 4). Nonetheless, nearly the same percentage of households reported having either "great difficulty" or "some difficulty" making ends meet on the current household income. In addition, almost one-third of households reported having had difficulty paying their bills in the previous year. Less than 3% of households reported that a member of the household had a bank account.

Approximately three-quarters of households responded that they could get 50 Manat in a week's time. More than three-quarters of those cited borrowing money from family, friends, or relatives as one of the methods to get this money; only one-third of households reported that they could use their own savings.

5.1.3. Agricultural activities and livestock ownership

Almost half of all households interviewed reported that a member of the household owned agricultural land (see Table 29,Appendix 4). Of these, agricultural land holdings were small, with more than three quarters of households possessing one hectare or less.

Approximately 46% of households possessed any animals. Cattle and fowl are the most commonly owned farm animals.

5.1.4. Cooking arrangement

Households were asked a series of questions related to their cooking arrangement in their dwelling. Natural or compressed (liquid) gas was the cooking fuel for nearly 90% of households (see Table 30,Appendix 4). The remaining 10% of the households predominantly used either electricity or firewood or straw. About 90% of households reported that cooking was done inside the house (i.e. not outside or in a separate building), and about 80% reported having a separate room in the house for cooking. As a result, in door exposure to smoke from burning fuel was relatively rare.

5.1.5. Water and sanitation

More than 80% of all households reported using an "improved" water source for their drinking water (Table 4 and Table 5). In addition, more than two-thirds of households reported treating their drinking water. As a result, more than 90% households can be assumed to be drinking safe water. Only 10% of the households reported not having water in the dwelling, and among these households, nearly two-thirds need between one and 20 minutes to fetch water. Eighty percent of households possessed adequate sanitation facilities.

Table 5 shows that while soap (e.g. bar soap, detergent, liquid soap, or other substance, such as ash, mud, or sand) was present in all households, water for hand washing was not available at the place of handwashing in about 7% of households. Nearly 88% of households were confirmed as having adequate conditions for handwashing.

Table 4: Distribution of water and sanitation variables for participating households, Azerbaijan 2013

Characteristic	n	% [a]	(95% CI) [b]
Main source of water for drinking [c]			
Improved source	3,146	81.0	(76.3, 85.0)
Unimproved source	701	19.0	(15.0, 23.7)
Treat water to make safe to drink [d]			
Yes	2,404	67.2	(64.2, 70.1)
No	1,518	32.8	(29.9, 35.8)
Drink water that should be safe [e]			
Yes	3,591	92.5	(90.2, 94.2)
No	295	7.5	(5.8, 9.8)
Time required to fetch water (minutes) [f]			
1-10	156	37.4	(28.6, 47.1)
11-20	107	23.5	(18.2, 29.7)
21+	182	39.2	(29.8, 49.4)
Adequate household sanitation [g]			
Yes	3,038	80.0	(76.8, 82.8)
No	881	20.0	(17.2, 23.2)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster and stratified sampling design.
[c] Improved source = water from piped system, tube well or borehole, protected well, protected spring, rainwater collection, or bottled water; unimproved source = water from unprotected well, unprotected spring, tanker truck or cart, surface water or other.
[d] Treatments considered effective at making water safe to drink include boiling, using bleach or chorine, solar disinfection, or using a ceramic, sand, or stone filter.
[e] Composite variable of main source of drinking water and treating water to make safe for drinking
[f] Question only asked of households without access to water in the dwelling
[g] Composite variable of adequate toilet facilities (i.e. flush toilet to known location or pit latrine with slab) and toilet not shared with other households

Table 5: Distribution of hand washing variables for participating households, Azerbaijan 2013

Characteristic	n	% [a]	(95% CI) [b]
Soap available in household [c]			
Yes	3,893	100.0	(100.0,100.0)
No	0	--	--
Soap and water are available at place for hand washing			
Yes	3,491	87.9	(85.3, 90.1)
No	243	6.8	(5.1, 8.9)
Hand washing place not observed	158	5.3	(3.9, 7.2)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.
[c] Soap either observed by interviewer or shown by respondent.

5.1.6. Salt iodization

Nearly all households possessed salt at the time of the interview, and of these households, nearly all provided a sample of salt for testing(Table 6). While more than 80% of respondents believed that their salt was iodized, the packaging for only about 60% of salt indicated that the salt was iodized. In most of the remaining households, the original salt packaging could not be inspected.

In total, nearly 94% of all samples were iodized(Table 7). No difference in salt iodization status was observed between urban and rural areas, and 90% or more of the salt samples were iodized in eight of the nine regions. However, only about three-quarters of the samples from Sheki-Zaqatala region were iodized (Figure 1, Table 7). Significant differences were detected in salt iodization among wealth quintiles, and the proportion of salt specimens containing iodine was higher in wealthier households. The prevalence of salt iodization was also significantly different by ethnic groups, however it is possible that these results are confounded by regional differences, as the majority of households with non-iodized salt samples were headed by individuals from Avar and Saxor ethnicities, which arefound primarily in Sheki-Zaqatala and neighboring regions (data not shown).

Table 6: Distribution of salt iodization variables for participating households, Azerbaijan 2013

Characteristic	n	% [a]	(95% CI) [b]
Salt in household			
Yes	3,915	99.7	(99.2, 99.8)
No	8	0.3	(0.2, 0.8)
Sample of salt collected for iodine testing			
Yes	3,828	99.9	(99.7, 100.0)
No	4	0.1	(0.0, 0.3)
Salt reported as iodized by respondent			
Yes	3,211	83.8	(80.7, 86.4)
No	35	0.9	(0.6, 1.4)
Don't know	668	15.3	(12.8, 18.2)
Salt packaging is labeled as iodized/fortified			
Yes, original package says fortified	2,296	59.9	(56.0, 63.7)
Original package not mention fortification	46	1.9	(1.2, 3.0)
Undermined, not in original package	1,455	37.2	(33.5, 41.0)
Undetermined	37	1.0	(0.6, 1.9)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

Figure 1. Proportion of salt specimen testing positive for iodine, by residence

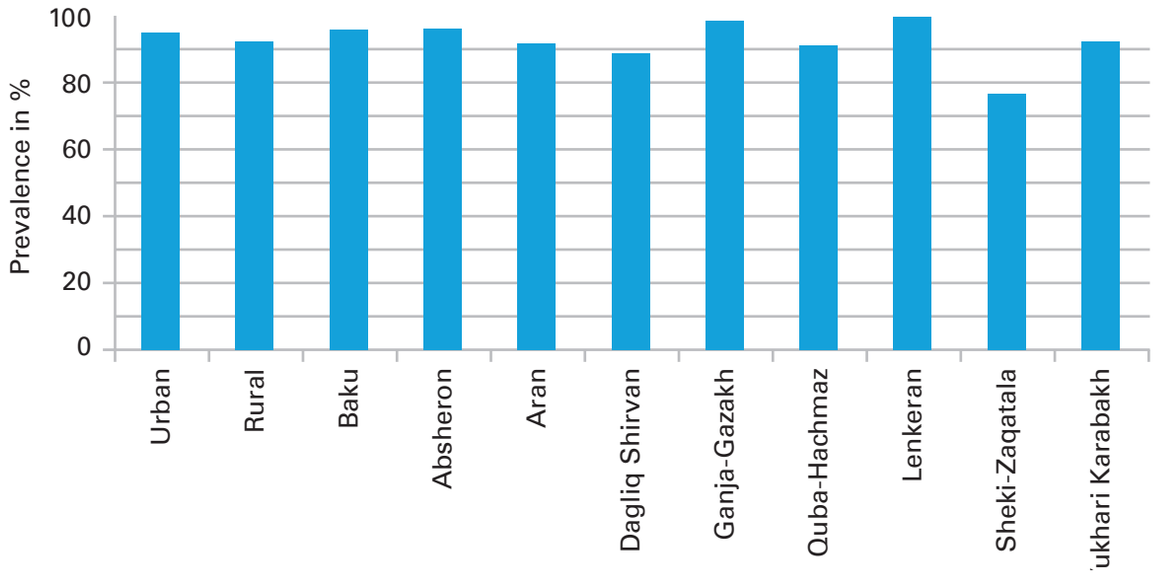


Table 7: Proportion of salt specimens testing positive for salt iodine using rapid test kits in participating households, Azerbaijan 2013

Characteristic	n	% [a]	(95% CI) [b]	Chi-Square p-value [c]
Residence				
Urban	1,432	94.9	(92.9, 96.4)	p=0.067
Rural	2,098	92.5	(90.6, 94.1)	
Region				
Baku	325	95.7	(91.9, 97.7)	
Absheron	421	96.0	(92.8, 97.8)	
Aran	523	91.8	(88.6, 94.1)	
Dagliq Shirvan	320	89.0	(83.3, 92.8)	
Ganja-Gazakh	395	99.0	(95.3, 99.8)	p<0.001
Quba-Hachmaz	409	91.2	(86.9, 94.1)	
Lenkeran	434	99.4	(97.5, 99.8)	
Sheki-Zaqatala	330	76.7	(67.3, 84.0)	
Yukhari Karabakh	374	92.3	(87.7, 95.3)	
Ethnic group of household head				
Azeri	3,124	93.9	(92.5, 95.0)	
Lezgin	118	91.6	(83.5, 95.9)	
Russian	30	99.0	(92.6, 99.9)	p<0.001
Talyish	185	99.4	(96.2, 99.9)	
Other	71	71.9	(57.0, 83.2)	
Wealth Quintile				
Lowest	675	89.0	(85.0, 92.1)	
Second	697	93.9	(91.3, 95.7)	
Middle	706	93.2	(90.5, 95.2)	p<0.01
Fourth	726	95.6	(93.3, 97.1)	
Highest	715	95.3	(93.2, 96.8)	
TOTAL	3,531	93.8	(92.5, 94.8)	

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.
[c] Chi-square p-value <0.05 indicates that the variation in the values of the subgroup are significantly different from all other subgroups

5.2. Pre-School Age Children

5.2.1. Response rates and characteristics of respondents

Table 8 compares the demographic characteristics of the 1,569 children included in the AzNS 2013 to the 2009 Census. Thedistribution of sex, age, urban/ruralresidence, and region of residence of children in the survey sample was, for the most part, not statistically different from census data. Nearly 75% of all children had mothers that had some secondary school or higher level of education, while about a quarter of children had mothers with basic secondary education or less.

Table 8: Description of sampled children 0 - 59 months of age, Azerbaijan 2013.

	Survey sample			Azerbaijan population
Characteristic	n	% [a]	(95% CI) [b]	% Population [c]
Sex				
Male	872	54.9	(52.2, 57.6)	52.3 [e]
Female	697	45.1	(42.4, 47.8)	47.7 [e]
Age Group (in months)				
0-11	311	20.4	(18.1, 23.0)	15.8 [e]
12-23	288	17.4	(15.1, 19.9)	17.6 [e]
24-35	308	20.3	(17.8, 23.1)	20.7 [e]
36-47	322	20.3	(18.0, 22.8)	22.0 [e]
48-59	340	21.6	(18.9, 24.5)	23.9 [e]
Residence				
Urban	599	49.4	(42.4, 56.4)	44.3 [e]
Rural	969	50.6	(43.6, 57.6)	55.7 [e]
Region [e]				
Baku	115	21.2	(16.7, 26.5)	22.6
Absheron [d]	174	8.3	(6.4, 10.7)	5.7
Aran [d]	248	26.0	(21.8, 30.8)	23.7
Dagliq Shirvan	146	2.8	(2.4, 3.4)	3.8
Ganja-Gazakh	140	11.4	(9.1, 14.2)	13.5
Quba-Hachmaz	192	6.4	(5.4, 7.7)	6.4
Lenkeran	206	13.0	(10.3, 16.2)	11.3
Sheki-Zaqatala	162	6.1	(5.1, 7.3)	6.5
Yukhari Karabakh [d]	186	4.8	(3.8, 5.9)	6.4
Mother's Education				
Basic secondary or less	340	26.4	(21.9, 31.5)	--
Some or completed secondary	549	46.7	(41.9, 51.5)	--
Higher	261	26.9	(22.4, 31.9)	--
Wealth Quintile				
Lowest	241	11.8	(9.3, 14.9)	--
Second	293	16.2	(13.5, 19.4)	--
Middle	330	19.5	(16.6, 22.7)	--
Fourth	359	24.3	(21.0, 27.9)	--
Highest	341	28.2	(23.9, 32.9)	--
TOTAL	1,569	100.0	--	--

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.
[c] Population estimates from the 2009 Azerbaijan Population and Housing Census
[d] Select rayons were not included in the sampling universe for certain regions, and are thus excluded from the census population column. These include: a) Absheron: Khyzi rayon, b) Aran: Hajigabul rayon, c) Yukhari
[e] Census population proportions include children from Kalbajar-Lachin and Nakhchivan regions. These regions were included in the sampling frame of the AzNS 2013.

5.2.2. Recent morbidity and treatment

As shown in Table 9, about 8% of children were reported to have had diarrhea in the two weeks prior to the survey. About one-fifth of the children in the survey had fever, and one-third of children were reported to have a cough two weeks prior to the interview. While simultaneous cough and fever were present in approximately 20% of children, only one-quarter of these children also had symptoms suggesting a lower respiratory infection (LRI). Variables related to treatment of diarrhea, cough and fever are presented in Table 32 and Table 33 in Appendix 5. Table 9 also reports sub-clinical inflammation, as assessed by elevated CRP only, elevated CRP and AGP, and elevated AGP only. Elevated CRP represents acute inflammation, both CRP and AGP elevated report early convalescence, and AGP only late convalescence[16].

Table 9: Distribution of diarrhea, fever, cough, and sub-clinical inflammation in children aged 0-59 months (except where stated differently), Azerbaijan 2013.

Characteristic	n	% [a]	(95% CI) [b]
Diarrhea in the past 2 weeks			
Yes	113	8.2	(6.3, 10.5)
No	1,456	91.8	(89.5, 93.7)
Child had a fever in the past 2 weeks			
Yes	296	21.8	(18.7, 25.3)
No	1,268	78.2	(74.7, 81.3)
Child had cough only in the past 2 weeks			
Yes	490	34.9	(31.0, 38.9)
No	1,079	65.1	(61.1, 69.0)
Child had cough and fever in the past 2 weeks			
Yes	295	21.6	(18.5, 25.1)
No	1,272	78.4	(74.9, 81.5)
Child had lower respiratory infection (LRI) [C]			
Yes	80	5.6	(4.1, 7.6)
No	1,476	94.4	(92.4, 95.9)
Elevated markers of inflammation (children 6-59 months only) [d]			
None	766	68.1	(64.4, 71.7)
CRP only	14	1.0	(0.6, 2.0)
Both CRP and AGP	82	7.0	(5.3, 9.2)
AGP only	219	23.8	(20.7, 27.3)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.
[C] LRI defined as concurrent cough, fever, and difficulty breathing due to problem in chest
[d] CRP=C-reactive protein, AGP=alpha1-acid-glucoprotein

5.2.3. Infant and Young Child Feeding Indicators

Table 10 provides summary results of seven infant and young child feeding (IYCF) indicators [27, 28] collected as part of the AzNS 2013. Low percentages of adequate behaviour were observed for breastfeeding indicators, with less than one fifth of children beginning breastfeeding 1 hour or less after birth. Although 91.4% of children less than 24 months of age had ever been breastfed (data not shown),only about one-tenth of children under 6 months of age were exclusively breastfed the day before the interview, close to the percentage (i.e. 11.8%) observed by the 2006 DHS [2]. Less than one half of children were still breastfeeding at 1 year of age.

While more than three-quarters of children 6-8 months of age ate complementary foods the day prior to the interview, indicators of dietary quality measured for children 6-23 months of age (i.e. minimum dietary diversity, minimum meal frequency, and minimum acceptable diet) illustrate that children may not be receiving adequate nutrition. Specifically, only about 54% of children 6-23 months consumed food from four or more (out of seven) food groups[4] (minimum dietary diversity), 58% ate with enough frequency for their age[5] (minimum meal frequency), and only 22% had a minimally acceptable diet)[28]. More comprehensive data for each indicator, disaggregated by sex, residence, mother's education, and wealth quintile, is provided in Table 34 –Table40 in Appendix 5.

[4] Food groups include: grains, roots and tubers; legumes and nuts; dairy products (milk, yogurt, cheese); flesh foods (meat, fish, poultry and liver/organ meats); eggs; vitamin-A rich fruits and vegetables; other fruits and vegetables
[5] Minimum meal frequency is achieved when a) breastfed infants 6–8 months are fed 2 times or more per day, b) breastfed children 9–23 months are fed 3 times or more per days, or c) non-breastfed children 6–23 months are fed 4 times or more per day.

Table 10: Distribution of various Infant and Young Child Feeding Indicators in children 0-24 months of age, Azerbaijan 2013

Characteristic	n	% [a]	(95% CI) [b]
Early Initiation of Breastfeeding (WHO IYCF Indicator #1) [c]			
Initiated breastfeeding in first hour after birth	111	19.7	(15.9, 24.1)
Initiated breastfeeding in morethan 1to12 hours after birth	129	25.1	(20.5, 30.3)
Initiated breastfeeding in >12 hours after birth	291	55.3	(49.5, 60.8)
Exclusive breastfeeding under 6 months (WHO IYCF Indicator #2) [d]			
Children exclusively breastfed the day before the interview	18	12.1	(6.8, 20.7)
Continued breastfeeding at 1 year (WHO IYCF Indicator #3) [e]			
Children breastfed the day before the interview	38	42.9	(30.3, 56.5)
Introduction of solid, semi-solid or soft foods (WHO IYCF Indicator #4) [f]			
Children eating complementary food the day before the interview	67	76.9	(65.7, 85.3)
Minimum dietary diversity (WHO IYCF Indicator #5) [g]			
Children with minimum dietary diversity the day before the interview	225	54.1	(47.9, 60.2)
Minimum meal frequency (WHO IYCF Indicator #6) [g]			
Children with minimum meal frequency the day before the interview	228	57.6	(51.7, 63.2)
Minimum acceptable diet (WHO IYCF Indicator #7) [g]			
Children with minimum acceptable diet the day before the interview	79	21.7	(16.7, 27.6)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.
[c] Results presented for all children <24 months of age
[d] Results presented for all children <6 months of age
[e] Results presented for children 12-15 months of age
[f] Results presented for children 6-8 months of age
[g] Results presented for children 6-23 months of age

5.2.4. Consumption of vitamins and supplements

In general, the consumption of foods and supplements designed for infants and young children in Azerbaijan was low (see Table 41 in Appendix 5). Iron-fortified cookies and foods were consumed by about 13% of children the day prior to the interview, and only 6% of children consumed infant formula with added iron (e.g. Nutrilon 2, Han, Hipp, Humana, or Heinz).

Similarly, vitamin supplements were consumed by few children. In the six months preceding the interview, only 4.4% of children consumed iron tablets or syrup, and only 2.8% received a vitamin A capsule. These results are similar to results reported in the 2006 DHS [2]. Multi-nutrient powders (MNPs) and lipid based nutrient supplements (LNS) were consumed by less than 1% of children the day prior to the survey.

5.2.5. Anthropometry

Stunting

The prevalence of stunting in Azerbaijan is below 20% nationally (Table 11), and thus of low public health significance according to WHO classifications [29]. Nonetheless, the prevalence of stunting exceeds 25% in Ganja-Gazakh and Lenkeran. Thus these two regions are classified as having a medium public health significance [29]. Figure 2 shows that there is perhaps a higher prevalence of stunting in rural areas.

There was no significant difference in the distribution of stunting by age, sex, mother's educational level, orwealth quintile. Nonetheless, there is a suggestion of a trend of lower stunting rates with increasing maternal education and increasing wealth quintile. Figure 3 illustrates the variation in the prevalence of stunting by wealth quintile, showing the higher prevalence in the two lowest quintiles. Figure 4 presents the distribution of HAZ for children 0 – 59 months of age participating in the AzNS 2013 in comparison to WHO's growth standards.

Wasting

With less than 5% of children characterized as wasted, Azerbaijan's wasting situation is classified as "acceptable" according to WHO classifications [29]. Moreover, the prevalence of 3.1% with 95% confidence intervals of 2.2%, 4.4% is statistically indistinguishable from the prevalence of 2.3% found in the WHO Child Growth Standard[24]. Nonetheless, clear, albeit small, differences can be seen in the wasting prevalence of children with less-educated mothers and in the lower wealth quintiles.

Underweight

With a national prevalence of underweight less than 10%(Table13), underweight in Azerbaijan is categorized as of "low" public health significance according to WHO classifications [29]. However, certain sub-groups are disproportionately affected. Similar to wasting, children under 12 months of age have substantiallyhigher rates of underweight than other age groups. In addition, the underweight

prevalence for children in households of the lowest wealth quintiles was significantly higher than that of children in more affluent households.

MUAC measurements indicated that only 4.0% of children (n=61) were acutely malnourished, and 2.1% and 1.9% had severe acute malnutrition and moderately acute malnutrition, respectively (data not shown). As so few children were found to be acutely malnourished, no disaggregation of the prevalence by characteristic (e.g. age, sex, etc) was conducted.

Figure 2. Prevalence of stunting in children 0 -59 months, by residence

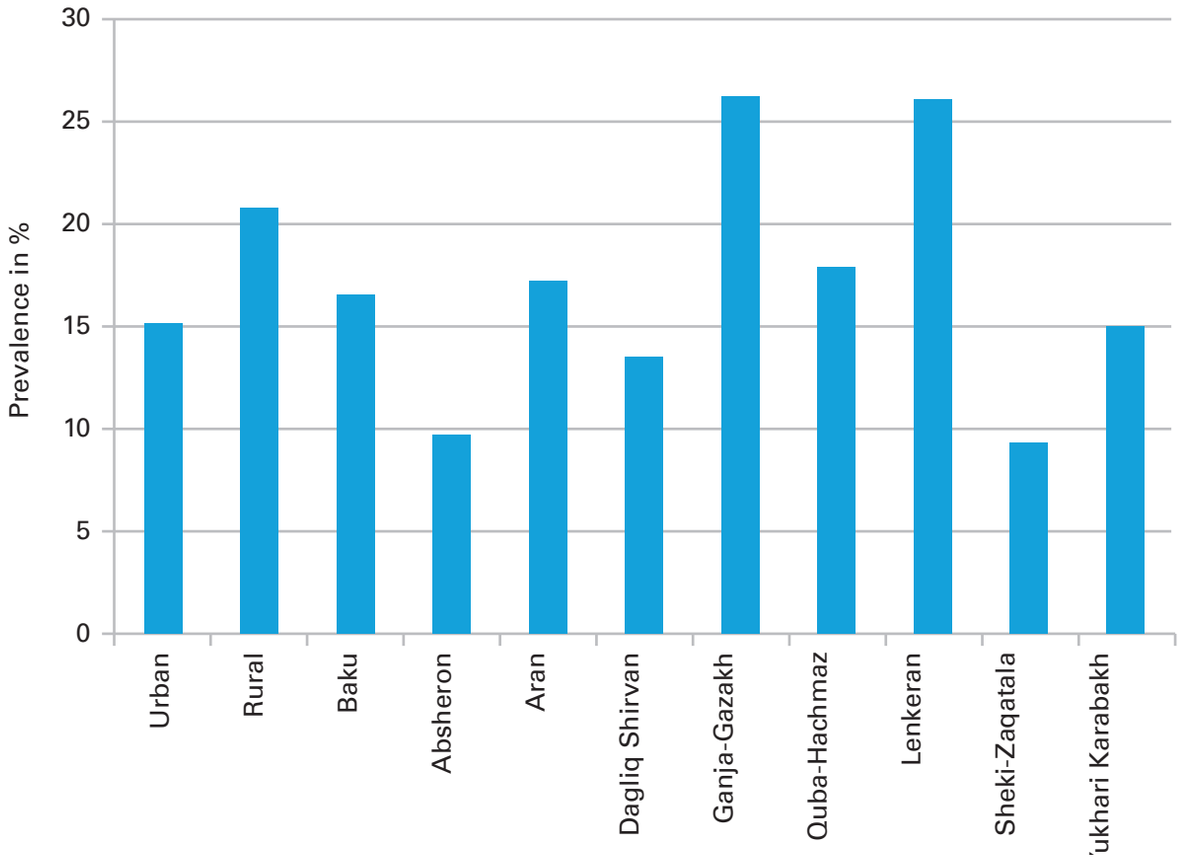


Figure 3. Prevalence of stunting in children 0-59 months, by wealth quintile

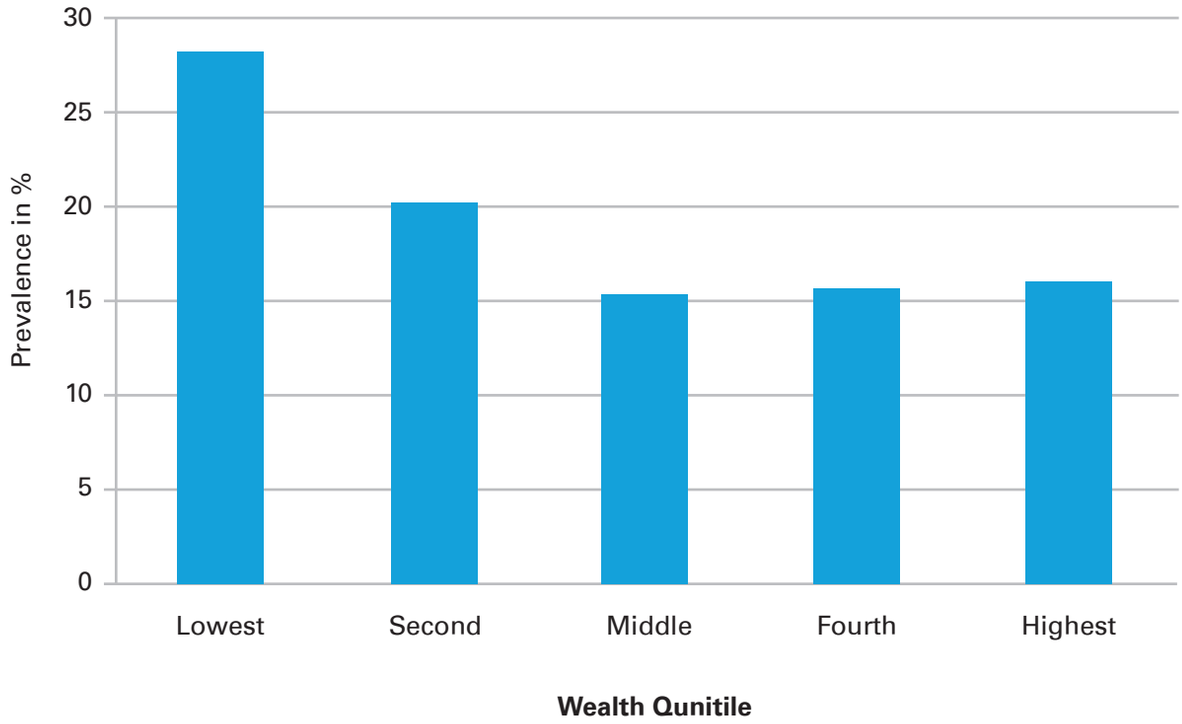


Figure 4. Distribution of HAZ values, WHO Growth Standard and AzNS 2013

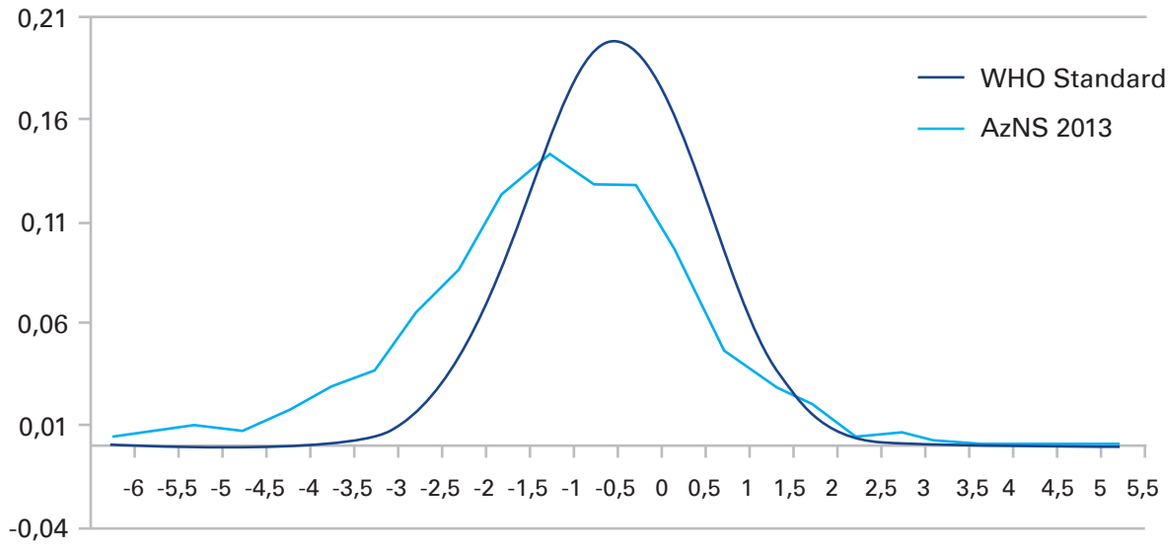


Table 11: Percentage of children (0-59 months) with stunting, Azerbaijan 2013

Characteristic	n	% Severe stunting [a,b]	n	% Moderate stunting [c]	n	% Any stunting [d]	Chi-Square p-value [e]
Age Group (in months)							
0-11	28	9.1	24	9.2	52	18.3	
12-23	7	3.4	23	7.2	30	10.6	
24-35	17	6.1	34	11.8	51	17.9	p=0.062
36-47	29	11.2	33	12.8	62	24.0	
48-59	19	7.6	33	10.1	52	17.7	
Sex							
Male	65	8.6	82	9.6	147	18.2	p=0.877
Female	35	6.4	65	11.3	100	17.7	
Residence							
Urban	32	6.1	46	9.0	78	15.2	p=0.102
Rural	68	9.1	101	11.6	169	20.7	
Region							
Baku	6	5.9	11	10.6	17	16.5	
Absheron	9	6.3	7	3.4	16	9.7	
Aran	12	5.4	27	11.9	39	17.2	
Dagliq Shirvan	4	2.7	15	10.8	19	13.5	
Ganja-Gazakh	22	16.9	12	9.3	34	26.2	p=0.072
Quba-Hachmaz	11	6.0	22	12.0	33	17.9	
Lenkeran	25	13.2	24	12.9	49	26.1	
Sheki-Zaqatala	5	3.7	9	5.7	14	9.4	
Yukhari Karabakh	6	3.9	20	10.9	26	14.9	
Mother's Education							
Basic secondary or less	26	9.3	34	10.8	60	20.1	
Some or completed secondary	34	7.4	49	10.3	83	17.7	p=0.225
Higher	12	6.5	19	6.9	31	13.4	
Wealth Quintile							
Lowest	18	10.9	37	17.1	55	28.1	
Second	22	7.6	33	12.4	55	20.1	
Middle	21	8.3	23	7.0	44	15.3	p=0.095
Fourth	20	6.6	25	8.9	45	15.6	
Highest	19	6.6	28	9.3	47	16.0	
TOTAL	100	7.6	147	10.3	247	18.0	--

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] Severe stunting represents children who are below -3 standard deviations (SD; z-scores) from the WHO Child Growth Standards population median
[c] Moderate stunting includes children who are equal to or above -3 standard deviations (SD) and below-2 SD from the WHO Child Growth Standards population median
[d] Any stunting includes both severely and moderately stunted children
[e] Chi-square p-value <0.05 indicates that the variation in the values of the subgroup are significantly different from all other subgroups. Chi-square results are based on any stunting

Table 12: Percentage of children (0-59 months) with wasting, Azerbaijan 2013

Characteristic	n	% Severe wasting [a, b]	n	% Moderate wasting [c]	n	% Any wasting [d]	Chi-Square p-value [e]
Age Group (in months)							
0-11	14	3.0	10	3.3	24	6.3	
12-23	4	1.0	4	0.8	8	1.8	
24-35	2	0.6	5	2.6	7	3.2	p<0.05
36-47	2	0.4	4	1.2	6	1.6	
48-59	4	0.7	5	1.8	9	2.5	
Sex							
Male	18	1.4	20	2.6	38	4.0	p=0.052
Female	8	0.8	8	1.2	16	2.0	
Residence							
Urban	9	0.8	12	2.1	21	2.9	p=0.777
Rural	17	1.4	16	1.8	33	3.2	
Region							
Baku	0	--	2	2.1	2	2.1	
Absheron	3	1.5	4	1.9	7	3.4	
Aran	2	0.4	5	2.2	7	2.6	
Dagliq Shirvan	3	2.0	2	1.4	5	3.4	p=0.661
Ganja-Gazakh	1	0.8	2	1.7	3	2.6	
Quba-Hachmaz	6	3.2	6	3.2	12	6.3	
Lenkeran	3	1.7	4	2.0	7	3.7	
Sheki-Zaqatala	5	3.8	1	0.8	6	4.6	
Yukhari Karabakh	3	1.5	2	1.3	5	2.8	
Mother's Education							
Basic secondary or less	4	1.2	9	3.8	13	5.0	
Some or completed secondary	18	2.1	8	1.3	26	3.4	p<0.05
Higher	0	--	2	0.7	2	0.7	
Wealth Quintile							
Lowest	6	1.6	5	1.6	11	3.2	
Second	8	2.5	9	4.8	17	7.3	
Middle	6	1.0	5	2.5	11	3.5	p<0.01
Fourth	5	1.1	5	1.1	10	2.2	
Highest	1	0.2	3	0.7	4	0.9	
TOTAL	26	1.1	28	2.0	54	3.1	--

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] Severe wasting represents children who are below -3 standard deviations (SD; z-score) from the WHO Child Growth Standards population median
[c] Moderate wasting includes children who are equal to or above -3 standard deviations (SD) and below-2 SD from the WHO Child Growth Standards population median
[d] Any wasting includes both severely and moderately stunted children
[e] Chi-square p-value <0.05 indicates that the variation in the values of the subgroup are significantly different from all other subgroups. Chi-square results are based on any wasting

Table 13: Percentage of children (0-59 months) underweight, Azerbaijan 2013

Characteristic	n	% Severe underweight [a, b]	n	% Moderate underweight [c]	n	% Any underweight [d]	Chi-Square p-value [e]
Age group (in months)						10.4	
0-11	10	2.4	23	8.0	33	3.6	
12-23	5	1.4	5	2.2	10	1.9	p<0.01
24-35	4	1.5	2	0.4	6	4.5	
36-47	4	1.5	10	3.0	14	4.1	
48-59	5	1.1	8	2.9	13		
Sex							
Male	20	2.1	24	2.8	44	4.9	p=0.993
Female	8	1.0	24	3.9	32	4.9	
Residence							
Urban	14	1.9	14	2.9	28	4.8	p=0.881
Rural	14	1.3	34	3.7	48	5.0	
Region							
Baku	0	--	4	3.7	4	3.7	
Absheron	3	1.6	2	0.8	5	2.5	
Aran	4	1.6	8	3.2	12	4.8	
Dagliq Shirvan	4	2.5	6	4.1	10	6.5	
Ganja-Gazakh	5	3.6	6	4.4	11	8.0	p=0.582
Quba-Hachmaz	5	2.6	3	1.4	8	4.0	
Lenkeran	3	1.6	10	4.6	13	6.2	
Sheki-Zaqatala	3	2.3	5	3.7	8	6.0	
Yukhari Karabakh	1	0.5	4	2.1	5	2.6	
Mother's Education							
Basic secondary or less	2	0.7	12	4.4	14	5.1	
Some or completed secondary	16	2.6	13	2.4	29	5.0	p=0.176
Higher	3	0.8	3	1.2	6	2.0	
Wealth Quintile							
Lowest	7	2.4	15	5.8	22	8.2	
Second	7	2.3	6	2.8	13	5.1	
Middle	4	2.0	14	6.5	18	8.5	p<0.05
Fourth	5	1.2	6	1.1	11	2.3	
Highest	4	0.8	7	2.2	11	3.0	
TOTAL	28	1.6	48	3.3	76	4.9	--

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] Severe underweight represents children who are below -3 standard deviations (SD; z-score) from the WHO Child Growth Standards population median
[c] Moderate underweight includes children who are equal to or above -3 standard deviations (SD) and below-2 SD from the WHO Child Growth Standards population median
[d] Any underweight includes both severely and moderately underweight children
[e] Chi-square p-value <0.05 indicates that the variation in the values of the subgroup are significantly different from all other subgroups. Chi-square results are based on any underweight

5.2.6. Anaemia, iron deficiency, and iron deficiency anaemia

Haemoglobin concentration was measured in 1,111 (78.5%) of the 1,415 children 6-59 months of age. Of these children, about one-quarter had anaemia (Table 14); therefore, anaemia represents a moderate public health problem according to WHO criteria. Overall, 0.5% of children had severe anaemia, 7.7% of children had moderate anaemia, and 16.1% of children had mild anaemia. The prevalence of anaemia is highest among children 6-11 months of age (39.5%) and lowest among children 48-59 months of age (18.4%), with a clear trend of diminishing anaemia prevalence with increasing age ($p<0.001$). In addition, boys had a higher prevalence of anaemia than girls.

Iron deficiency was observed in 15% of sampled children, and significant differences in prevalence of iron deficiency were seen across age groups and regions. Children 12-23 months had markedly higher prevalence of iron deficiency than other age groups, and the prevalence of iron deficiency is much higher in children in Guba-Khachmaz and Daghligh Shirvan than other regions.

Iron deficiency anaemia (IDA), defined as concurrent anaemia and iron deficiency, was observed in 6.5% of all surveyed children, with significant differences observed across age groups, regions, and by maternal education. Similar to iron deficiency, the highest IDA prevalence was observed in children 12-23 months and children from Guba-Khachmaz and Daghligh Shirvan regions. IDA prevalence is also higher among mothers with low educational attainment. Notably, only 28.0% of children with anaemia also had iron deficiency. Figure 5 illustrates the relatively small overlap of anaemia and iron deficiency in children, and Figure 6 shows the variation in anaemia, iron deficiency, and IDA by residence and region. Figure 7 shows that the distribution of haemoglobin values of children are normally distributed.

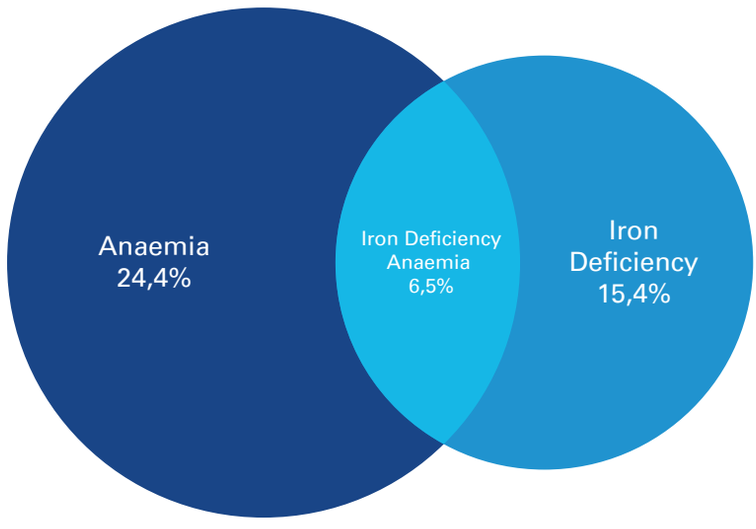


Figure 5. Venn diagram of anaemia, iron deficiency, and IDA in children 6-59 months

Table 14: Anaemia, iron deficiency, and iron deficiency anaemia in children (6-59 months), Azerbaijan 2013

Characteristic	n	Anaemia % [a, b]	(95% CI) [c]	Chi-Square p-value [d]	n	ID % [a, e]	(95% CI) [c]	Chi-Square p-value [d]	n	IDA % [a, f]	(95% CI) [c]	Chi-Square p-value [d]
Age group (in months)												
6-11	34	39.5	(28.5, 51.6)		9	14.4	(6.3, 29.5)		4	6.0	(1.9, 17.5)	
12-23	78	33.4	(26.3, 41.4)		68	27.0	(20.4, 34.7)		45	15.6	(11.1, 21.5)	
24-35	62	23.8	(17.6, 31.4)	p<0.001	50	15.2	(10.6, 21.4)	p<0.001	30	7.8	(5.1, 11.7)	p<0.001
36-47	59	20.0	(14.7, 26.7)		38	14.1	(9.2, 21.0)		14	4.7	(2.3, 9.2)	
48-59	44	18.4	(13.4, 24.8)		20	7.3	(4.1, 12.8)		2	1.0	(0.2, 3.9)	
Sex												
Male	170	27.8%	(23.0, 33.2)	P<0.05	117	15.8	(12.7, 19.4)	p=0.569	59	7.3	(5.4, 9.8)	p=0.252
Female	107	20.1%	(16.4, 24.3)		68	14.1	(10.1, 19.3)		36	5.6	(3.8, 8.2)	
Residence												
Urban	92	21.1	(16.5, 26.6)	p=0.077	61	15.8	(11.6, 21.1)	p=0.644	29	5.6	(3.6, 8.8)	p=0.349
Rural	185	27.1	(23.1, 31.6)		124	14.5	(11.9, 17.6)		66	7.3	(5.4, 9.6)	
Region												
Baku	7	14.1	(6.6, 27.7)		7	13.6	(6.7, 25.8)		0	--	--	
Absheron	19	20.7	(11.2, 35.0)		14	16.9	(8.9, 29.6)		4	4.9	(1.9, 12.5)	
Aran	57	30.1	(23.4, 37.9)		30	14.2	(9.4, 20.8)		17	7.4	(4.3, 12.2)	
Daghligh Shirvan	34	29.8	(21.0, 40.5)		27	24.8	(17.8, 33.4)		16	14.1	(8.3, 23.0)	
Ganja-Gazakh	24	20.9	(15.2, 28.1)	p=0.131	12	11.6	(6.1, 20.9)	p<0.05	7	6.0	(2.6, 13.3)	p<0.001
Guba-Khachmaz	28	25.6	(16.2, 37.8)		38	30.1	(22.4, 39.2)		18	15.5	(9.3, 24.6)	
Lankaran	39	26.1	(18.0, 36.1)		17	10.8	(7.2, 16.0)		6	3.8	(1.6, 9.0)	
Sheki-Zaqatala	38	29.4	(20.7, 40.0)		20	15.4	(10.0, 22.9)		15	11.4	(6.6, 19.0)	
Yukhari Garabakh	31	20.8	(14.4, 29.3)		20	13.2	(8.9, 19.1)		12	8.0	(4.7, 13.3)	
Mother's Education												
Basic secondary or less	77	30.8	(24.6, 37.9)		54	19.1	(14.7, 24.5)		32	9.7	(6.6, 14.1)	
Some or completed sec.	96	26.1	(20.9, 32.1)	p=0.068	63	16.7	(12.5, 22.1)	p=0.147	31	6.5	(4.4, 9.4)	p<0.01
Higher	37	18.9	(12.6, 27.5)		19	10.9	(6.3, 18.2)		6	2.4	(1.0, 5.8)	
Wealth Quintile												
Lowest	55	30.9	(23.2, 39.9)		41	19.2	(13.5, 26.6)		21	9.9	(5.7, 16.7)	
Second	53	24.0	(17.6, 31.8)		41	16.2	(10.8, 23.6)		22	7.6	(4.5, 12.5)	
Middle	55	23.4	(17.3, 30.8)	p=0.387	39	14.6	(9.9, 20.9)	p=0.561	21	7.0	4.2, 11.5)	p=0.215
Fourth	61	25.4	(19.2, 32.8)		31	11.8	(8.0, 17.1)		17	6.4	(3.5, 11.4)	
Highest	51	20.0	(13.9, 28.0)		33	15.5	(9.9, 23.2)		14	3.5	(1.8, 6.5)	
TOTAL	275	24.2	(20.9, 27.8)		185	15.0	(12.5, 17.9)		95	6.5	(5.1, 8.4)	

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.
[a] Percentages weighted for non-response and survey design.
[b] Anaemia defined as haemoglobin < 110 g/L adjusted for altitude.
[c] CI=confidence interval, adjusted for cluster sampling design.
[d] Chi-square p-value <0.05 indicates that the variation in the values of the subgroup are significantly different from all other subgroups
[e] ID= Iron deficiency defined as plasma ferritin < 12 µg/l.
[f] IDA= Iron deficiency anaemia, defined as low haemoglobin (< 110 g/L) with low plasma ferritin (< 12.0 µg/L).

Figure 6. Anaemia, iron deficiency, and IDA in children 6-59 month, by residence and region

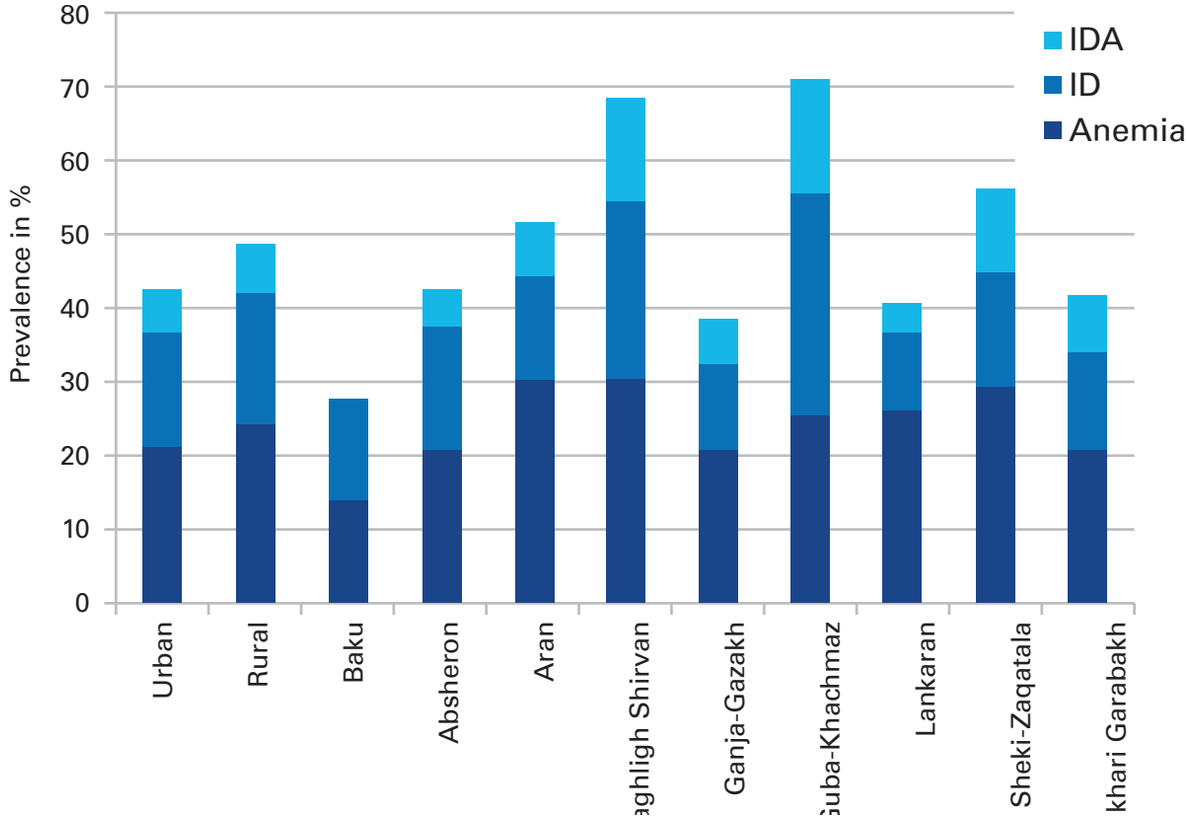
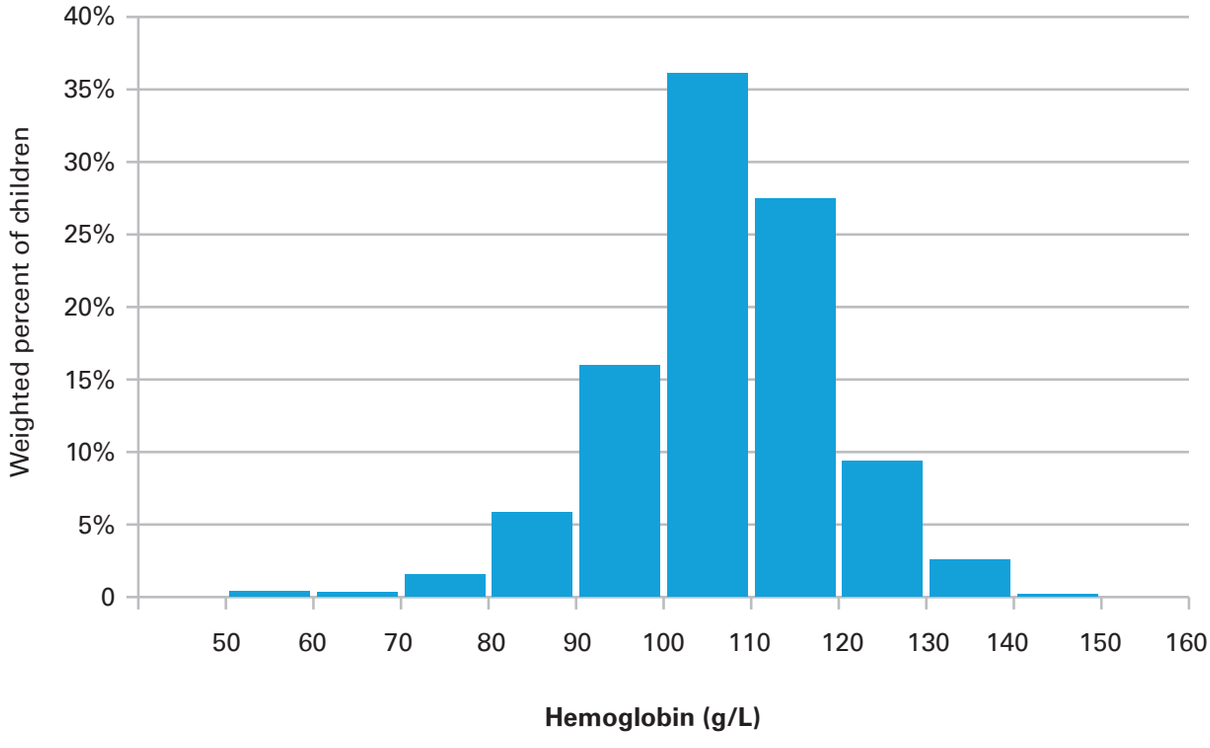


Figure 7. Distribution of haemoglobin (g/L) in children 6-59 months



5.2.7. Vitamin A deficiency

Of the 1,075 children with RBP results, only 8.0% (n=60) were vitamin A deficient (Table 15), indicating a mild public health problem in Azerbaijani children according to WHO classifications [30]. While children 6-11 months have markedly higher prevalence of vitamin A deficiency, the difference is not statistically significant compared to other age groups. Children in urban areas showed a significantly higher prevalence of vitamin A deficiency than children from rural areas (Figure 8). Although Baku (where all clusters are classified as urban) has a higher estimated prevalence than other regions, the difference is not significant. Figure 9 shows that the distribution of plasma RBP is essentially normal, with a median of approximately 1 umol/L.

Figure 8. Vitamin A deficiency in children 6-59 months, by residence

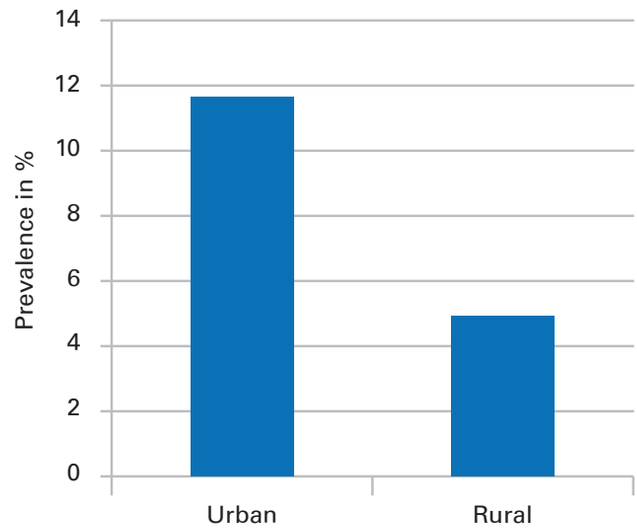


Figure 9. Distribution of plasma retinol binding protein in children 6-59 months, by residence

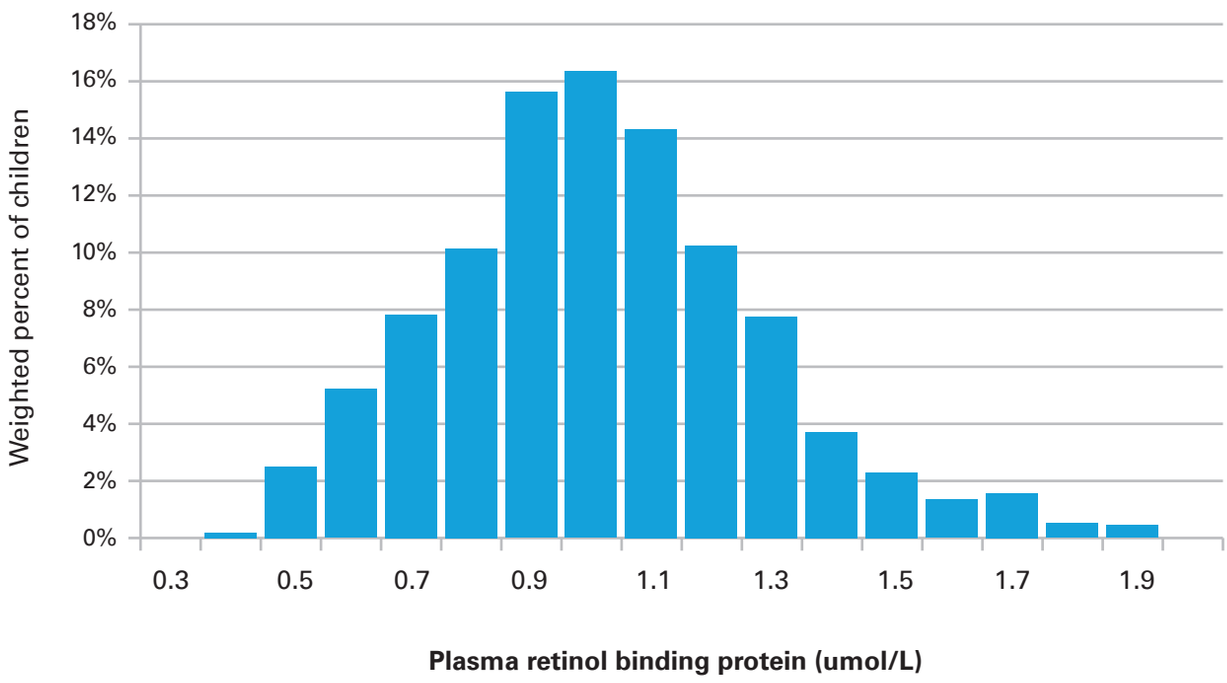


Table 15: Vitamin A deficiency in children (6 - 59 months), Azerbaijan 2013

Characteristic	n	VAD % [a, b]	(95% CI) [c]	Chi-Square p-value [d]
Age Group (in months)				
6-11	8	19.5	(9.7, 35.4)	
12-23	15	9.9	(5.6, 16.9)	
24-35	15	8.8	(4.2, 17.4)	p=0.081
36-47	13	7.4	(3.1, 16.6)	
48-59	9	3.4	(1.5, 7.8)	
Sex				
Male	37	8.5	(5.6, 12.9)	p=0.664
Female	23	7.3	(4.2, 12.5)	
Residence				
Urban	31	11.7	(7.5, 17.7)	p<0.01
Rural	29	5.0	(3.3, 7.7)	
Region				
Baku	4	13.2	(5.5, 28.4)	
Absheron	7	9.3	(4.1, 20.0)	
Aran	14	9.5	(5.2, 16.8)	
Dagliq Shirvan	1	1.0	(0.1, 6.8)	
Ganja-Gazakh	10	9.1	(4.8, 16.4)	p=0.170
Guba-Hachmaz	8	6.1	(2.6, 13.9)	
Lenkeran	4	3.2	(1.4, 7.2)	
Sheki-Zaqatala	6	5.3	(2.2, 12.2)	
Yukhari Garabakh	6	3.6	(1.6, 8.0)	
Mother's Education				
Basic secondary or less	11	4.7	(2.3, 9.3)	
Some or completed secondary	23	8.0	(4.7, 13.2)	p=0.308
Higher	12	11.1	(4.7, 23.8)	
Wealth Quintile				
Lowest	12	10.0	(5.1, 18.7)	
Second	8	3.7	(1.8, 7.7)	
Middle	11	7.7	(3.4, 16.6)	p=0.419
Fourth	18	11.3	(6.5, 18.9)	
Highest	11	7.4	(2.9, 17.7)	
TOTAL	60	8.0	(5.7, 11.1)	

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] Vitamin A Deficiency (VAD) defined as retinol binding protein <0.70 µmol/L.
[c] CI=confidence interval, adjusted for cluster sampling design.
[d] Chi-square p-value <0.05 indicates that the variation in the values of the subgroup are significantly different from all other subgroups

5.2.8. Zinc deficiency

Plasma zinc concentration was assessed on 1,040 children and approximately 10% of children (n=122) were observed to be zinc deficient (see Table 16). Statistically significant differences in zinc deficiency were observed across regions with the highest proportions of zinc-deficient children residing in Lenkeran, Ganja-Gazakh, and Dagliq Shirvan; and the lowest proportions in Baku and Quba-Hachmaz (see Figure 10). No statistically significant difference in zinc deficiency was observed by age, sex, urban/rural residence, mother's education, or household wealth quintile. Nonetheless, there is a suggestion of a higher prevalence of zinc deficiency in those children with better educated mothers.

Figure 10. Prevalence of zinc deficiency in children 6-59 months, by residence and region

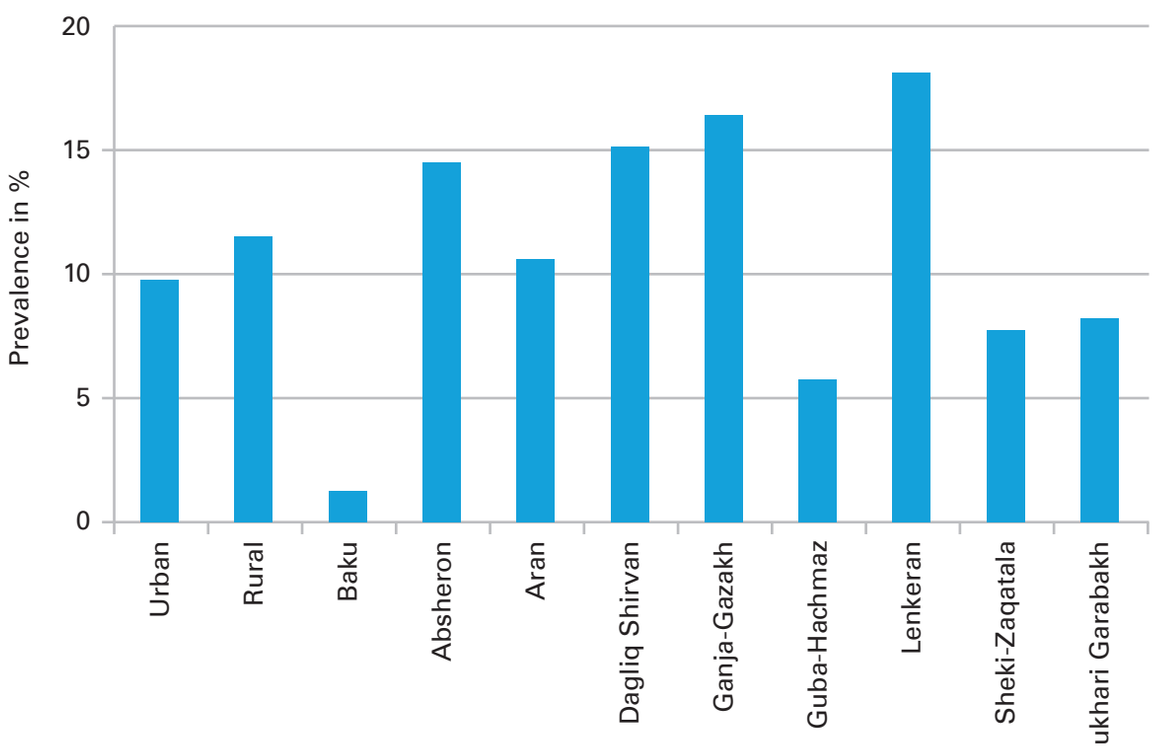


Table 16: Zinc Deficiency in children (6 - 59 months), Azerbaijan 2013

Characteristic	n	ZD% [a, b]	(95% CI) [c]	Chi-Square p-value [d]
Age Group (in months)				
6-11	7	6.4	(2.9, 13.3)	
12-23	31	15.5	(10.5, 22.4)	
24-35	25	10.0	(6.5, 15.2)	p=0.233
36-47	32	10.2	(7.0, 14.5)	
48-59	27	10.0	(6.6, 14.7)	
Sex				
Male	64	10.6	(8.1, 13.8)	p=0.957
Female	58	10.7	(8.1, 14.0)	
Residence				
Urban	44	9.7	(6.9, 13.4)	p=0.422
Rural	78	11.5	(8.9, 14.7)	
Region				
Baku	1	1.2	(0.2, 8.4)	
Absheron	12	14.5	(7.9, 25.1)	
Aran	18	10.6	(6.5, 16.9)	
Dagliq Shirvan	17	15.1	(7.8, 27.2)	
Ganja-Gazakh	17	16.4	(11.1, 23.4)	p<0.001
Quba-Hachmaz	7	5.7	(2.1, 14.4)	
Lenkeran	27	18.1	(12.9, 24.7)	
Sheki-Zaqatala	10	7.7	(4.2, 13.7)	
Yukhari Karabakh	13	8.2	(4.0, 16.2)	
Mother's Education				
Basic secondary or less	22	6.4	(3.9, 10.5)	
Some or completed secondary	45	11.8	(8.7, 15.8)	p=0.069
Higher	26	14.5	(8.8, 22.9)	
Wealth Quintile				
Lowest	18	9.5	(5.4, 16.1)	
Second	28	13.0	(8.3, 19.7)	
Middle	23	9.7	(6.1, 15.2)	p=0.067
Fourth	33	15.0	(9.9, 21.9)	
Highest	20	6.0	(3.6, 9.8)	
TOTAL	122	10.7	(8.7, 13.0)	

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] Zinc Deficiency (ZD) defined as plasms zinc concentration <65 µg/dL (morning: non-fasting) or <57 µg/dL (afternoon: non-fasting).
[c] CI=confidence interval, adjusted for cluster sampling design.
[d] Chi-square p-value <0.05 indicates that the variation in the values of the subgroup are significantly different from all other subgroups

5.3. Non-Pregnant Women of Reproductive Age

5.3.1. Response rates and characteristics of respondents

From households successfully interviewed and where women were enrolled, complete data collection (i.e. completed questionnaire, anthropometric measurements, and blood draw) was carried out for 3,081 non-pregnant women, or 91.7% of eligible non-pregnant women. Of these women, 0.9% refused to participate in the survey. Another 2.4% of the eligible women were not at home at the time of the study, 2.5% responded to questions and accepted to be measured but refused to provide a blood sample, and 1.7% responded to questions, but refused to provide either anthropometric measurement or a blood sample. About 0.8% of women did not participate for other reasons.

Table 17 compares non-pregnant women sampled by the AzNS 2013 and the 2009 Census. The distribution of the women sampled was quite similar to the population observed in 2009, with a slightly lower percentage of women 15-19 years of age, and a slightly higher percentage of non-pregnant women 25-29 years of age. Further, in the AzNS sample, there was a smaller proportion of urban women than in the 2009 Census.

Table 17: Description of sampled non-pregnant women (15 - 49 years), Azerbaijan 2013

	Survey sample			Azerbaijan population
Characteristic	n	% [a]	(95% CI) [b]	% [c]
Age Group (in years)				
15-19	437	14.1	(12.4, 16.1)	17.0
20-24	561	18.6	(16.8, 20.6)	17.4
25-29	505	17.5	(15.9, 19.2)	14.9
30-34	395	12.7	(11.3, 14.2)	12.4
35-39	354	11.1	(9.9, 12.4)	12.2
40-44	394	12.6	(11.2, 14.2)	13.0
45-49	435	13.4	(12.0, 14.9)	13.1
Residence				
Urban	1,181	49.0	(43.1, 55.0)	54.3
Rural	1,899	51.0	(45.0, 56.9)	45.7
Region				
Baku	254	23.1	(20.1, 26.3)	22.9
Absheron [d]	331	7.7	(6.1, 9.8)	5.8
Aran d	507	25.5	(22.3, 29.0)	20.1
Dagliq Shirvan	287	2.8	(2.5, 3.2)	3.2
Ganja-Gazakh	315	12.7	(11.4, 14.2)	13.2
Quba-Hachmaz	347	5.7	(5.2, 6.4)	5.4
Lenkeran	377	11.8	(10.3, 13.4)	9.2
Sheki-Zaqatala	350	6.6	(5.9, 7.4)	6.4
Yukhari Karabakh [d]	313	4.1	(3.7, 4.6)	6.9
Kalbajar-Lachin	--	--	--	2.5
Nakhchivan	--	--	--	4.4
Woman's Education				
Basic secondary or less	869	25.8	(22.6, 29.1)	--
Some or completed sec.	1,637	51.9	(48.9, 54.8)	--
Higher	573	22.4	(19.5, 25.5)	--
Wealth Quintile				
Lowest	528	12.9	(10.8, 15.3)	--
Second	597	17.0	(14.7, 19.6)	--
Middle	632	18.9	(16.6, 21.4)	--
Fourth	644	23.4	(20.6, 26.4)	--
Highest	666	27.8	(24.1, 31.7)	--
TOTAL	3,081	100.0	--	--

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.
[c] Population estimates from the 2009 Azerbaijan Population and Housing Census include all women, and not exclusively non-pregnant women.
[d] Select rayons were not included in the sampling universe for certain regions, and are thus excluded from the census population column. These include: a) Absheron: Khyzi rayon, b) Aran: Hajigabul rayon, c) Yukhari Karabakh: Jabrail, khojaly, Shusha, Khojavand, and Khandendi town rayons.

5.3.2. Antenatal care and delivery

Of all women interviewed, 22.4% reported having given birth in the past 2 years. Adherence to "adequate" ante-natal care was high (see Table 43 and Table 44 in Appendix 6); more than 95% of all these women received antenatal care, with nearly all of these women seeing a doctor and one-quarter of women seeing both a doctor and a nurse or midwife. Of women receiving antenatal care, more than 75% went to their care provider more than four times. As part of these antenatal care visits, about 95% of women had either blood pressure measurement, urine analysis, or blood analysis, or a combination of these tests.

About 95% of women reported giving birth with the assistance of a doctor, and almost 90% delivered in a government health facility. Caesarian section was used in more than 25% of births. The government has taken a number of actions aimed at reducing the rate of cesarean section (C-section) deliveries. As part of the effort to prevent procedures performed with no medical indication, a number of addition was made by the special decree of the President (2013) to the Code of Administrative Offences and the "Law on Protection of Population's Health".

On November 20th 2013 the Collegium of the Ministry of Health of Azerbaijan Republic made a decision to approve the revised "Medical bases for caesarean sections".

More than 95% reported that the newborn was weighed at birth; about 8% of these babies had low birthweight.

5.3.3. Knowledge and practices related to fortified flour and salt

An assessment of individuals' understanding and use of fortified foods is presented in Table 18.

As could be expected, the awareness and use of iodized salt was relatively high, as was the knowledge of potential health benefits. More than 85% of women had heard of iodized salt, and 90% of these women reported using iodized salt "always" or "usually". While 51.5% gave the general statement that iodized salt "improves health status", many women provided the specific responses, "prevents iodine deficiency" and "treats and/or prevents goiter", respectively.

In contrast, few respondents reported having heard about fortified flour or always, usually, or sometimes using fortified flour. Although the majority of respondents who had heard of fortified flour could report a health benefit, most only gave the general answer "improve health."

Table 18: Distribution of knowledge about and use of fortified foods in women (15 - 49 years), Azerbaijan 2013

Characteristic	n	% [a]	(95 CI) [b]
Have heard of iodized salt			
Yes	2,647	86.2	(83.6, 88.4)
No	363	11.5	(9.3, 14.0)
Don't know	71	2.4	(1.7, 3.2)
Use iodized salt			
Always	1,872	71.1	(67.5, 74.5)
Usually	467	19.4	(16.4, 22.7)
Sometimes	95	2.9	(2.3, 3.8)
Never	10	0.3	(0.1, 0.8)
Don't know	198	6.3	(5.1, 7.7)
Reported benefits of iodized salt			
Prevents iodine deficiency	932	36.4	(32.9, 40.1)
Improves intelligence	44	2.1	(1.3, 3.6)
Prevents vitamin deficiency	249	9.7	(7.9, 11.9)
Treats and/or prevents goiter	277	11.9	(9.8, 14.4)
Improves health status	1,361	51.5	(47.9, 55.0)
Other	72	3.4	(2.5, 4.6)
Don't know	457	18.2	(15.7, 20.9)
Have heard of fortified flour			
Yes	117	4.8	(3.6, 6.4)
No	2,924	94.3	(92.7, 95.6)
Don't know	39	0.8	(0.5, 1.5)
Use fortified flour [c]			
Always / Usually / Sometimes	7	5.0	(1.9, 12.6)
Never	97	84.3	(72.0, 91.9)
Don't know	12	10.6	(4.4, 23.3)
Reported benefits of fortified flour			
Improves health	64	62.8	(51.3, 73.0)
Prevents anaemia	7	7.9	(2.5, 22.1)
Prevents iron deficiency	10	8.9	(4.2, 17.6)
Other	9	7.0	(2.5, 17.7)
Don't know	39	31.3	(22.0, 42.4)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.
[c] Use of fortified flour only asked of women who had heard of fortified flour previously

5.3.4. Consumption of vitamins and supplements

Separate questions were asked about consumption of iron, folic acid, vitamin A, and multi-vitamin supplements in the past 6 months. About 4%, 3% and 2% of all women reported taking iron, folic acid, and vitamin A supplements in the past 6 months, respectively (Table 45, Appendix 6). Approximately 7% of women reported taking multi-vitamin supplements in the past 6 months; about 80% of those women reported their multi-vitamins contained vitamin B12. About 60% reported taking multi-vitamins with vitamin A and/or vitamin D, and about 55% and 50% reporting taking multi-vitamins containing iron or folic acid, respectively.

5.3.5. Anthropometry

Very few women have severe or moderate undernutrition, and less than 5% are "at risk" of under nutrition (Table 19). However, less than one-half of women had a BMI within the normal range; nearly one-third and one-quarter of women were overweight and obese, respectively (Figure 11). Figure 12 illustrates the change in weight status by age group and shows that the prevalence of overweight and obesity increases with age. Overweight prevalence shows a one-time decrease after 34 years of age, likely due to women moving from the overweight to obesity.

Figure 11. Prevalence of underweight, normal weight, and overweight and obesity in non-pregnant women

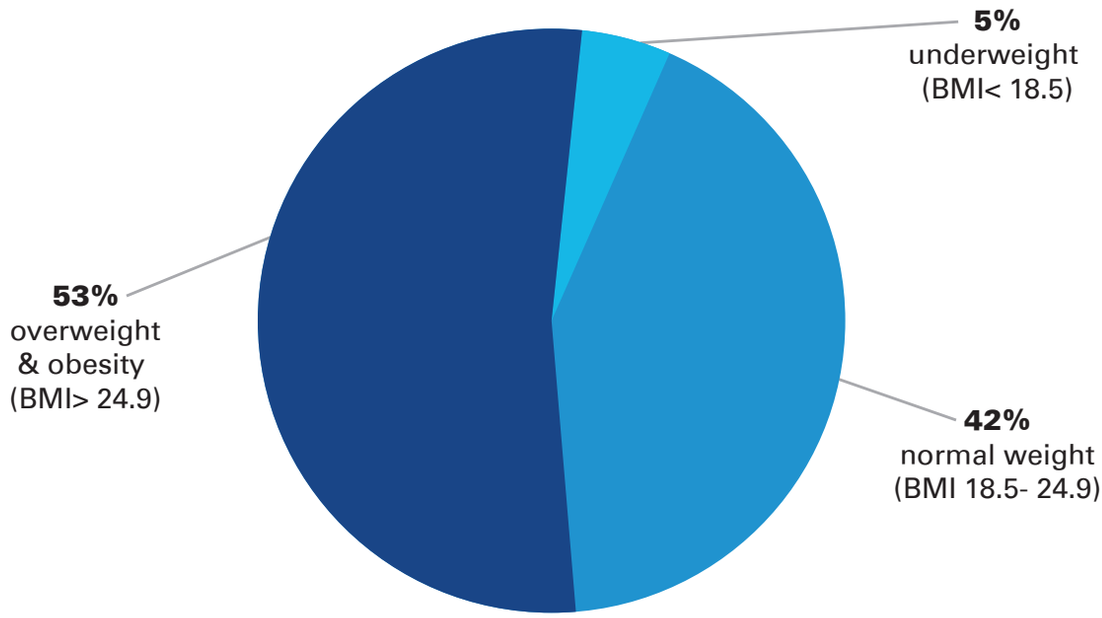


Figure 12. Prevalence of normal weight, overweight, and obesity in non-pregnant women, by age group

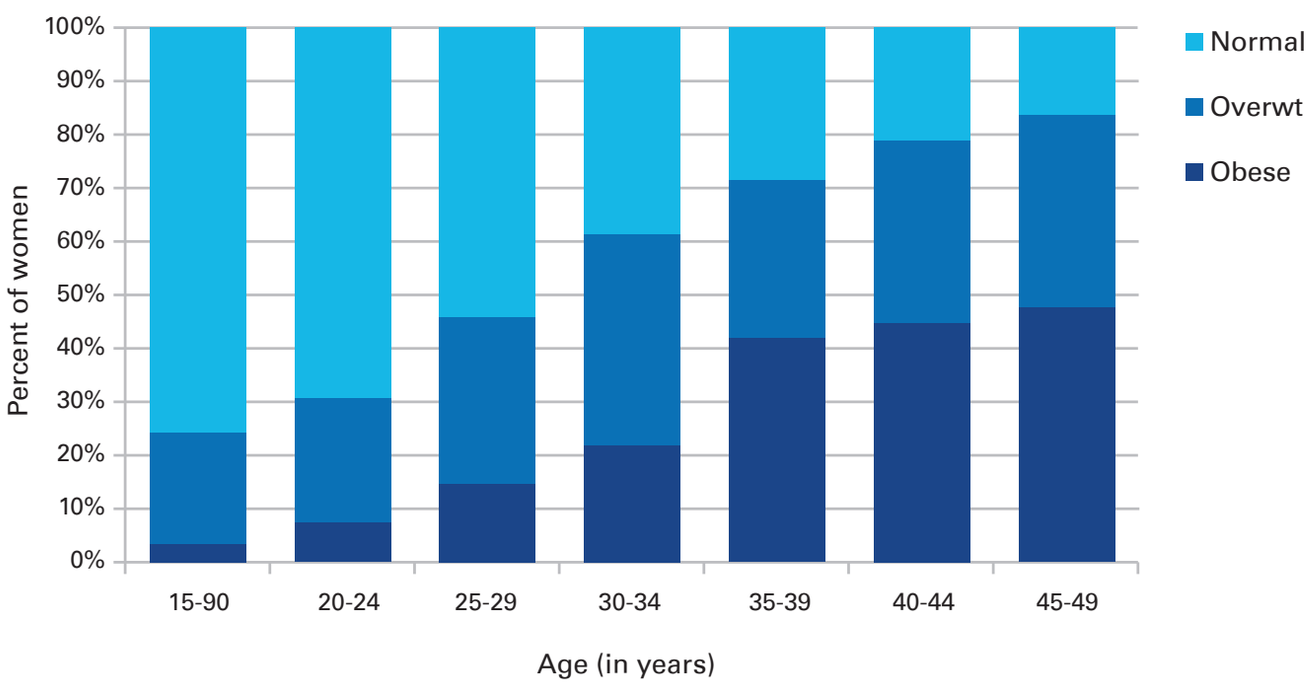


Table 19: Mean Body Mass Index (BMI) and percentage of specific BMI levels in non-pregnant women (15 - 49 years), Azerbaijan 2013

		Severe chronic energy def. (BMI: <16) [a]			Mod. chronic energy def. (BMI:16.0-16.9) [a]			At risk (BMI: 17.0-18.4) [a]			Normal (BMI: 18.5-24.9) [a]			Overweight (BMI: 25.0-29.9) [a]			Obese (BMI: ≥30.0) [a]		
Characteristic	Mean BMI	n	% [a]	95 CI [b]	n	% [a]	95 CI [b]	n	% [a]	95 CI [b]	n	% [a]	95 CI [b]	n	% [a]	95 CI [b]	n	% [a]	95 CI [b]
Age Group (in years)																			
15-19	22.3	5	1.1	(0.4, 3.3)	11	2.9	(1.3, 6.2)	32	9.5	(5.8, 15.1)	278	65.3	(58.9, 71.1)	65	18.1	(13.8, 23.3)	13	3.1	(1.5, 6.4)
20-24	23.4	1	0.1	(0.0, 0.9)	4	0.5	(0.2, 1.5)	33	7.4	(5.0, 10.7)	309	63.7	(58.0, 69.0)	95	21.3	(17.1, 26.1)	35	7.0	(4.7, 10.4)
25-29	24.8	1	0.1	(0.0, 0.6)	2	0.6	(0.1, 3.1)	20	4.2	(2.5, 6.9)	236	51.5	(45.5, 57.5)	135	29.6	(24.1, 35.7)	50	14.1	(10.5, 18.6)
30-34	26.8	0	0	--	3	1.2	(0.3, 4.9)	5	1.7	(0.6, 4.6)	136	37.4	(30.7, 44.7)	144	38.3	(32.4, 44.5)	86	21.4	(16.6, 27.1)
35-39	28.7	1	0.3	(0.0, 2.0)	1	0.1	(0.0, 1.0)	3	0.6	(0.2, 2.2)	88	28.1	(23.4, 33.5)	113	29.5	(24.4, 35.2)	133	41.3	(34.8, 48.1)
40-44	29.7	0	0	--	1	0.2	(0.0, 1.1)	9	1.5	(0.7, 2.9)	95	20.6	(16.2, 25.9)	115	33.5	(27.5, 40.2)	161	44.2	(37.4, 51.3)
45-49	30.2	0	0	--	3	0.3	(0.1, 1.0)	3	1.2	(0.3, 4.1)	75	16.1	(12.4, 20.8)	151	35.0	(29.3, 41.3)	194	47.3	(41.0, 53.7)
Residence																			
Urban	26.4	2	0.2	(0.1, 1.0)	11	1.2	(0.6, 2.4)	43	4.4	(3.2, 6.0)	415	39.8	(35.9, 43.8)	318	29.5	(26.8, 32.3)	276	24.9	(21.6, 28.5)
Rural	26.2	6	0.2	(0.1, 0.5)	14	0.5	(0.3, 0.9)	62	3.6	(2.5, 5.1)	802	44.0	(40.9, 47.2)	500	28.4	(25.8, 31.2)	395	23.2	(20.6, 26.0)
Region																			
Baku	26.4	0	0	--	3	1.3	(0.4, 3.9)	10	4.5	(2.5, 7.7)	91	41.3	(34.7, 48.2)	64	29.1	(24.7, 33.9)	54	23.9	(18.7, 30.0)
Absheron	27.1	0	0	--	1	0.3	(0.0, 2.0)	11	4.5	(2.6, 7.5)	104	36.1	(28.6, 44.4)	89	29.4	(24.8, 34.6)	88	29.6	(23.6, 36.5)
Aran	26.2	1	0.3	(0.0, 1.9)	4	0.7	(0.2, 2.3)	21	4.3	(2.5, 7.3)	198	42.2	(37.1, 47.4)	133	28.8	(24.8, 33.1)	116	23.8	(19.1, 29.2)
Dagliq Shirvan	25.5	1	0.3	(0.0, 1.9)	1	0.4	(0.1, 2.6)	7	2.5	(1.2, 5.4)	140	50.7	(44.6, 56.8)	75	26.7	(22.4, 31.4)	55	19.5	(15.4, 24.4)
Ganja-Gazakh	27.9	1	0.3	(0.0, 2.5)	0	0	--	7	2.2	(1.0, 4.8)	102	34.5	(28.4, 41.1)	92	30.9	(24.4, 38.2)	95	32.1	(27.0, 37.6)
Quba-Hachmaz	25.2	1	0.3	(0.0, 2.3)	7	2.1	(1.1, 4.0)	17	5.3	(3.2, 8.8)	152	47.8	(40.7, 54.9)	89	27.0	(21.5, 33.3)	58	17.5	(13.8, 22.0)
Lenkeran	25.3	1	0.3	(0.0, 1.9)	3	0.9	(0.3, 2.5)	16	4.7	(2.9, 7.3)	167	48.4	(41.3, 55.6)	95	27.0	(22.9, 31.6)	68	18.7	(14.2, 24.4)
Sheki-Zaqatala	25.6	1	0.3	(0.0, 2.2)	2	0.6	(0.1, 4.4)	11	3.5	(2.0, 5.9)	148	45.9	(39.4, 52.6)	98	30.7	(24.7, 37.5)	61	19.0	(15.4, 23.2)
Yukhari Karabakh	26.7	2	0.7	(0.1, 4.7)	4	1.5	(0.6, 3.8)	5	1.8	(0.8, 3.9)	115	39.3	(34.1, 44.8)	83	28.7	(23.9, 34.0)	77	28.0	(22.6, 34.1)
Woman's Education																			
Basic sec. or less	25.8	4	0.5	(0.1, 1.6)	10	0.9	(0.4, 2.0)	39	5.4	(3.6, 8.0)	377	46.1	(41.6, 50.7)	219	25.4	(21.7, 29.4)	166	21.7	(18.5, 25.3)
Some or com. sec.	26.6	3	0.1	(0.0, 0.6)	12	0.9	(0.4, 1.8)	49	3.3	(2.3, 4.7)	639	40.9	(37.4, 44.5)	435	29.1	(26.3, 32.2)	380	25.7	(22.8, 28.8)
Higher	26.3	1	0.1	(0.0, 0.7)	3	0.7	(0.1, 3.0)	17	3.9	(2.2, 6.7)	201	39.6	(35.3, 44.1)	163	32.9	(28.1, 37.9)	125	22.9	(17.9, 28.8)
Wealth Quintile																			
Lowest	25.1	0	0	--	7	1.4	(0.6, 3.5)	28	5.1	(3.1, 8.3)	235	48.2	(42.9, 53.6)	143	28.3	(24.4, 32.5)	88	17.0	(13.5, 21.3)
Second	25.9	1	0.2	(0.0, 1.3)	3	0.4	(0.1, 1.4)	20	3.9	(2.4, 6.4)	258	45.6	(40.2, 51.1)	165	28.8	(24.2, 33.9)	117	21.1	(17.6, 25.0)
Middle	26.1	2	0.5	(0.1, 2.3)	4	1.1	(0.3, 3.8)	19	3.8	(2.3, 6.1)	269	44.5	(39.7, 49.5)	167	28.0	(23.9, 32.5)	124	22.1	(18.3, 26.3)
Fourth	26.9	3	0.2	(0.0, 0.8)	3	0.5	(0.1, 1.9)	16	3.3	(1.6, 6.6)	230	38.5	(33.9, 43.3)	180	30.8	(26.5, 35.5)	157	26.7	(23.1, 30.7)
Highest	26.8	2	0.3	(0.1, 1.1)	8	0.9	(0.3, 2.5)	21	4.2	(2.6, 6.8)	221	38.0	(33.2, 42.9)	157	28.0	(23.6, 32.9)	183	28.7	(24.3, 33.6)
TOTAL	26.3	8	0.2	(0.1, 0.5)	25	0.8	(0.5, 1.4)	105	4.0	(3.1, 5.0)	1,217	42.0	(39.5, 44.5)	818	28.9	(27.0, 30.9)	672	24.1	(22.0, 26.3)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.

[b] CI=confidence interval, adjusted for cluster sampling design.

5.3.6. Anaemia, iron deficiency, and iron deficiency anaemia

Of the 3,081 non-pregnant women who participated in the AzNS 2013, 87.8% (n=2,706) provided blood samples for the analysis of haemoglobin and micronutrients. Of these women, 1.1% had severe anaemia, 18.1% had moderate anaemia, 19.0% had mild anaemia, for an overall prevalence of anaemia of 38.2% (95% CI: 35.7, 40.7) (Table 20).The prevalence of anaemia was statistically significantly different by age, residence, and region. Specifically, anaemia was highest in women 20 – 24 years, women in urban areas, and women residing in Baku.

Iron deficiency is observed in one-third of non-pregnant women, and IDA affects nearly one out of four. Figure 13 presents a venn diagram illustrating the overlap of anaemia and iron deficiency in non-pregnant women. Notably, 62.3% of women with anaemia also had iron deficiency.

Similar to anaemia, statistically significant differences in prevalence of iron deficiency and IDA were observed by age, residence, and region, with significantly higher prevalence for women 20-24 years and women in urban areas. The prevalence of iron deficiency is highest in Daghligh Shirvan and Guba-Khachmaz regions. While Guba-Khachmaz region has the highest prevalence of IDA, in seven of nine regions the prevalence of IDA is greater than 20%.

As previously discussed, prior to calculating the prevalence of iron deficiency and vitamin A deficiency, ferritin and RBP results were adjusted for inflammation status. Overall, 64.1% (95% CI 61.6, 66.6) of women had no inflammation, 3.1% (95% CI 2.3, 4.2) showed acute inflammation (elevated CRP only), 10.2% (95% CI 8.7, 11.9) showed convalescence (elevated CRP and AGP), and 22.6% (95% CI 20.4, 24.9) showed late convalescence (elevated AGP only).

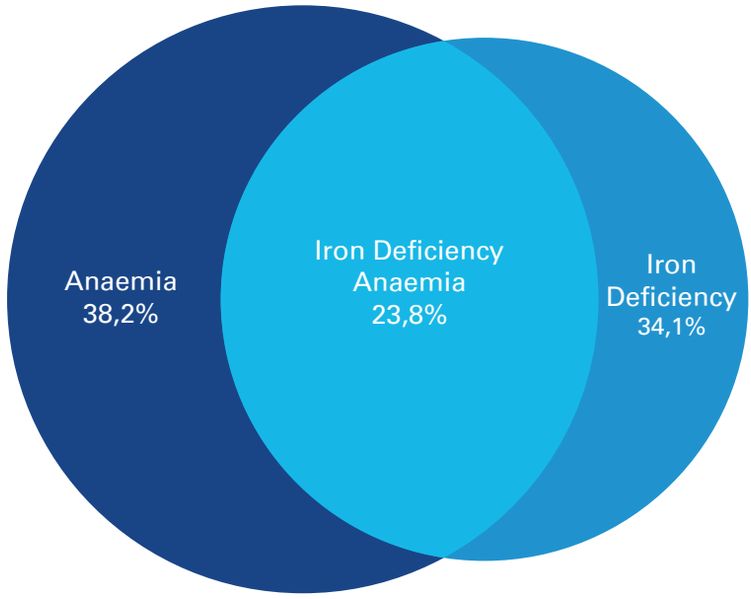


Figure 13. Venn diagram of anaemia, iron deficiency, and IDA in non-pregnant women

Table 20: Distribution of anaemia, iron deficiency, and iron deficiency anaemia in non-pregnant women (15 - 49 years), Azerbaijan 2013

Characteristic	n	Anaemia % [a, b]	(95% CI) [c]	Chi-Square p-value [d]	n	ID % [a, e]	(95% CI) [c]	Chi-Square p-value [d]	n	IDA % [a, f]	(95% CI) [c]	Chi-Square p-value [d]
Age Group (in years)												
15-19	130	36.5	(30.0, 43.4)		115	29.2	(23.9, 35.2)		71	19.7	(15.1, 25.2)	
20-24	184	46.1	(40.2, 52.1)		171	41.5	(35.8, 47.4)		118	31.1	(25.7, 37.1)	
25-29	171	41.7	(36.4, 47.3)		155	37.0	(30.8, 43.7)		107	25.4	(20.5, 31.0)	
30-34	130	36.8	(31.2, 42.8)	p<0.05	131	36.9	(30.7, 43.6)	p<0.05	88	24.1	(18.5, 30.8)	p<0.05
35-39	103	32.3	(26.1, 39.1)		97	28.4	(23.2, 34.2)		57	17.8	(13.7, 22.8)	
40-44	127	35.4	(29.8, 41.4)		127	32.1	(26.3, 38.6)		88	23.7	(18.3, 30.1)	
45-49	146	35.2	(29.9, 40.8)		134	30.8	(25.4, 36.8)		95	22.2	(17.9, 27.2)	
Residence												
Urban	380	42.9	(39.0, 46.9)	p<0.001	362	37.2	(33.1, 41.5)	p<0.05	245	26.8	(23.5, 30.5)	p<0.05
Rural	611	34.3	(31.3, 37.5)		567	31.4	(28.7, 34.2)		379	21.3	(18.8, 24.0)	
Region												
Baku	84	45.7	(39.6, 52.0)		65	35.2	(27.5, 43.7)		48	26.8	(21.2, 33.3)	
Absheron	96	35.1	(29.0, 41.8)		100	38.1	(33.9, 42.5)		64	24.8	(20.8, 29.3)	
Aran	191	43.3	(36.8, 50.0)		164	36.5	(31.3, 42.0)		118	26.9	(21.7, 32.8)	
Daghligh Shirvan	96	35.9	(28.9, 43.6)		114	42.6	(36.2, 49.2)		69	25.8	(19.3, 33.5)	
Ganja-Gazakh	83	28.0	(23.6, 32.8)	p<0.001	71	26.2	(20.8, 32.4)	p<0.05	48	17.8	(13.7, 22.8)	p<0.01
Guba-Khachmaz	119	39.4	(33.3, 45.9)		126	42.0	(37.0, 47.3)		88	29.6	(24.8, 34.9)	
Lankaran	99	29.9	(24.8, 35.4)		94	29.0	(23.5, 35.2)		52	16.3	(12.8, 20.5)	
Shaki-Zaqatala	121	37.8	(32.5, 43.4)		105	33.2	(28.4, 38.3)		75	23.7	(19.3, 28.7)	
Yukhari Garabakh	102	35.5	(28.5, 43.1)		91	32.3	(25.8, 39.5)		62	21.5	(16.2, 27.9)	
Woman Education												
Basic secondary or less	288	38.7	(34.1, 43.4)		269	34.3	(29.7, 39.2)		180	23.7	(19.8, 28.0)	
Some or completed secondary	519	37.3	(33.7, 41.1)	p=0.751	482	32.5	(29.3, 35.8)	p=0.225	320	23.0	(20.1, 26.2)	p=0.546
Higher	183	39.8	(34.1, 45.8)		179	38.2	(32.4, 44.2)		124	26.3	(21.3, 31.9)	
Wealth Quintile												
Lowest	194	40.0	(34.4, 45.7)		177	34.9	(29.0, 41.3)		132	25.7	(20.3, 31.8)	
Second	206	41.7	(35.5, 48.2)		202	37.1	(31.7, 42.9)		124	24.8	(19.9, 30.4)	
Middle	198	34.3	(29.7, 39.3)	p=0.401	173	30.4	(26.1, 35.1)	p=0.391	118	21.2	(17.4, 25.7)	p=0.730
Fourth	195	38.8	(33.4, 44.4)		182	33.0	(28.4, 37.9)		123	23.5	(19.3, 28.4)	
Highest	195	37.5	(33.0, 42.2)		193	35.9	(30.9, 41.2)		125	24.8	(21.0, 28.9)	
TOTAL	991	38.2	(35.7, 40.8)		930	34.1	(31.7, 36.7)		624	23.8	(21.7, 26.1)	

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.

[b] Anaemia defined as haemoglobin < 120 g/L adjusted for altitude.

[c] CI=confidence interval, adjusted for cluster sampling design.

[d] Chi-square p-value <0.05 indicates that the variation in the values of the subgroup are significantly different from all other subgroups

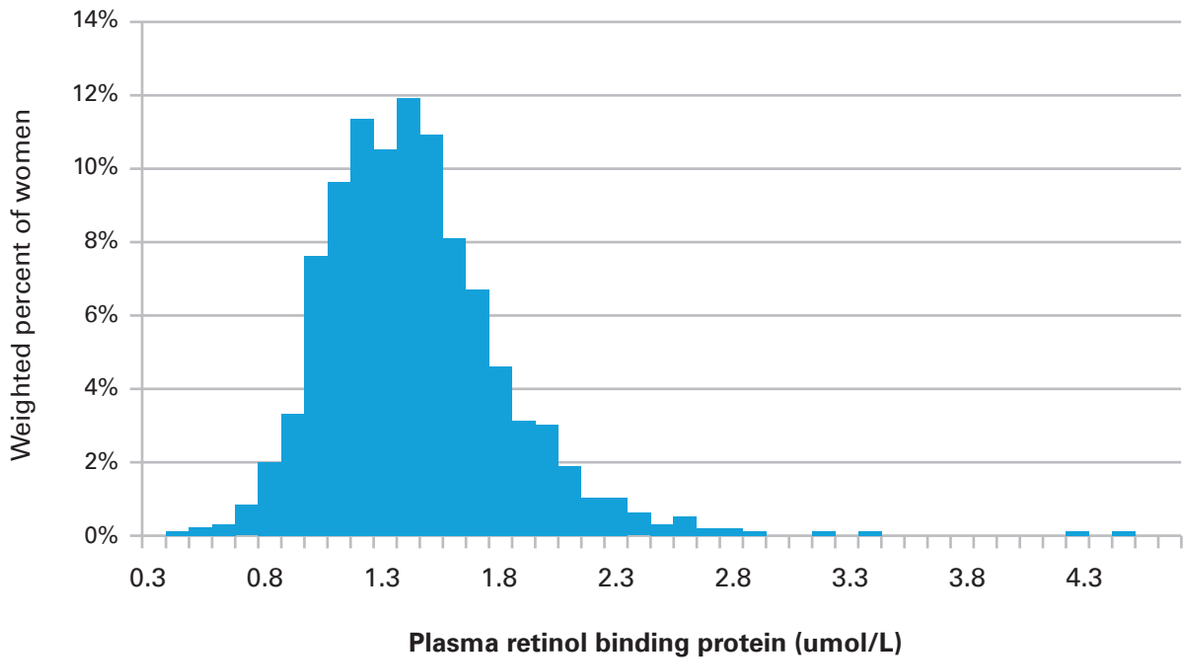
[e] ID= Iron deficiency defined as plasma ferritin < 15.0 µg/l.

[f] IDA= Iron deficiency anaemia, defined as low haemoglobin (< 120 g/L) with low plasma ferritin (< 15.0µg/L).

5.3.7. Vitamin A deficiency

The weighted prevalence of vitamin A deficiency is only 0.6% (95% CI: 0.3, 1.0). Because the prevalence is so low, no analysis of subgroups is justified.Figure 14 presents the distribution of RBP values.

Figure 14. Distribution of plasma retinol binding protein levels in non-pregnant women 15-49 years



5.4. Pregnant Women

5.4.1. Response rates and characteristics of respondents

Of the 3,090 total women that participated in the AzNS 2013, 170 (5.5%) were pregnant at the time of the interview. The vast majority of pregnant women were less than 30 years old (Table 21). The distribution of educational level achieved is similar to that of non-pregnant women.

Table 21: Description of sampled pregnant women, Azerbaijan 2013

	Survey sample		
Characteristic	n	% [a]	(95 CI) [b]
Age Group (in years)			
15-19	22	12.0	(7.6, 18.3)
20-24	78	44.6	(36.1, 53.5)
25-29	51	32.1	(24.8, 40.3)
30-34	11	6.8	(3.3, 13.7)
35-39	7	4.3	(1.7, 10.6)
40-44	0	0	--
45-49	1	0.2	(0.0, 1.4)
Residence			
Urban	62	43.8	(33.5, 54.6)
Rural	108	56.2	(45.4, 66.5)
Woman's Education			
Basic secondary or less	44	24.4	(17.3, 33.3)
Some or completed secondary	88	49.9	(40.8, 59.1)
Higher	38	25.7	(17.1, 36.7)
Wealth Quintile			
Lowest	19	8.0	(4.6, 13.5)
Second	25	14.0	(8.9, 21.3)
Middle	36	18.4	(12.4, 26.2)
Fourth	44	28.5	(20.4, 38.2)
Highest	46	31.2	(22.8, 40.9)
TOTAL	170	--	--

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data. Comparisons of the sample of pregnant women to the 2009 census could not be made as pregnancy status is not collected as part of the census

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

5.4.2. Anthropometry

Of the 167pregnant women with MUAC measurements, 6.3% had acute malnutrition (see Figure 15). Due to the low prevalence of malnutrition in pregnant women and the small sample size, disaggregated analysis is not warranted.

5.4.1. Anaemia

No pregnant women were severely anaemic, 20.5% (95% CI 14.2, 28.7) had mild anaemia, and 19.9% (95% CI 14.1, 27.3) had moderate anaemia. Due to the small number of pregnant women classified as moderately or mildly anaemic, disaggregated results by age, residence, education, and wealth quintile yield relatively wide confidence intervals for each prevalence estimate.

Any anaemia is observed in 40.4% of pregnant women with statistically significant differences observed between the age groups: pregnant women 20-24 years of age and 25-29 years of age had higher anaemia prevalence than other age groups (data not shown). No statistically significant difference was observed in anaemia prevalence of pregnant women by residence, education, or wealth.

Figure 15. Prevalence of underweight and normal weight in pregnant women 15-49 years

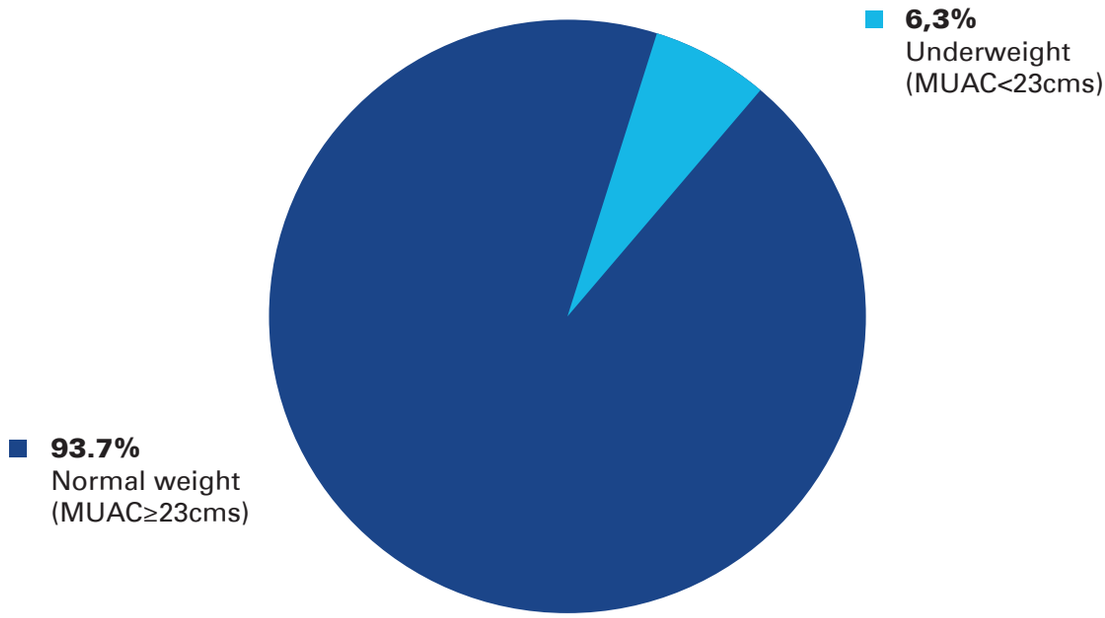


Table 22: Classification of anaemia (moderate, mild, any) in pregnant women (15 - 49 years), Azerbaijan 2013

Characteristic	Moderate anaemia n	Moderate anaemia % [a, b]	Moderate anaemia (95% CI) [c]	Mild anaemia n	Mild anaemia % [a, b]	Mild anaemia (95% CI) [c]	Any anaemia n	Any anaemia % [a, b]	Any anaemia (95% CI) [c]
Age Group (in years)									
15-19	2	3.7	(0.8, 15.6)	6	18.0	(7.3, 37.8)	8	21.7	(9.8, 41.6)
20-24	18	25.3	(15.3, 39.0)	14	21.9	(11.7, 37.2)	32	47.2	(33.9, 60.9)
25-29	12	25.1	(14.1, 40.7)	12	24.1	(13.4, 39.5)	24	49.2	(32.0, 66.5)
30-49	1	2.4	(0.3, 16.2)	2	8.4	(1.7, 33.0)	3	10.9	(2.8, 33.8)
Residence									
Urban	11	18.4	(9.8, 31.7)	14	26.4	(16.4, 39.7)	25	44.8	(30.3, 60.2)
Rural	22	20.9	(14.1, 30.0)	20	16.3	(9.6, 26.3)	42	37.2	(27.6, 48.1)
Woman Education									
Basic secondary or less	10	24.9	(13.1, 42.2)	10	16.9	(7.9, 32.5)	10	24.9	(13.1, 42.2)
Some or completed secondary	16	20.1	(11.7, 32.5)	16	18.9	(10.3, 32.1)	16	20.1	(11.7, 32.5)
Higher	7	14.2	(5.4, 32.5)	8	27.6	(14.7, 45.8)	7	14.2	(5.4, 32.5)
Wealth Quintile									
Lowest	4	23.2	(7.2, 53.9)	5	21.6	(7.9, 46.8)	9	44.8	(21.2, 71.0)
Second	7	25.7	(11.4, 48.4)	5	34.6	(16.2, 59.2)	12	60.4	(38.1, 79.0)
Middle	9	29.2	(14.4, 50.3)	8	17.0	(7.3, 34.9)	17	46.3	(26.9, 66.8)
Fourth	8	20.7	(10.2, 37.6)	6	6.7	(2.8, 15.3)	14	27.4	(15.9, 43.0)
Highest	5	8.7	(3.4, 20.4)	10	29.8	(15.7, 49.1)	15	38.5	(23.7, 55.8)
TOTAL	33	19.9	(14.1, 27.3)	34	20.5	(14.2, 28.7)	67	40.4	(31.7, 49.7)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.
[a] Percentages weighted for non-response and survey design.
[b] Anaemia defined as haemoglobin < 120 g/L adjusted for altitude.
[c] CI=confidence interval, adjusted for cluster sampling design.

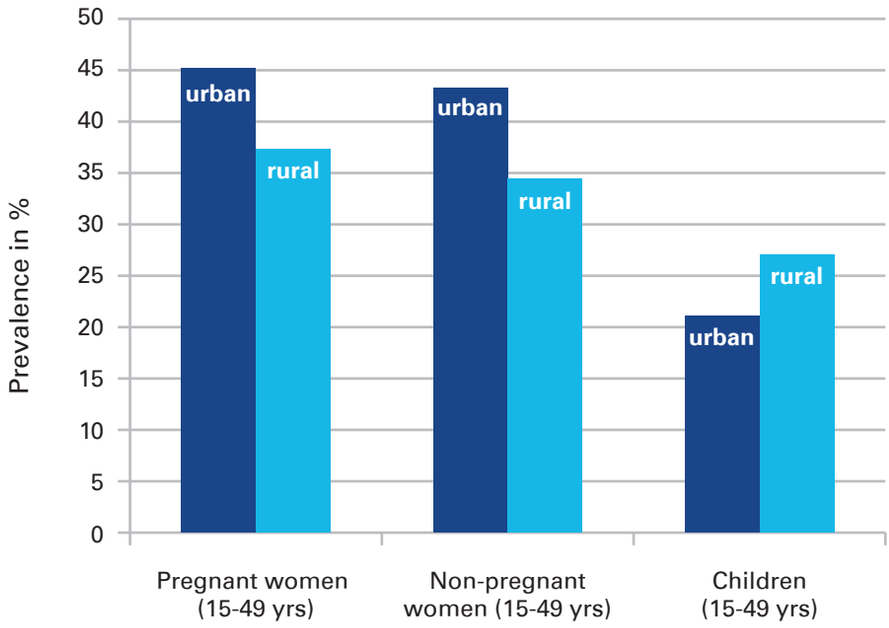
6. Conclusion

Children in Azerbaijan have relatively low levels of wasting, underweight, and stunting, and this survey's findings demonstrate a decline compared to prior assessments. Despite this low national prevalence, stunting was some what more prevalent in some regions (e.g. Ganja-Gazakh and Lenkeran), illustrating sub-national variations. Nonetheless, breastfeeding and complementary feeding practices are clearly suboptimal. Improved feeding of infants and young children could potentially ameliorate the relatively high prevalence of acute and chronic malnutrition seen in some regions of Azerbaijan.

Undernutrition in women, both pregnant and non-pregnant, does not appear to be of major concern in Azerbaijan. By far the larger problem in this group is overweight and obesity in non-pregnant women, especially in older women. Ahtough this survey could not identify contributory factors to overweight in adult non-pregnant women, such research is crucial to identifying interventions to address this widespread nutrition problem. Nutrition programmes should focus on raising awareness of the major health consequences of overweight and obesity.

Anaemia is currently a common problem in Azerbaijan among children and women, with the prevalence of anaemia among pregnant and non-pregnant women considerably higher than in children (see Figure 16). Nonetheless, compared to the 2006 DHS, the current prevalence of anaemia among children is considerably lower. The reasons for this could be varied and are difficult to elucidate, in particular because in previous surveys, iron deficiency was not specifically measured. In the AzNS 2013, the overall prevalence of anaemia is substantially higher than the prevalence of iron deficiency. In addition, although one quarter of children are anaemic, only 6.5% have iron-deficiency anaemia. Iron deficiency only produces anaemia when it becomes relatively severe. As a result, in populations in which iron deficiency is a predominant cause of anaemia, the proportion of all anaemia which has concurrent iron deficiency would be expected to be much higher, around about 50% [31]. It appears that there are other, more important factors producing anaemia in Azerbaijani children. The presumed rarity of malaria (P.vivax occurring in very rare cases, [32])provides evidence against this cause as playing an important role. Less common causes of anaemia must be considered, such as haemoglobinopathies or deficiencies of other vitamins or minerals.

Figure 16. Prevalence of any anaemia in pregnant women, non-pregnant women, by residence



Similar results in non-pregnant women are not as marked as those among children; nonetheless, causes of anaemia other than iron deficiency may play important roles in causing anaemia in women as well. Unlike in children, the virtual absence of vitamin A deficiency in women precludes a major contributing role of the vitamin A deficiency in producing anaemia. Additional research is very much needed to identify these alternate causes of anaemia and determine which are amenable to public health intervention. One example of constructive research would be testing for thalassemia. The RIHT saved the clot from each specimen obtained in this survey, and a sample of these specimens could be tested for haemoglobinopathies. Both alpha and beta thalassemia have been identified as common in Azerbaijan by small, local studies [33, 34].

As described above, because iron deficiency may not be as important in Azerbaijan as in other populations, the impact of iron fortification on the prevalence of anaemiain children and women may not be as great as that seen in other countries. Many wheat and corn flour fortification programmes use anaemia as the major outcome to monitor the public health impact of multinutrient fortification. Based on the results of the AzNS 2013, doing so may be inappropriate in Azerbaijan; if iron deficiency is indeed of limited relevance as is indicated by this survey, the prevalence of anaemia will not be very responsive to fortification efforts. On the other hand, fortification would be expected to affect the prevalence and severity of iron deficiency; therefore, impact assessments may need to explicitly include iron deficiency markers.

7. Recommendations

Based on the findings presented in this report, various programmatic and research recommendations have been developed in collaboration with UNICEF and MOH. They have been structured by nutrient and beneficiary groups and matched to commonly-employed public health nutrition programmes.
The order of the recommendations is reflective of the suggested prioritization, which is based on the magnitude of the nutritional deficiency and takes into consideration the ability of an intervention to address the problem in a feasible and cost-effective manner.

1. Reduce anaemia, iron deficiency, and iron deficiency anaemia in women and children

Responsible Government Agencies: *Ministry of Health, Ministry of Economy and Industry, Ministry of Agriculture.*

Anaemia

Anaemia was observed in 40.4%, 38.2% and 24.2% of pregnant women, non-pregnant women, and children, respectively. While anaemia in non-pregnant women is largely concurrent with iron deficiency (62.3% of anaemic women were iron deficient), iron deficiency in children is rarer (26.6% of anaemic children were iron deficient). This difference suggests that anaemia in children is caused by factors other than iron deficiency. As such, anaemia in women can largely be addressed through interventions to control iron deficiency (see below), while additional investigation into the aetiology of anaemia in children is needed.

To elucidate the causes of anaemia in children, it is recommended that the potential contributing factors in Azerbaijan be investigated. These may include haemoglobinopathies, other micronutrient deficiencies in this age group (e.g. folate and vitamin B12), and chronic infection. Remaining plasma specimens from the AzNS 2013 should be used to conduct additional analyses.

Iron deficiency and iron deficiency anaemia

Iron deficiency is pronounced in non-pregnant women and its overlap with anaemia is substantial. Efforts to fortify wheat flour is highly recommended to improve iron status in the population and prevent future cases of deficiency. To ensure proper iron absorption, the WHO wheat flour recommendations should be followed [35]. As mentioned in the report, the fortification of wheat flour is being considered in Azerbaijan. The AzNS can serve as a baseline for future fortification efforts and can be used to manage the expectations of a fortification programme's impact.

Apart from fortification, the increased consumption of iron supplements should be promoted, as less than 5% of women currently take iron supplements or multivitamin supplements containing iron. As anaemia in pregnant women is similar to that of non-pregnant women, antenatal care professionals should promote the consumption of iron supplements during and after pregnancy.

For children, as stipulated above, only about one quarter of anaemia can be ascribed directly to iron deficiency and therefore, Infant and Young Child Feeding Practices should be improved. This is addressed in point #5.

2. Improve household coverage of adequately iodized salt

Responsible Government Agencies: *Ministry of Economy and Industry, Ministry of Health*

The AzNS showed that nationally, the 94% of salt is iodized. However, marked inequities exist. In Sheki-Zagatala, the proportion of salt that is iodized falls to roughly 75%. In addition, since the rapid test kits utilized for the AzNS do not identify the concentration of iodine in the salt, it remains unknown if the salt is adequately (i.e. >15 ppm iodine) iodized. A 2007 survey in Azerbaijan [36]showed while nearly 98% of samples were iodized, only 77% contained an iodine concentration of >15 ppm, the international standard for adequacy. A subsequent survey in 2009 showed similar yet lower proportions, with 94% of samples containing any iodine, and 63% of samples containing >15 ppm of iodine [37]; only 24% of samples met Azerbaijan's salt iodization standard of 40 ±10 ppm.

Considering the geographic inequities in iodized salt coverage observed by the AzNS and the history of poor compliance to national iodization standards, it is recommended that a salt iodization monitoring system be established. This monitoring system should quantitatively measure salt samples obtained from salt manufacturers, retailers, and households to ensure that salt is adequately iodized according to the government standard. Retail monitoring can be used to identify specific manufacturers that are non-compliant so that actions can be taken to increase their capacity and induce them to iodize their product. While the monitor-

ing system can also be used to test samples prior to importation into Azerbaijan, the system should focus on domestically produced salt as it has historically shown lower iodine concentrations [37]. For imported salt, a re-strengthening of import controls and enforcement is suggested.

Due to the results observed in the Sheki-Zaqatala region, more in-depth research will likely be required to improve the coverage of adequately iodized salt. It is thus recommended that a region-specific study of the salt produced and consumed be undertaken there to identify the bottlenecks to iodization.

3. Improve vitamin A status in children 0-59 months

Responsible Government Agencies: *Ministry of Health, Ministry of Economy and Industry*

The AzNS showed that vitamin A deficiency in children only constituted a mild public health problem. Nonetheless, the higher prevalence of vitamin A deficiency in urban areas in addition to the low coverage of vitamin A supplementation suggest that urban children consume less food rich in pro-vitamin A or vitamin A than rural children. To address this urban-rural disparity, bi-annual vitamin A supplementation should be implemented in addition to targeted promotion of foods rich in pro-vitamin A to urban children, particularly to those in Baku where the prevalence of vitamin A deficiency is the highest and indicative of a public health problem [38].

Food fortification to ensure that vitamin A deficiency will be monitored in a sustainable manner is recommended.

4. Implement equity-based approach to reducing stunting in children

While national-level results show that stunting is of low public health significance in Azerbaijan, region-level stunting estimates show that inequities exist. Stunting exceeded 25% in both Ganja-Gazakh and Lenkeran regions and nationally, in children from the poorest households.

Stunting has multiple causes. Given that the AzNS does not include an analysis to identify risk factors for stunting in Azerbaijan, it is recommended that a follow-up data analysis of the AzNS and/or DHS be conducted to determine them. Some indicators to review include: household sanitation, household wealth, drinking water source, water quality, and complementary feeding practices. Disparities in "adequate" sanitation and household wealth are shown in the AzNS, and suboptimal quality of drinking water has been identified in a causal stunting analysis using data from nearby Uzbekistan, Kyrgyzstan and Kazakhstan[39]. Additional statistical analysis has shown that zinc status is not a predictor of stunting in Azerbaijan (data not shown).

The prevalence of stunting is highest among children living in Ganja-Gazakh and Lenkeran. To help combat this critical problem, complementary feeding practices should be scaled-up through an initiative aimed at new mothers and caregivers. It should also be noted that exclusive breastfeeding of children 0-6 months and dietary diversity and meal frequency of children 6-23 months are poor throughout Azerbaijan. Addressing these indicators should improve growth in infants and young children. In Ganja-Gazakh and Lenkeran, a surveillance system to monitor the growth of children 0-59 months is warranted.

5. Improve breastfeeding and complementary feeding practices of infants and young children

Responsible Government Agencies: *Ministry of Health*

Inappropriate feeding patterns (e.g. low prevalence of exclusive breastfeeding, poor dietary diversity, and low prevalence of acceptable diet) may contribute to the stunting observed nationally and in Ganja-Gazakh and Lenkeran specifically (see above). To address feeding practices, nutrition education interventions targeted to mothers and caregivers (e.g. breastfeeding promotion and IYCF education) should be implemented and/or intensified. Appropriate breastfeeding and complementary feeding while children are young can also reduce sub-optimal weight gain to prevent overweight and obesity later in life[40]as well as improve overall micronutrient status of children.

In addition to improving feeding practices through nutrition education campaigns, the use of fortified and energy-dense complementary foods and food supplements should be expanded[41, 42], particularly in the two most affected regions of Ganja-Gazakh and Lenkeran.

6. Reduce overweight and obesity in women

Responsible Government Agencies: *Ministry of Health*

As shown in Section5.3.5, overweight and obesity is a serious public health concern in Azerbaijan. The adverse health consequences of overweight and obesity have been well documented[40]and should be addressed through governmental policies and programmes. According to the WHO[43], obesity management should comprise "four key strategies; 1) prevention of weight gain, 2) promotion of weight maintenance, 3) management of obesity comorbidities, and 4) promotion of weight loss". According to the WHO, though numerous societal and environmental factors influence weight gain and retention, "dietary factors and physical activity patterns are considered to be the major modifiable factors underlying excessive weight gain that, if corrected, can serve to prevent obesity" [43].

As overweight and obesity in Azerbaijan exceeds 40% in women 25-49 years old, programmes and policies that promote better eating habits and exercise could both help reduce the overweight and obesity currently observed and prevent future cases. As "failure to return to pregnancy weight by 6 months postpartum is associated with long-term obesity"[44], pregnant and lactating women are an entry point for reducing overweight and obesity in adult women generally. It is thus recommended that antenatal and postnatal care provided by doctors and nurses, be expanded to include behaviour change messages and counselling for mothers.

As breastfeeding behaviours are inadequate in Azerbaijan and improper breastfeeding is associated with postpartum weight retention, messages encouraging exclusive and continued breastfeeding should be stressed in behaviour change materials and during training of medical professionals who should in turn encourage, support and protect breastfeeding

Determining the causal factors of overweight and obesity in Azerbaijani women is needed and can be used to inform the design of an overweight/obesity reduction and prevention programme. This research should be based on nationally representative data (e.g. AzNS, DHS). Prior to scale up of programmatic activities, operational research should be conducted to ensure that specific messages lead to significant improvements in postpartum weight retention.

8. References

1. State Statistical Committee (SSC) [Azerbaijan]. Demographic Indicators of Azerbaijan 2013 - Statistical Yearbook. Available at: www.stat.gov.az. Accessed 01 August, 2013.
2. State Statistical Committee (SSC) [Azerbaijan], Macro International Inc. Azerbaijan Demographic and Health Survey 2006. Calverton, Maryland, USA: State Statistical Committee and Macro International Inc., 2008.
3. State Statistical Committee (SSC) [Azerbaijan]. Demographic Indicators of Azerbaijan 2013 - Available at: www.stat.gov.az. Accessed 09 September, 2014.
4. UNICEF. Azerbaijan Multiple Indicator Cluster Survey 2000. Baku, Azerbaijan: United Nations Children's Fund, 2000.
5. WHO. Database on Anaemia. Available at: http://www.who.int/vmnis/anaemia/data/database/countries/en/index.html. Accessed 23 June 2012.
6. WHO. Global Prevalence of vitamin A deficiency in populations at risk, 1995-2005. WHO Global Database on Vitamin A Deficiency. Geneva, 2009.
7. Johnson Q. Country assessment mission to Azerbaijan: Flour Fortification Initiative, 2012.
8. WHO/UNICEF/UNU. Iron deficiency anaemia. Assessment, prevention and control. A guide for programme managers. Geneva: WHO/NHD/01.3: World Health Organization; 2001.
9. UNICEF. Report of the Georgia National Nutrition Survey. Tbilisi, Georgia: United Nations Children's Fund, 2009.
10. Centers for Disease Control and Prevention. Anthropometry Procedures Manual: National Health and Nutrition Examination Survey (NHANES). Atlanta, Georgia, 2007.
11. Food And Nutrition Technical Assistance. Anthropometric Indicators Measurement Guide, 2003.
12. WHO/UNICEF/ICCIDD. Iron Deficiency Anaemia Assessment, Prevention, and Control. Assessment, Prevention and Control. A Guide for Programme Managers. Geneva, Switzerland. 2001.
13. Thurnham DI, McCabe LD, Haldar S, Wieringa FT, Northrop-Clewes CA, McCabe GP. Adjusting plasma ferritin concentrations to remove the effects of subclinical inflammation in the assessment of iron deficiency: a meta-analysis. Am J Clin Nutr 2010;92:546-55.
14. Cook JD, Finch CA. Assessing iron status of a population. Am J Clin Nutr 1979;32:2115-9.

15. Hix J, Rasca P, Morgan J, Denna S, Panagides D, Tam M, Shankar AH. Validation of a rapid enzyme immunoassay for the quantitation of retinol-binding protein to assess vitamin A status within populations. European journal of clinical nutrition 2006;60:1299-303.

16. Thurnham DI, McCabe GP, Northrop-Clewes CA, Nestel P. Effects of subclinical infection on plasma retinol concentrations and assessment of prevalence of vitamin A deficiency: meta-analysis. Lancet 2003;362:2052-8.

17. Erhardt JG, Estes JE, Pfeiffer CM, Biesalski HK, Craft NE. Combined measurement of ferritin, soluble transferrin receptor, retinol binding protein, and C-reactive protein by an inexpensive, sensitive, and simple sandwich enzyme-linked immunosorbent assay technique. J Nutr 2004;134:3127-32.

18. Gibson RS, Hess SY, Hotz C, Brown KH. Indicators of zinc status at the population level: a review of the evidence. Br J Nutr 2008;99 Suppl 3:S14-23.

19. Pandav CS, Arora NK, Krishnan A, Sankar R, Pandav S, Karmarkar MG. Validation of spot-testing kits to determine iodine content in salt. Bull World Health Organ 2000;78:975-80.

20. WHO. Haemoglobin concentrations for the diagnosis of anaemia and assessment of severity Available at: http://www.who.int/vmnis/indicators/haemoglobin.pdf. Accessed (11 July 2012).

21. UNICEF. Multiple Indicator Cluster Survey Manual 2005. New York: Division of Policy and Planning, 2005.

22. Filmer D, Pritchett LH. Estimating wealth effects without expenditure data--or tears: an application to educational enrollments in states of India. Demography 2001;38:115-32.

23. WFP. Comprehensive Food Security & Vulnerability Analysis (CFSVA) Guidelines - First Edition. Rome, Italy: United Nations World Food Programme, 2009.

24. WHO Multicentre Growth Reference Study Group. WHO Child Growth Standards based on length/height, weight and age. Acta Paediatr Suppl 2006;450:76-85.

25. Shetty PS, James WP. Body mass index. A measure of chronic energy deficiency in adults. FAO food and nutrition paper 1994;56:1-57.

26. Ververs MT, Antierens A, Sackl A, Staderini N, Captier V. Which anthropometric indicators identify a pregnant woman as acutely malnourished and predict adverse birth outcomes in the humanitarian context? PLoS currents 2013;5.

27. Daelmans B, Dewey K, Arimond M. New and updated indicators for assessing infant and young child feeding. Food and nutrition bulletin 2009;30:S256-62.

28. WHO. Indicators for assessing infant and young child feeding practices: Part 1 –Definitions. Geneva, Switzerland, 2008.

29. WHO. Nutrition Landscape Information System (NLIS): Country Profile Indicators - Interpretation Guide. Geneva, Switzerland: World Health Organization, 2010.

30. WHO. Inidicators for assessing Vitamin A Deficiency and their application in monitoring and evaluating intervention programs. Geneva, Switzerland: World Health Organization, 1996.

31. Zimmermann MB, Hurrell RF. Nutritional iron deficiency. Lancet 2007;370:511-20.

32. Universty of Oxford. Malaria Atlas Project. Available at: http://www.map.ox.ac.uk/. Accessed 09 December 2013.

33. Gaziev D. Thalassaemia in Azerbaijan. Journal of medical genetics 1995;32:245.

34. Kuliev AM, Rasulov IM, Dadasheva T, Schwarz EI, Rosatelli C, Saba L, Meloni A, Gemidjioglu E, Petrou M, Modell B. Thalassaemia in Azerbaijan. Journal of medical genetics 1994;31:209-12.

35. WHO, FAO, UNICEF, GAIN, MI, FFI. Recommendations on wheat and maize flour fortification. Meeting Report: Interim Consensus Statement Geneva: World Health Organizatoin; 2009.

36. Akhmedov I, Ganiyeva G, Ramazanova I, Hadjiyeva G, Gerasimov G. Azerbaijan closes in on elimination of IDD: International Council for the Control of Iodine Deficiency Disorders Global Network, 2008.

37. Ministry of Health Azerbaijan, Azerbaijan Medical University, UNICEF Azerbaijan. Iodine Nutrition of the Azerbaijan Population, Coverage and Quality of Iodized Salt on Household and Market (Wholesale and Retail) Levels. Baku, Azerbaijan, 2009.

38. Allen L, de Benoist B, Dary O, Hurrell R, editors. Guidelines on food fortification with micronutrients. Geneva: World Health Organization, Food and Agriculture Organization of the United Nations; 2006.

39. Bomela NJ. Social, economic, health and environmental determinants of child nutritional status in three Central Asian Republics. Public health nutrition 2009;12:1871-7.

40. Swinburn BA, Caterson I, Seidell JC, James WP. Diet, nutrition and the prevention of excess weight gain and obesity. Public health nutrition 2004;7:123-46.

41. Dewey KG, Adu-Afarwuah S. Systematic review of the efficacy and effectiveness of complementary feeding interventions in developing countries. Maternal & child nutrition 2008;4 Suppl 1:24-85.

42. Adu-Afarwuah S, Lartey A, Brown KH, Zlotkin S, Briend A, Dewey KG. Home fortification of complementary foods with micronutrient supplements is well accepted and has positive effects on infant iron status in Ghana. Am J Clin Nutr 2008;87:929-38.

43. WHO. Obesity: preventing and managing the global epidemic: report of a WHO consultation. Geneva, Switzerland: World Health Organization; 2000.

44. Wilkinson SA, van der Pligt P, Gibbons KS, McIntyre HD. Trial for Reducing Weight Retention in New Mums: a randomised controlled trial evaluating a low intensity, postpartum weight management programme. Journal of human nutrition and dietetics : the official journal of the British Dietetic Association 2013.

Appendix 1: A priori sample size calculations

Table 23: Sample sizes for non-pregnant women and children 6-59 months and their within cross-sectional survey precision (assuming a 94% household response rate)

Target group	Indicator	Estimated-Prevalence (%)*	Design effect*	Individual response rate (%)	Subjects with data in 1 stratum**	Subjects with data in 9 strata**	Precision 1 stratum (%)	National precision (%)
Household	Iodized salt	**50.0**	3.0	-	451	4061	**± 8.0**	**± 2.7**
Children 6-59 months	Anaemia	**39.1**	2.0	80	123	1107	**± 12.2**	**± 4.1**
	Iron deficiency	**50.0**	2.0	80	123	1107	**± 12.5**	**± 4.2**
	Vit. A deficiency	**32.0**	1.5	80	123	1107	**± 10.1**	**± 3.4**
	Zinc deficiency	**50.0**	2.0	80	123	1107	**± 12.5**	**± 4.2**
	Wasting	**7.3**	1.5	95	146	1314	**± 5.2**	**± 1.7**
	Stunting	**22.3**	1.5	95	146	1314	**± 8.3**	**± 2.8**
WRA	Anaemia	**37.0**	2.0	80	289	2601	**± 7.9**	**± 2.6**
	Iron deficiency	**50.0**	2.0	80	289	2601	**± 8.2**	**± 2.7**
	Vit. A deficiency	**23.0**	1.5	80	289	2601	**± 5.9**	**± 2.0**
	Underweight	**4.8**	1.5	95	343	3087	**± 2.8**	**± 0.9**
	Overweight/obese	**47.4**	1.5	95	343	3087	**± 6.5**	**± 2.2**
pregnant women	Anaemia	**50.0**	1.5	85	16	144	**± 30.0**	**± 10.0**
	Underweight	**10.0**	1.5	95	18	162	**± 17.0**	**± 5.7**

* estimated prevalence and design effect are from most recently available data or, if data not available, a 50% deficiency prevalence was assumed;
** the number of subjects with data was obtained through known DHS data; average household size in Azerbaijan is 4.1 persons and 8.3%, 29.2% and 1.0% of the population are children 6-59 months, non-pregnant women and pregnant women, respectively

Table 24: Sample sizes for non-pregnant women and children 6-59 months and their baseline vs. endpoint survey precision

Target group	Indicator	Estimated prevalence (%) at baseline*	Expected prevalence at endpoint	Subjects with data in 1 stratum**	Subjects with data in 9 strata**	P-value for a difference in 1 stratum	P-value for a difference nationally
Household	Iodized salt	50.0	60.0	451	4061	0.163	<0.001
Children 6-59 months	Anaemia	39.1	29.0	123	1107	0.474	<0.001
	Iron deficiency	50.0	40.0	123	1107	0.530	0.002
	Vit. A deficiency	32.0	22.0	123	1107	0.298	<0.001
	Zinc deficiency	50.0	40.0	123	1107	0.530	0.002
non-pregnant women	Anaemia	37.0	27.0	289	2601	0.137	<0.001
	Iron deficiency	50.0	40.0	289	2601	0.175	<0.001
	Vit. A deficiency	23.0	15.0	289	2601	0.091	<0.001
pregnant women	Anaemia	50.0	34.0	16	144	0.908	0.049

* estimated prevalence and design effect are from most recently available data or, if data not available, a 50% deficiency prevalence was assumed;
** the number of subjects with data was obtained through known DHS data; average household size in Azerbaijan is 4.1 persons and 8.3%, 29.2% and 1.0% of the population are children 6-59 months, non-pregnant women and pregnant women, respectively;

Appendix 2: Letters of approval of protocol from MOH and President's Office

Azərbaycan Respublikasının Səhiyyə Nazirliyi

ƏMR

№ 106 **05.11.2012**

"Azərbaycanda Milli qidalanma sorğusunun keçirilməsi barədə"

Azərbaycan Respublikası Səhiyyə Nazirliyi ilə BMT-nin Uşaq Fondunun Azərbaycan nümayəndəliyi arasında 2012-2013-cü illər üçün imzalanmış iş planında nəzərdə tutulmuş Azərbaycanda Milli qidalanma sorğusunun keçirilməsi məqsədi ilə

ƏMR EDİRƏM:

1. 2012-ci il noyabr - 2013-cü il yanvar aylarında BMT-nin Uşaq Fondunun texniki yardımı ilə Dövlət Statistika Komitəsi tərəfindən yaradılmış seçmə şəbəkəsi üzrə Azərbaycanda Milli qidalanma sorğusu keçirilsin.
2. "Azərbaycanda Milli Qidalanma Sorğusunun keçirilməsinə dair Təlimat" təsdiq edilsin (əlavə olunur).
3. Sorğu qrupları üzvlərinin ezamiyyə xərclərinin ödənilməsi, nəqliyyatla təminatı və götürülmüş qan nümunələrinin Elmi-Tədqiqat Hematologiya və Transfuziologiya İnstitutuna çatdırılması BMT-nin Uşaq Fondu tərəfindən həyata keçirilməsi nəzərə alınsın.
4. Sorğu keçiriləcək şəhər və rayonların tibb idarə və müəssisələrinin rəhbərlərinə tapşırılsın ki, sorğu prosesində tibbi məsələlərlə əlaqədar yarana biləcək çətinliklərin həllində sorğu qruplarına müvafiq köməklik göstərilsin.

5. İctimai Səhiyyə və İslahatlar Mərkəzinin direktoru C.Məmmədova tapşırılsın ki, sorğuda iştirak edəcək mütəxəssislər üçün treninqlərin keçirilməsi məqsədilə müvafiq şəraitin yaradılması təmin edilsin.
6. Elmi-Tədqiqat Hematologiya və Transfuziologiya İnstitutunun direktoru S.Əliyevə tapşırılsın ki, sorğu prosesində götürüləcək qan nümunələrindən plazmanın ayrılması və müvafiq rejimdə saxlanması təmin edilsin.
7. Əmrin icrasına nəzarət Nazir müavinləri Abbas Vəlibəyova və Nigar Əliyevaya həvalə edilsin.

Oqtay Şirəliyev

Əsli ilə düzdür

AZƏRBAYCAN RESPUBLİKASI PREZİDENTİ ADMİNİSTRASİYASININ RƏHBƏRİ

№ 2/37 "15" yanvar 2013-cü il

Şəhər və rayon icra hakimiyyətləri başçılarına

Azərbaycan Respublikası Səhiyyə Nazirliyinin müraciəti nəzərə alınaraq BMT-nin Uşaq Fondunun Səhiyyə Nazirliyi ilə 2012-2013-cü illər üçün birgə Fəaliyyət Proqramına uyğun olaraq milli qidalanma sorğusunun keçirilməsini təmin etmək məqsədilə Səhiyyə Nazirliyinin müəyyən etdiyi planın müvafiq tibb müəssisələri tərəfindən həyata keçirilməsinə lazımi şərait yaradılması məqsədəuyğun hesab edilmişdir.

Zəruri tədbirlər görməyiniz xahiş olunur.

Ramiz Mehdiyev

Appendix 3: Survey Training Agendas

First Training – October/November 2012

Day 1 - 30 Oct / ALL TRAINEES

Note to UNICEF: one large meeting room for day 1

09:00 – 09:30	**Registration** Supplies and materials needed: List of participants, sign-in sheet, notebooks, pens, training schedule for participants
09:30 – 10:00	**Welcome and opening remarks / Tamerlan, UNICEF staff**
10:00 – 11:00	**Introductions – all trainees and staff / Tamerlan** Name, where work, survey and laboratory experience, personal information
11:00 – 11:30	**Administrative overview / Tamerlan** Working hours, expectations, pay, schedule, transportation
11:30 – 13:00	**Overview of survey and objectives / Hassan** Purpose of survey – background and objectives Sampling methodology Data to be collected Field work and logistics Description of teams Description of job duties (supervisor, laboratorian, interviewer, anthropometrist, driver) Questions *Supplies and materials needed:* *Computerprojector, computer, pens, flip charts, markers, maps*
13:00 – 14:00	**Lunch**
14:00 – 17:00	**Field procedures / Tamerlan / James / Hassan** Sample selection procedures (1st and 2nd stage) Initial contact with village leaders Procedure for initial contact with household Consent procedure Importance of maintaining random selection Dealing with problems – i.e., unavailability of selected individuals or households *Supplies and materials needed:* *Computerprojector, computer, pens, flip charts, markers, maps*

Day 2a - 31 Oct / INTERVIEWERS

Note to UNICEF: in order to have parallel sessions, two separate rooms will be required

09:00 – 13:00	**Interview training / Tamerlan** Identification of household and household members Use of labels on data collection forms Recording household and household member numbers Recording non-response (refusal, not home, moved away) Introduction to survey (script) Review of data collection forms Household data collection form Women data collection form Child data collection form *Supplies and materials needed:* *Data collection forms, pencils*
13:00 – 14:00	**Lunch**
14:00 – 17:00	**Review of data collection forms (continued / amerlan**

Day 2b - 31 Oct / LABORATORIANS AND ANTHROPOMETRISTS

09:00 – 11:00	**Anthropometry / Hassan** Description and demonstrations Equipment – scales, height boards Care of equipment Measurements – height, weight, MUAC Children under 2, children 2 and older, adults Recording of data Anticipated difficulties Potential mistakes *Supplies and materials needed:* *Computer projector, computer, presentations for training, height boards, portable stadiometers, scales, MUAC tapes* Practice session on each other
11:00 – 13:00	**Hemocue training / James** Description and demonstration Data recording Quality control and care of equipment Hemocue practice *Supplies and materials needed:* *Hemocue machines, batteries, cuvettes, lancets, gauze, alcohol wipes, plasters (band aids), Hemocue control solutions, data recording sheets, quality control sheets.*
13:00 – 14:00	**Lunch**
14:00 – 16:30	**Phlebotomy practice / James** *Supplies and materials needed:* *Needles, vacutainer tubes, gauze, alcohol wipes, plasters (band aids)*
16:30 – 18:00	**Labeling, storage, and field processing of blood specimens / James** *Supplies and materials needed:* *Blood tubes, labels, carry boxes*

Day 3a - 1 Nov / INTERVIEWERS

Note to UNICEF: in order to have parallel sessions, two separate rooms will be required

09:00 – 13:00	**Interview practice / Tamerlan / James** *Supplies and materials needed:* *Revised data collection forms, pencils*
13:00 – 14:00	**Lunch**
14:00 – 17:00	**Review of completed forms / Tamerlan / James**

Day 3b - 1 Nov / LABORATORIANS AND ANTHROPOMETRISTS

09:00 – 13:00	**Anthropometry standardization exercise / Woody, Hassan** Divide trainees into three groups Each group will work with different children (this may require taking the three groups of trainees to different locations) *Supplies and materials needed for each group of trainees:* *10 children to be measured, height boards, scales, MUAC tapes, data collection forms, pencils, erasers, markers and tape to label children's names*
13:00 – 14:00	**Lunch**
14:00 – 15:00	**Discussion of results of anthropometry standardization exercise** **Woody / Hassan** Point out outlying data Discuss possible problems

Day 4 – 1 Nov / TEAM LEADERS AND FIELD COORDINATORS ONLY

09:00 – 12:00 **Discussion with team leaders and field supervisors**
Tamerlan / James / Hassan

Quality control procedures
- Monitoring interviews
- Checking sheets for completeness before leaving site
- Field notes

Stress key points
- Importance of standardizing questionnaire administration
- Importance of consent procedure

Transport of laboratory specimens and completed questionnaires to Baku
- (Have drivers join discussion)

Questions

Second Training: February 2013

Day 1 / ALL TRAINEES

Note to UNICEF: one large meeting room for day 1

08:00 – 09:00	**Registration / Tamerlan** *Supplies and materials needed: List of participants, sign-in sheet, note-books, pens, training schedule for participants* *Team assignments*

Day 1a / INTERVIEWERS

Note to UNICEF: in order to have parallel sessions, two separate rooms will be required

09:00 – 13:00	**Interview training / Tamerlan / James** Identification of household and household members Use of labels on data collection forms Recording household and household member numbers Recording non-response (refusal, not home, moved away) Introduction to survey (script) Review of data collection forms Household data collection form Women data collection form Child data collection form *Supplies and materials needed:* *Data collection forms, pencils*
13:00 – 14:00	**Lunch**
14:00 – 17:00	**Review of data collection forms (continued)** **Tamerlan / James**

Day 1a / LABORATORIANS AND ANTHROPOMETRISTS

09:00 – 13:00	**Blood collection review / James** Review of blood collection equipment used for women and children Review of Hemocue use procedures and quality control and care of equipment Proper storage and Data recording Practice blood collection using pregnant and non-pregnant women's protocol
13:00 – 14:00	**Lunch**
14:00 – 16:00	**Blood collection review, continued...** Practice blood collection using child's protocol
16:00 – 18:00	**Anthropometry / James** Review of all equipment – scales, height board and care of equipment Demonstrations of Measuring the height of women and children Measuring weight of women and children and using scales tare function Recording of data Assessing MUAC using MUAC tape Anticipated difficulties Potential mistakes Practice anthropometry procedures using pregnant and non-pregnant women's protocol

Day 2a / Interviewers

Note to UNICEF: in order to have parallel sessions, two separate rooms will be required

09:00 – 13:00	**Interview training / Tamerlan / James** Identification of household and household members Use of labels on data collection forms Recording household and household member numbers Recording non-response (refusal, not home, moved away) Introduction to survey (script) Review of data collection forms Household data collection form Women data collection form Child data collection form *Supplies and materials needed:* *Data collection forms, pencils*
13:00 – 14:00	**Lunch**
14:00 – 17:00	**Review of data collection forms (continued) / Tamerlan**

Day 2b / LABORATORIANS AND ANTHROPOMETRISTS

09:00 – 13:00	**Anthropometry standardization exercise / James** Each team will measure the height and weight of each child present 2 times and will record and submit the results to the exercise coordinator *Supplies and materials needed for each group of trainees:* *4 children to be measured, height boards, scales, MUAC tapes, data collection forms, pencils, erasers, markers and tape to label children's names*
13:00 – 14:00	**Lunch**
14:00 – 15:00	**Discussion of results of anthropometry standardization exercise / James** Comparison to expert measurement Point out outlying data Discuss possible measurement problems with teams

Day 3 / Field Training - Rural

08:00 – 17:00	**Pre-testing and field practice** Practice all survey procedures, including interview, anthropometric measurements, Hemocue testing, and collection of blood specimens All procedures should be practiced at selected households *Supplies and materials needed:* *Locations with household lists to select household sample* *Transportation* *Lunch to take to field* *All survey supplies and equipment*
17:00-18:00	**Discussion of field practice / Tamerlan / James** Discuss problems encountered during field practice Final clarification of questions

Day 4 / Field Training - Urban

08:00 – 17:00	**Pre-testing and field practice** Practice all survey procedures, including interview, anthropometric measurements, Hemocue testing, and collection of blood specimens All procedures should be practiced at selected households *Supplies and materials needed:* *Locations with household lists to select household sample* *Transportation* *Lunch to take to field* *All survey supplies and equipment*
17:00-18:00	**Discussion of field practice / Tamerlan / James** Discuss problems encountered during field practice Final clarification of questions

Appendix 4: Supplementary household tables

Table 25: Distribution of household interview results for households randomly selected for participation, Azerbaijan 2013

	Interview completed		No household member or competent respondent at home during visit		Entire household absent for long period or moved away		Interview refused		No household found		Other [b]	
Characteristic	n	% [a]	n	% [a]	n	% [a]	n	% [a]	n	% [a]	n	% [a]
Residence												
Urban	1,564	75.8	72	4.8	172	9.5	64	5.2	87	4.2	7	0.5
Rural	2,361	86.6	10	0.5	231	9.3	29	1.0	79	2.3	3	0.2
Region												
Baku	368	70.9	24	5.7	41	8.7	38	8.5	33	5.4	4	0.8
Absheron	453	78.4	32	4.9	49	9.7	15	2.3	25	3.6	4	1.0
Aran	581	85.0	8	1.7	61	8.8	5	0.8	29	3.6	1	0.2
Dagliq Shirvan	370	83.0	1	0.3	39	10.1	7	1.7	26	5.0	0	--
Ganja-Gazakh	403	88.0	12	2.9	36	8.3	0	--	3	0.6	1	0.2
Quba-Hachmaz	450	88.4	1	0.2	36	7.9	13	2.8	4	0.8	0	--
Lenkeran	445	80.3	0	--	78	16.3	10	1.8	10	1.5	0	--
Sheki-Zaqatala	449	89.6	3	0.6	34	7.3	1	0.2	13	2.3	0	--
Yukhari Karabakh	407	88.1	1	0.2	29	7.2	4	0.9	23	3.6	0	--
TOTAL SELECTED HOUSEHOLDS	3,926	80.6	82	2.9	403	9.4	93	3.3	166	3.4	10	0.4

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.
[a] Percentages weighted for non-response and survey design.
[b] Other included dwelling destroyed, dwelling not found, or other reasons noted by interviewer

Table 26: Distribution of household composition and ethnicity variables for participating households, Azerbaijan 2013

Characteristic	n	% [a]	(95% Eİ) [b]
Household Size			
Mean	3,912	4.3	(4.2, 4.3)
Number of household members			
1	220	5.6	(4.7, 6.7)
2	458	11.2	(10.0, 12.5)
3	591	16.0	(14.4, 17.9)
4	945	26.0	(23.9, 28.2)
5	763	19.0	(17.3, 20.9)
6	499	12.2	(10.9, 13.5)
7	235	5.2	(4.4, 6.2)
8	87	1.9	(1.5, 2.5)
9	50	1.4	(0.9, 1.9)
10+	62	1.4	(1.1, 1.9)
Number of women 15-49 years of age in households			
0	1,476	36.2	(34.2, 38.3)
1	1,703	44.5	(42.3, 46.7)
2	581	15.0	(13.5, 16.6)
3	143	3.6	(2.9, 4.4)
4	21	0.6	(0.4, 0.9)
5	2	0.1	(0.0, 0.4)
Number of children 0-59 months in households			
0	2,789	70.9	(68.7, 73.0)
1	724	18.9	(17.2, 20.7)
2	369	9.2	(8.0, 10.5)
3	38	0.9	(0.6, 1.3)
4	6	0.1	(0.1, 0.3)
Ethnic group of household head			
Azerbaijani	3,456	89.8	(87.3, 91.9)
Lezgin	134	2.2	(1.5, 3.3)
Russian	36	1.5	(0.9, 2.4)
Talyish	192	4.7	(3.2, 6.9)
Other	102	1.7	(1.0, 2.9)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

Table 27: Distribution of households displaced by fighting and not displaced by fighting in 1990s, Azerbaijan 2013

	Displaced by fighting			Not-displaced by fighting		
Characteristic	n	% [a]	(95% CI) [b]	n	% [a]	(95% CI) [b]
Residence						
Urban	124	7.3	(5.2, 10.0)	1,432	92.7	(90.0, 94.8)
Rural	228	6.7	(4.6, 9.5)	2,126	93.3	(90.5, 95.4)
Region						
Baku	23	6.3	(3.9, 10.1)	341	93.7	(89.9, 96.1)
Absheron	71	12.7	(7.9, 20.0)	381	87.3	(80.0, 92.1)
Aran	38	6.7	(3.6, 12.1)	543	93.3	(87.9, 96.4)
Dagliq Shirvan	17	4.5	(1.9, 10.4)	353	95.5	(89.6, 98.1)
Ganja-Gazakh	17	4.7	(1.2, 16.7)	384	95.3	(83.3, 98.8)
Quba-Hachmaz	7	1.5	(0.6, 3.6)	442	98.5	(96.4, 99.4)
Lenkeran	3	0.7	(0.2, 2.2)	436	99.3	(97.8, 99.8)
Sheki-Zaqatala	14	2.9	(1.3, 6.3)	434	97.1	(93.7, 98.7)
Yukhari Karabakh	162	39.6	(25.1, 56.0)	245	60.4	(44.0, 74.9)
Wealth Quintile						
Lowest	90	7.5	(5.0, 10.9)	699	92.5	(89.1, 95.0)
Second	83	8.2	(5.3, 12.5)	685	91.8	(87.5, 94.7)
Middle	63	6.6	(4.6, 9.4)	718	93.4	(90.6, 95.4)
Fourth	62	6.9	(4.7, 9.9)	720	93.1	(90.1, 95.3)
Highest	54	6.4	(4.3, 9.3)	725	93.6	(90.7, 95.7)
TOTAL PARTICIPATING HOUSEHOLDS	352	7.0	(5.5, 8.9)	3,559	93.0	(91.1, 94.5)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

Table 28: Distribution of socio-economic variables for participating households, Azerbaijan 2013

Characteristic	n	% [a]	(95% CI) [b]
Household included at least one employed member			
Yes	2,960	78.6	(76.5, 80.6)
No	963	21.4	(19.4, 23.5)
Any household member has a bank account			
Yes	61	2.5	(1.6, 3.9)
No	3,828	97.5	(96.1, 98.4)
Household is able to make ends meet with current income with			
Great difficulty	1,342	32.9	(30.3, 35.5)
Some difficulty	1,672	40.9	(38.5, 43.2)
A little difficulty	663	18.4	(16.3, 20.7)
Fairly easily	184	5.9	(4.8, 7.2)
Easily	48	1.7	(1.1, 2.8)
Very easily	11	0.3	(0.1, 0.6)
Household has had problems paying bills in the past year			
Yes	1,110	31.0	(27.7, 34.5)
No	2,771	69.0	(65.5, 72.3)
Could manage to get 50 New Manat in one week, if needed			
Yes	2,308	62.2	(59.3, 65.1)
No	1,481	34.6	(31.8, 37.5)
Don't know	131	3.2	(2.4, 4.3)
Household approach to raise 50 New Manat in one week, if needed [c]			
Own savings	736	31.4	(28.2, 34.8)
Borrow from family	635	32.6	(29.0, 36.4)
Borrow from friends or relatives	1,151	46.0	(42.2, 49.9)
Borrow from bank or creditors	96	3.7	(2.7, 5.2)
Other	27	1.5	(0.9, 2.5)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.
[c] Question only asked to households that they could (i.e. yes) get 50 New Manat in one week, if needed. Multiple responses permitted, and percentages do not sum to 100

Table 29: Distribution of livestock and agriculture variables for participating households, Azerbaijan 2013

Characteristic	n	% [a] or median	(95% CI) [b]
Member of household owns any agricultural land			
Yes	1,955	43.4	(39.3, 47.7)
No	1,948	56.6	(52.3, 60.7)
Hectares of agricultural land [c]			
<0.25	458	32.4	--
0.25-0.99	419	24.8	--
1.0+	842	42.9	--
Household has any livestock			
Yes	2,123	45.5	(41.7, 49.5)
No	1,803	54.5	(50.5, 58.3)
Average livestock ownership [d]			
Cattle, cows, bulls	2,122	1.0	--
Horses, donkeys, mules	2,122	0.0	--
Goats	2,122	0.0	--
Sheep	2,122	0.0	--
Fowl	2,123	10.0	--
Pigs	2,122	0.0	--
Rabbits	2,122	0.0	--
Bees (hives)	2,122	0.0	--
Other	2,120	0.0	--

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.
[c] Question only asked to households responding "Yes" to agricultural land ownership. When median is presented, CIs are not shown
[d] Question only asked to households responding "Yes" to livestock ownership

Table 30: Distribution of cooking variables for participating households, Azerbaijan 2013

Characteristic	n	% [a]	(95% CI) [b]
Type of fuel used for cooking			
Electricity	195	4.3	(2.8, 6.5)
Natural gas	2,644	70.7	(65.0, 75.8)
Compressed (liquid) gas	763	18.7	(14.6, 23.5)
Kerosene/solyarka	1	0.0	(0.0, 0.1)
Coal, lignite	4	0.1	(0.0, 0.3)
Charcoal	7	0.1	(0.0, 0.3)
Firewood/straw	297	6.0	(4.1, 8.6)
Animal dung	14	0.2	(0.0, 1.2)
Stove type used for cooking [c]			
Open fire	20	5.7	(2.9, 10.9)
Open stove	4	1.4	(0.5, 3.8)
Closed stove with chimney	296	92.8	(86.7, 96.2)
Other	1	0.2	(0.0, 1.3)
Ventilation for stove [d]			
Chimney	6	28.5	(9.5, 60.2)
Hood	2	10.1	(2.1, 37.3)
Neither	17	61.4	(31.4, 84.7)
Location of where cooking is done			
In the house	3,484	90.6	(88.8, 92.1)
In a separate building	173	4.0	(3.2, 5.0)
Outdoors	261	5.3	(4.2, 6.7)
Other	6	0.1	(0.0, 0.3)
Household has separate room used for cooking			
Yes	2,776	83.8	(81.3, 86.0)
No	702	16.2	(14.0, 18.7)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.
[c] Question only asked to households not using electricity, natural gas, or compressed (liquid) gas as cooking fuel.
[d] Question only asked to households cooking with stove type = open fire, open stove, or other.

Table 31: Number and % of most often consumed breads in participating households, Azerbaijan 2013

	Factory white bread		Factory brown bread		Other bread from bakery or factory		Lavyash		Home-made		Other	
Characteristic	n	%[a]	n	%[a]	n	%[a]	n	%[a]	n	%[a]	n	%[a]
Residence												
Urban	841	62.2	41	3.7	62	3.3	23	1.5	576	27.3	18	2.0
Rural	261	12.7	2	0.1	64	2.2	7	0.2	2,011	84.1	15	0.7
Region												
Baku	306	83.0	20	6.0	2	0.6	5	1.5	21	5.4	12	3.6
Absheron	342	75.6	11	1.9	5	0.9	6	1.1	85	19.6	4	0.8
Aran	76	14.9	1	0.2	9	2.1	0	--	494	82.6	1	0.2
Dagliq Shirvan	31	8.6	0	--	0	--	2	0.6	336	90.5	1	0.3
Ganja-Gazakh	94	23.7	2	0.5	24	5.9	7	1.8	276	68.1	0	--
Quba-Hachmaz	49	11.5	5	1.2	3	0.7	6	1.5	385	85.0	1	0.2
Lenkeran	55	12.3	3	0.6	19	3.7	0	--	360	81.4	8	2.0
Sheki-Zaqatala	111	24.8	1	0.2	52	11.5	4	0.8	279	62.2	2	0.4
Yukhari Kara.	38	9.0	0	--	12	3.1	0	--	352	86.7	4	1.2
Ethnic group of household head												
Azerbaijani	1,004	39.5	36	1.8	110	2.8	29	0.9	2,250	53.8	24	1.2
Lezgin	21	27.7	1	3.1	0	--	1	0.7	110	64.9	1	3.7
Russian	26	76.7	4	16.9	1	0.9	0	--	5	5.4	0	--
Talyish	29	15.6	0	--	3	1.4	0	--	153	79.4	7	3.6
Other	21	27.5	2	3.9	12	10.7	0	--	65	57.3	1	0.7
Wealth Quintile												
Lowest	110	16.9	1	0.1	21	2.5	5	0.4	646	79.2	7	0.9
Second	153	27.4	3	0.9	11	1.6	0	--	604	69.9	2	0.2
Middle	180	31.1	5	1.4	19	1.9	3	0.2	574	65.1	2	0.3
Fourth	270	44.4	13	2.3	26	3.0	6	1.1	460	48.1	7	1.1
Highest	382	58.6	21	4.0	49	4.3	16	2.0	298	27.7	15	3.4
TOTAL PARTICIPATING HOUSEHOLDS	1,102	38.4	43	2.0	126	2.8	30	0.9	2,588	54.6	33	1.4

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.
[a] Percentages weighted for non-response and survey design.

Appendix 5: Supplementary child tables

Table 32: Distribution of diarrhea treatment variables in children (0-59 months), Azerbaijan 2013

Characteristic	n	% [a]	(95% CI) [b]
How much child was given to drink during diarrheal episode			
Nothing to drink	2	2.4	(0.4, 13.3)
Much less	17	13.9	(7.6, 23.9)
Somewhat less	32	24.3	(16.1, 35.0)
About the same	30	30.6	(20.2, 43.3)
More	31	28.9	(19.1, 41.1)
How much child was given to eat during diarrheal episode			
Never given food	1	1.1	(0.1, 7.9)
Much less	20	17.9	(10.9, 28.2)
Somewhat less	54	48.5	(36.6, 60.5)
About the same	37	32.5	(22.0, 45.1)
More	0	--	--
Child given oral rehydration solution/fluid during diarrheal episode			
Yes	11	7.5	(3.6, 15.0)
No	98	92.5	(85.0, 96.4)
Child given oral pill or syrup medication during diarrheal episode			
Yes	42	35.5	(23.3, 50.0)
No	70	64.5	(50.0, 76.7)
Child given injection during diarrheal episode			
Yes	11	8.9	(4.7, 16.3)
No	101	91.1	(83.7, 95.3)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

Table 33: Distribution of treatment of cough variables in children (0-59 months), Azerbaijan 2013

Characteristic	n	% [a]	(95% CI) [b]
Advice or treatment sought for child's difficult breathing			
Yes	41	52.4	(41.1, 63.3)
No	39	47.6	(36.7, 58.9)
From where was advice or treatment sought for child's difficult breathing			
Government hospital/clinic	36	84.9	(59.1, 95.6)
Private hospital/clinic	2	11.1	(2.6, 37.1)
Relative or friend	1	4.0	(0.5, 25.8)
Did child receive any medicine to treat difficulty breathing			
Yes	40	99.1	(93.1, 99.9)
No	1	0.9	(0.1, 6.9)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

Table 34: Distribution of various times of breastfeeding initiation after birth, children < 24 months of age, Azerbaijan 2013 (WHO/UNICEF recommendations - Indicator #1: Early initiation of breastfeeding)

	Initiated breastfeeding in first			Initiated breastfeeding 1-12 hours			Initiated breastfeeding > 12 hours		
Characteristic	n	% [a]	(95% CI) [b]	n	% [a]	(95% CI) [b]	n	% [a]	(95% CI) [b]
Age Group (in months)									
0-11	58	18.0	(13.2, 24.0)	73	27.2	(21.1, 34.4)	158	54.8	(46.8, 62.5)
12-23	53	21.8	(16.2, 28.7)	56	22.3	(16.7, 29.2)	133	55.9	(48.3, 63.2)
Sex									
Male	62	17.9	(13.4, 23.5)	76	28.8	(22.1, 36.5)	154	53.3	(45.8, 60.7)
Female	49	21.7	(15.4, 29.5)	53	20.9	(15.7, 27.3)	137	57.4	(49.5, 65.0)
Residence									
Urban	45	20.0	(14.4, 26.9)	40	21.0	(15.0, 28.7)	115	59.0	(50.2, 67.3)
Rural	66	19.4	(14.4, 25.6)	89	29.1	(22.5, 36.7)	176	51.5	(44.3, 58.7)
Mother's Education									
Basic secondary or less	16	14.9	(7.8, 26.5)	25	27.5	(18.2, 39.4)	62	57.6	(43.3, 70.7)
Some or completed secondary	49	20.1	(14.6, 27.0)	50	26.8	(19.2, 36.0)	110	53.1	(43.7, 62.3)
Higher	19	22.0	(13.1, 34.5)	16	15.8	(8.6, 27.4)	49	62.2	(50.8, 72.3)
Wealth Quintile									
Lowest	18	24.1	(13.4, 39.5)	20	30.4	(18.3, 46.1)	40	45.4	(30.2, 61.5)
Second	21	18.0	(10.5, 29.2)	30	33.7	(22.3, 47.3)	41	48.3	(35.6, 61.2)
Middle	20	20.2	(12.2, 31.7)	19	15.0	(9.0, 23.8)	73	64.8	(53.0, 75.0)
Fourth	24	19.9	(12.7, 29.8)	33	28.2	(20.2, 37.9)	64	51.9	(40.5, 63.1)
Highest	28	18.6	(12.0, 27.7)	26	22.8	(14.0, 35.0)	71	58.6	(46.3, 69.9)
TOTAL	111	19.7	(15.9, 24.1)	129	25.1	(20.5, 30.3)	291	55.3	(49.5, 60.8)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

Table 35: Proportion of children exclusively breastfed* the day before the interview, children < 6 months of age, Azerbaijan 2013 (WHO/UNICEF recommendations - Indicator #2: Exclusive breast-feeding under 6 months)

Characteristic	n	% [a]	(95% CI) [b]
Sex			
Male	6	7.5	(2.5, 20.1)
Female	12	19.3	(9.3, 35.8)
Residence			
Urban	6	9.8	(3.8, 23.0)
Rural	12	14.3	(6.8, 27.4)
Mother's Education			
Basic secondary or less	3	9.5	(1.5, 41.5)
Some or completed secondary	8	16.6	(7.2, 33.9)
Higher	1	5.9	(0.8, 33.5)
Wealth Quintile			
Lowest	3	14.0	(3.2, 44.2)
Second	4	17.9	(5.5, 44.9)
Middle	2	4.7	(1.1, 17.7)
Fourth	4	16.0	(5.4, 39.0)
Highest	5	9.8	(4.0, 22.3)
TOTAL	18	12.1	(6.8, 20.7)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

* Exclusively breastfed = Fed exclusively breast milk (including milk expressed by a wet nurse). Child receiving ORS, drops, and syrups (vitamin, mineral, or medicines) are still considered exclusively breastfed [28].

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

Table 36: Distribution of children breastfed the day before the interview, children 12-15 months of age, Azerbaijan 2013 (WHO/UNICEF recommendations - Indicator #3: Continued breastfeeding at 1 year)

Characteristic	n	% [a]	(95% CI) [b]
Sex			
Male	17	49.2	(30.3, 68.3)
Female	21	39.7	(24.1, 57.8)
Residence			
Urban	17	39.2	(23.1, 58.0)
Rural	21	50.0	(33.0, 67.0)
Mother's Education			
Basic secondary or less	7	59.7	(26.3, 86.0)
Some or completed secondary	19	41.8	(23.6, 62.6)
Higher	5	24.1	(6.8, 58.1)
Wealth Quintile			
Lowest	2	18.3	(4.2, 53.4)
Second	5	56.0	(21.4, 85.6)
Middle	15	78.1	(57.2, 90.5)
Fourth	9	46.5	(24.2, 70.2)
Highest	7	24.5	(9.3, 50.8)
TOTAL	38	42.9	(30.3, 56.5)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

Table 37: Distribution of children eating complementary food the day before the interview, children 6-8 months of age, Azerbaijan 2013 (WHO/UNICEF recommendations - Indicator #4: Introduction of solid, semi-solid or soft foods)

Characteristic	n	% [a]	(95% CI) [b]
Sex			
Male	37	70.6	(54.7, 82.7)
Female	30	87.2	(72.9, 94.5)
Residence			
Urban	31	84.2	(66.8, 93.4)
Rural	36	68.7	(51.7, 81.8)
Mother's Education			
Basic secondary or less	15	68.6	(42.7, 86.5)
Some or completed secondary	28	82.9	(62.2, 93.5)
Higher	8	72.1	(37.5, 91.8)
Wealth Quintile			
Lowest	11	76.1	(42.3, 93.3)
Second	11	97.0	(80.2, 99.6)
Middle	12	76.8	(42.1, 93.8)
Fourth	16	78.9	(48.8, 93.6)
Highest	17	68.6	(48.9, 83.3)
TOTAL	67	76.9	(65.7, 85.3)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

Table 38: Distribution of children with minimum dietary diversity* the day before the interview,children 6-23 months of age, Azerbaijan 2013 (WHO/UNICEF recommendations - Indicator #5: Minimum dietary diversity)

Characteristic	n	% [a]	(95% CI) [b]
Age Group (in months)			
6-11	51	35.7	(25.8, 47.0)
12-23	174	65.1	(58.3, 71.4)
Sex			
Male	127	53.6	(45.0, 62.0)
Female	98	54.6	(46.0, 63.0)
Residence			
Urban	96	57.6	(47.5, 67.1)
Rural	129	50.4	(42.9, 57.8)
Mother's Education			
Basic secondary or less	35	51.1	(36.6, 65.4)
Some or completed secondary	94	56.3	(46.3, 65.8)
Higher	41	59.5	(42.9, 74.2)
Wealth Quintile			
Lowest	29	47.6	(30.9, 64.8)
Second	35	47.6	(34.3, 61.2)
Middle	49	58.7	(45.6, 70.6)
Fourth	53	57.3	(45.6, 68.2)
Highest	57	52.8	(39.1, 66.0)
TOTAL	225	54.1	(47.9, 60.2)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

* Dietary diversity = Consumption of four or more food groups out of seven total groups. Food groups include: grains, roots and tubers; legumes and nuts; dairy products (milk, yogurt, cheese); flesh foods (meat, fish, poultry and liver/organ meats); eggs; vitamin-A rich fruits and vegetables; other fruits and vegetables [28].

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

Table 39: Distribution of children with minimum meal frequency* the day before the interview,children 6-23 months of age, Azerbaijan 2013 (WHO/UNICEF recommendations - Indicator #6: Minimum meal frequency)

Characteristic	n	% [a]	(95% CI) [b]
Age Group (in months)			
6-11	74	53.2	(43.2, 62.9)
12-23	154	60.1	(52.1, 67.5)
Sex			
Male	125	56.9	(48.5, 64.9)
Female	103	58.3	(50.1, 66.1)
Residence			
Urban	95	61.6	(52.6, 69.8)
Rural	133	53.4	(45.4, 61.2)
Mother's Education			
Basic secondary or less	37	47.7	(34.9, 60.7)
Some or completed secondary	93	61.2	(51.4, 70.2)
Higher	42	69.6	(54.2, 81.6)
Wealth Quintile			
Lowest	36	58.2	(42.3, 72.5)
Second	38	57.9	(42.6, 71.9)
Middle	48	56.6	(41.9, 70.2)
Fourth	53	64.1	(51.5, 75.1)
Highest	52	51.6	(40.9, 62.2)
TOTAL	228	57.6	(51.7, 63.2)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

* Minimum meal frequency = Receiving solid, semi-solid, or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more. Minimum defined as: 2 times for breastfed infants 6–8 months; 3 times for breastfed children 9–23 months; 4 times for non-breastfed children 6–23 months [28].

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

Table 40: Distribution of children with minimum acceptable diet* the day before the interview,children 6-23 months of age, Azerbaijan 2013 (WHO/UNICEF recommendations - Indicator #7: Minimum acceptable diet)

Characteristic	n	% [a]	(95% CI) [b]
Age Group (in months)			
6-11	18	14.0	(7.8, 23.7)
12-23	61	26.1	(19.5, 34.1)
Sex			
Male	49	21.0	(15.1, 28.4)
Female	30	22.4	(15.0, 32.0)
Residence			
Urban	37	25.8	(18.0, 35.5)
Rural	42	17.2	(11.8, 24.5)
Mother's Education			
Basic secondary or less	11	17.5	(9.2, 30.8)
Some or completed secondary	27	20.7	(13.2, 30.9)
Higher	22	35.1	(21.3, 51.9)
Wealth Quintile			
Lowest	12	21.7	(8.9, 44.0)
Second	9	13.1	(6.0, 26.0)
Middle	18	23.5	(11.8, 41.4)
Fourth	20	28.2	(17.8, 41.6)
Highest	19	17.6	(11.0, 26.8)
TOTAL	79	21.7	(16.7, 27.6)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

* Minimum acceptable diet = Breastfed children receiving both "Minimum dietary diversity" and "Minimum meal frequency", and non-breastfed children receive "Minimum dietary diversity" only [28].

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

Table 41: Distribution of fortified complementary foods and supplement variables in children 0-59 months, Azerbaijan 2013

Characteristic	n	% [a]	(95% CI) [b]
Consumed iron-fortified cookies or other foods with iron, yesterday [c]			
Yes	157	13.5	9.9, 18.3
No	1,240	86.5	
Consumed multi-nutrient powder, yesterday [c]			
Yes	15	1.8	0.8, 3.9
No	1,389	98.2	
Consumed lipid-based nutrient supplement, yesterday [c]			
Yes	8	1.2	0.6, 2.6
No	1,382	98.8	
Consumed infant formula with added iron, yesterday [d]			
Yes	72	6.3	4.7, 8.4
No	1,481	93.7	
Given iron tablets or syrup in past six months [d]			
Yes	50	4.4	2.9, 6.6
No	1,489	94.0	
Don't know if it was iron	22	1.6	
Was given a vitamin A capsule in past six months [d]			
Yes	45	2.8	1.9, 4.0
No	1,470	94.6	
Don't know if it was vitamin A	30	2.6	

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.
[c] Results presented for children 6-59 months of age.
[d] Results presented for children 0-59 months of age.

Appendix 6: Supplementary non-pregnant and pregnant women's tables

Table 42: Distribution of pregnancy and birth variables in women (15 - 49 years), Azerbaijan 2013

Characteristic	n	[a]	(95 CI) [b]
Currently Pregnant			
Yes	170	5.5	(4.6, 6.6)
No	2,913	94.3	(93.2, 95.2)
Don't know	6	0.2	(0.1, 0.6)
Number of pregnancies			
0	865	28.4	(26.3, 30.5)
1	294	10.0	(8.6, 11.5)
2	407	13.2	(11.8, 14.8)
3	373	12.2	(10.9, 13.7)
4	316	9.3	(8.1, 10.6)
5	263	9.1	(8.0, 10.4)
6	188	6.0	(4.9, 7.2)
7	105	3.2	(2.5, 4.0)
8	64	1.7	(1.3, 2.4)
9	33	0.9	(0.6, 1.4)
10+	173	6.0	(5.0, 7.3)
Number of births (live and still)			
0	953	31.2	(29.2, 33.3)
1	377	12.9	(11.4, 14.6)
2	939	31.0	(29.0, 33.1)
3	587	18.3	(16.7, 20.0)
4	151	4.3	(3.5, 5.1)
5	55	1.8	(1.3, 2.5)
6	10	0.2	(0.1, 0.5)
7	5	0.1	(0.0, 0.4)
8	2	0.1	(0.0, 0.3)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

Table 43: Distribution of antenatal care variables in women (15 - 49 years) who have delivered in the past 2 years, Azerbaijan 2013

Characteristic	n	[a]	(95 CI) [b]
Antenatal care received during pregnancy			
Yes	426	95.5	(92.1, 97.4)
No	20	4.5	(2.6, 7.9)
Antenatel care provider seen [c]			
Doctor	423	99.7	(98.9, 99.9)
Nurse / Midwife	110	26.5	(20.6, 33.4)
Auxiliary midwife	0	0	--
Traditional birth attendant	0	0	--
Community health worker	0	0	--
Other	0	0	--
Number of visits to antenatal care during pregnancy			
1-3	121	24.4	(19.9, 29.4)
4-5	94	21.7	(17.8, 26.3)
6-8	107	29.3	(24.3, 35.0)
9+	103	24.6	(20.8, 28.7)
Blood pressure measured (at least once) during antenatal care visit(s)			
Yes	405	95.1	(91.7, 97.2)
No	21	4.9	(2.8, 8.3)
Urine sample taken (at least once) during antenatal care visit(s)			
Yes	393	93.5	(90.0, 95.8)
No	33	6.5	(4.2, 10.0)
Blood sample taken (at least once) during antenatal care visit(s)			
Yes	401	94.8	(91.6, 96.8)
No	25	5.2	(3.2, 8.4)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.
[c] Multiple responses permitted. N's do not have similar sum to other information in table

Table 44: Distribution of delivery variables in women (15 - 49 years) who have delivered in the past 2 years, Azerbaijan 2013

Characteristic	n	[a]	(95 Eİ) [b]
Individual who assisted with delivery [c]			
Doctor	426	95.2	(92.1, 97.1)
Nurse / Midwife	287	68.0	(61.2, 74.0)
Auxiliary midwife	46	10.1	(6.7, 15.0)
Traditional birth attendant	15	5.2	(2.5, 10.5)
Community health worker	1	0.2	(0.0, 1.6)
Relative / friend	9	2.4	(0.7, 7.8)
Other	1	0.1	(0.0, 1.1)
Location of birth			
Home	18	4.3	(2.1, 8.5)
Government hospital or health center	407	89.8	(85.0, 93.2)
Private hospital or health center	19	5.9	(3.6, 9.6)
Caesarean section conducted during delivery			
Yes	91	26.0	(20.1, 32.8)
No	329	74.0	(67.2, 79.9)
Child weighed at birth			
Yes	421	95.1	(90.9, 97.4)
No	19	4.9	(2.6, 9.1)
Birthweight			
Low birthweight (<2500 g)	30	8.7	(5.7, 13.1)
Normal or high birthweight (2500+ g)	383	91.3	(86.9, 94.3)

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.
[c] Multiple responses permitted. N's do not have similar sum to other information in table

Table 45: Distribution of vitamin supplement variables in women (15 - 49 years), Azerbaijan 2013

Characteristic	n	% [a]	(95% CI) [b]
Consumed iron tablets or syrup in past six months			
Yes	117	4.2	
No	2,895	93.7	
Not sure it was iron	65	2.0	
Consumed folic tablets in past six months			
Yes	70	3.2	
No	2,956	95.1	
Not sure it was folic acid	55	1.7	
Consumed vitamin A capsule in past six months			
Yes	43	1.8	
No	2,959	95.8	
Not sure it was vitamin A	75	2.4	
Consumed multi-vitamin supplements in past six months			
Yes	174	7.3	
No	2,809	89.7	
Not sure it was multi-vitamin	97	2.9	

Note: The n's are un-weighted numerators for each subgroup; subgroups that do not sum to the total have missing data.

[a] Percentages weighted for non-response and survey design.
[b] CI=confidence interval, adjusted for cluster sampling design.

Appendix 7: List of selected clusters

Area	District/Cluster Name	Cluster number
Baku	Binəqədi	001
Baku	Binəqədi	002
Baku	Binəqədi	003
Baku	Binəqədi	004
Baku	Qaradağ	005
Baku	Xəzər (2)	006
Baku	Xəzər (2)	007
Baku	Səbail (2)	008
Baku	Səbail (2)	009
Baku	Sabunçu (3)	010
Baku	Sabunçu (3)	011
Baku	Sabunçu (3)	012
Baku	Suraxanı (3)	013
Baku	Suraxanı (3)	014
Baku	Suraxanı (3)	015
Baku	Nərimanov (2)	016
Baku	Nərimanov (2)	017
Baku	Nəsimi (3)	018
Baku	Nəsimi (3)	019
Baku	Nəsimi (3)	020
Baku	Nizami (3)	021
Baku	Nizami (3)	022
Baku	Nizami (3)	023
Baku	Xətai (4)	024
Baku	Xətai (4)	025
Baku	Xətai (4)	026
Baku	Xətai (4)	027
Baku	Yasamal (3)	028
Baku	Yasamal (3)	029
Baku	Yasamal (3)	030
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Abşeron	28-ci məhəllə	033
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Abşeron	M.Ə. Sabir	035
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Abşeron	Osman Mirzəyev	037

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Abşeron	M. Araz	041
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Sumqayıt	C. Cabbarlı	044
Sumqayıt	3-cü mikrorayon	045
Sumqayıt	11 Cerkassi	046
Sumqayıt	12-ci mikrorayon	047
Sumqayıt	10-cu mikrorayon	048
Sumqayıt	Z. Hacıyev / Bədəlbəyli	049
Sumqayıt	17-ci mikrorayon	050
Sumqayıt	13-cü mikrorayon	051
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Sumqayıt	Z. Hacıyev	054
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Bərdə	Qasımbəyli kəndi	067
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Biləsuvar	Nəsimi kəndi	071
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Salyan	Qarabağlı kəndi	073
Yevlax	Q. Quliyev	074
Yevlax	Kövər kəndi	075
Mingəçevir	M. Maqomayev, Ü. Hacıbəyov, R. Rza	076
Mingəçevir	M. Fərruxov, M. Abdullayev, X. Şuşinski	077

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Sabirabad	Bulduq kəndi	087
Sabirabad	Qaraağac kəndi	088
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Gəncə	Gəncə, Nizami rayonu	122
Gəncə	Gəncə, Nizami rayonu	123
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Gəncə	Gəncə, Kəpəz rayonu	125
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Appendix 8: Sample weights

Cluster number	Household and woman weight	Child interview weight (same as HH weight)	Child anthro-pometry weight	Child blood testing weight
1	8,426.18	8,426.18	8,426.18	8,426.18
2	6,149.63	6,149.63	6,149.63	6,149.63
3	4,408.74	4,408.74	4,408.74	4,408.74
4	5,044.62	5,044.62	5,044.62	5,044.62
5	6,104.42	6,104.42	6,104.42	6,104.42
6	5,765.28	5,765.28	8,647.92	34,591.69
7	6,149.63	6,149.63	6,149.63	12,299.27
8	7,539.21	7,539.21	15,078.43	15,078.43
9	4,804.40	4,804.40	4,804.40	4,804.40
10	5,044.62	5,044.62	5,044.62	5,044.62
11	5,426.15	5,426.15	5,426.15	5,426.15
12	7,302.69	7,302.69	7,302.69	7,302.69
13	5,765.28	5,765.28	5,765.28	5,765.28
14	7,687.04	7,687.04	8,785.19	7,687.04
15	6,588.89	6,588.89	6,588.89	9,883.34
16	7,861.75	7,861.75	-	-
17	6,588.89	6,588.89	6,588.89	6,588.89
18	6,588.89	6,588.89	6,588.89	11,860.01
19	4,804.40	4,804.40	9,608.80	-
20	9,434.10	9,434.10	-	-
21	9,128.36	9,128.36	9,128.36	9,128.36
22	7,824.31	7,824.31	7,824.31	7,824.31
23	7,302.69	7,302.69	7,302.69	10,954.04
24	7,824.31	7,824.31	7,824.31	7,824.31
25	7,302.69	7,302.69	8,763.23	8,763.23
26	8,426.18	8,426.18	8,426.18	14,745.82
27	7,687.04	7,687.04	7,687.04	19,217.61
28	6,846.27	6,846.27	6,846.27	11,410.45
29	10,377.51	10,377.51	11,860.01	20,755.01
30	6,533.99	6,533.99	6,533.99	8,711.98
31	1,348.83	1,348.83	1,348.83	1,348.83
32	1,422.59	1,422.59	1,422.59	1,422.59
33	1,445.17	1,445.17	1,445.17	2,890.34
34	1,501.62	1,501.62	1,501.62	1,501.62
35	1,343.56	1,343.56	2,239.26	2,239.26
36	1,750.88	1,750.88	1,750.88	1,750.88

37	1,264.52	1,264.52	1,264.52	1,264.52
38	1,348.83	1,348.83	1,348.83	1,348.83
39	1,556.34	1,556.34	1,556.34	1,556.34
40	1,716.14	1,716.14	1,716.14	1,716.14
41	1,343.56	1,343.56	1,343.56	1,343.56
42	1,413.29	1,413.29	1,413.29	1,413.29
43	1,343.56	1,343.56	1,343.56	1,679.45
44	1,601.73	1,601.73	1,761.90	1,957.67
45	1,264.52	1,264.52	1,264.52	1,264.52
46	1,343.56	1,343.56	1,343.56	2,351.23
47	1,264.52	1,264.52	1,264.52	1,264.52
48	1,185.49	1,185.49	1,185.49	5,927.46
49	1,445.17	1,445.17	1,445.17	3,251.63
50	1,053.77	1,053.77	1,053.77	1,053.77
51	1,433.13	1,433.13	1,433.13	14,331.28
52	1,264.52	1,264.52	1,264.52	2,529.05
53	1,185.49	1,185.49	1,185.49	3,556.48
54	1,716.14	1,716.14	2,574.21	2,574.21
55	1,716.14	1,716.14	2,059.37	2,059.37
56	2,002.16	2,002.16	2,002.16	2,002.16
57	2,669.55	2,669.55	2,669.55	2,669.55
58	1,501.62	1,501.62	1,501.62	1,501.62
59	2,002.16	2,002.16	3,336.94	3,336.94
60	1,413.29	1,413.29	1,766.62	1,766.62
61	4,005.49	4,005.49	4,005.49	4,005.49
62	4,882.88	4,882.88	5,859.46	7,324.32
63	4,882.88	4,882.88	4,882.88	6,836.03
64	5,411.86	5,411.86	5,411.86	6,313.84
65	5,127.03	5,127.03	5,127.03	5,127.03
66	3,373.04	3,373.04	3,373.04	3,679.68
67	5,411.86	5,411.86	5,411.86	5,411.86
68	3,373.04	3,373.04	3,373.04	3,373.04
69	5,127.03	5,127.03	5,127.03	5,127.03
70	4,882.88	4,882.88	4,882.88	8,951.95
71	4,557.36	4,557.36	4,557.36	4,557.36
72	5,798.42	5,798.42	5,798.42	5,798.42
73	4,557.36	4,557.36	4,557.36	4,557.36
74	4,272.52	4,272.52	4,272.52	4,272.52
75	4,272.52	4,272.52	4,272.52	4,272.52

76	6,244.45	6,244.45	6,244.45	6,244.45
77	4,272.52	4,272.52	4,272.52	4,272.52
78	4,806.59	4,806.59	4,806.59	4,806.59
79	4,272.52	4,272.52	4,272.52	4,272.52
80	3,148.17	3,148.17	3,148.17	3,148.17
81	4,882.88	4,882.88	4,882.88	4,882.88
82	4,272.52	4,272.52	4,272.52	4,272.52
83	4,882.88	4,882.88	4,882.88	5,580.44
84	4,272.52	4,272.52	4,699.77	4,699.77
85	4,272.52	4,272.52	4,272.52	4,660.93
86	4,882.88	4,882.88	4,882.88	4,882.88
87	4,272.52	4,272.52	4,272.52	4,272.52
88	4,557.36	4,557.36	4,557.36	6,836.03
89	4,272.52	4,272.52	4,272.52	4,272.52
90	4,539.55	4,539.55	4,539.55	5,548.34
91	878.08	878.08	878.08	1,170.77
92	940.80	940.80	940.80	940.80
93	878.08	878.08	878.08	1,170.77
94	823.20	823.20	823.20	823.20
95	693.22	693.22	693.22	693.22
96	693.22	693.22	693.22	693.22
97	940.80	940.80	940.80	940.80
98	823.20	823.20	823.20	823.20
99	693.22	693.22	693.22	693.22
100	734.00	734.00	734.00	734.00
101	739.44	739.44	739.44	739.44
102	779.87	779.87	779.87	779.87
103	547.28	547.28	547.28	547.28
104	792.25	792.25	792.25	792.25
105	779.87	779.87	779.87	779.87
106	1,013.17	1,013.17	1,013.17	1,013.17
107	940.80	940.80	940.80	940.80
108	693.22	693.22	693.22	693.22
109	616.20	616.20	616.20	616.20
110	606.57	606.57	606.57	606.57
111	693.22	693.22	693.22	808.76
112	616.20	616.20	616.20	616.20
113	577.68	577.68	577.68	577.68
114	823.20	823.20	823.20	823.20

115	831.86	831.86	831.86	831.86
116	823.20	823.20	823.20	823.20
117	547.28	547.28	547.28	547.28
118	649.89	649.89	649.89	649.89
119	792.25	792.25	792.25	792.25
120	606.57	606.57	606.57	606.57
121	2,931.16	2,931.16	2,931.16	2,931.16
122	3,140.53	3,140.53	3,140.53	3,925.67
123	3,729.38	3,729.38	3,729.38	3,729.38
124	2,931.16	2,931.16	2,931.16	2,931.16
125	2,931.16	2,931.16	2,931.16	2,931.16
126	3,140.53	3,140.53	3,140.53	3,140.53
127	3,140.53	3,140.53	3,140.53	3,140.53
128	2,931.16	2,931.16	2,931.16	2,931.16
129	3,140.53	3,140.53	3,140.53	3,140.53
130	2,747.97	2,747.97	2,747.97	2,747.97
131	2,747.97	2,747.97	2,747.97	2,747.97
132	3,140.53	3,140.53	3,140.53	3,140.53
133	3,480.76	3,480.76	3,480.76	3,480.76
134	3,071.26	3,071.26	3,071.26	3,071.26
135	3,140.53	3,140.53	3,140.53	3,140.53
136	2,931.16	2,931.16	2,931.16	2,931.16
137	3,140.53	3,140.53	3,140.53	3,140.53
138	2,747.97	2,747.97	2,747.97	2,747.97
139	3,140.53	3,140.53	3,140.53	3,140.53
140	2,747.97	2,747.97	2,747.97	2,747.97
141	2,931.16	2,931.16	2,931.16	2,931.16
142	2,931.16	2,931.16	2,931.16	2,931.16
143	3,140.53	3,140.53	3,140.53	3,140.53
144	3,263.21	3,263.21	3,263.21	3,263.21
145	2,576.22	2,576.22	2,576.22	2,576.22
146	3,140.53	3,140.53	3,140.53	3,140.53
147	3,533.10	3,533.10	3,533.10	3,533.10
148	3,263.21	3,263.21	3,263.21	3,263.21
149	2,747.97	2,747.97	2,747.97	2,747.97
150	2,747.97	2,747.97	2,747.97	2,747.97
151	1,536.42	1,536.42	1,536.42	4,609.25
152	1,132.10	1,132.10	1,132.10	1,509.46
153	1,207.57	1,207.57	1,358.52	1,358.52

154	1,293.82	1,293.82	1,401.64	2,102.46
155	1,273.61	1,273.61	1,432.81	2,865.62
156	1,207.57	1,207.57	1,408.83	2,113.25
157	1,344.36	1,344.36	1,344.36	2,352.64
158	1,536.42	1,536.42	1,536.42	2,765.55
159	1,433.99	1,433.99	1,433.99	2,294.38
160	1,207.57	1,207.57	1,207.57	1,811.35
161	1,132.10	1,132.10	1,132.10	1,617.28
162	1,132.10	1,132.10	1,132.10	1,455.55
163	1,207.57	1,207.57	1,207.57	1,449.08
164	1,207.57	1,207.57	1,207.57	1,207.57
165	1,132.10	1,132.10	1,132.10	1,320.78
166	1,132.10	1,132.10	1,132.10	1,132.10
167	1,207.57	1,207.57	1,207.57	1,207.57
168	1,207.57	1,207.57	1,207.57	1,207.57
169	1,344.36	1,344.36	1,344.36	1,344.36
170	1,132.10	1,132.10	1,132.10	1,132.10
171	1,293.82	1,293.82	1,293.82	1,293.82
172	1,132.10	1,132.10	1,132.10	1,245.31
173	1,207.57	1,207.57	1,408.83	1,408.83
174	1,273.61	1,273.61	1,273.61	1,273.61
175	1,654.60	1,654.60	1,654.60	1,930.37
176	1,132.10	1,132.10	1,132.10	1,132.10
177	1,293.82	1,293.82	1,293.82	3,234.56
178	1,132.10	1,132.10	1,132.10	1,132.10
179	1,293.82	1,293.82	1,293.82	2,587.65
180	1,132.10	1,132.10	1,132.10	1,132.10
181	2,481.40	2,481.40	2,481.40	2,481.40
182	3,101.75	3,101.75	3,360.23	3,360.23
183	3,101.75	3,101.75	3,101.75	3,101.75
184	2,189.47	2,189.47	2,189.47	2,189.47
185	2,189.47	2,189.47	2,189.47	2,189.47
186	2,481.40	2,481.40	2,481.40	2,481.40
187	2,074.23	2,074.23	2,074.23	2,074.23
188	2,481.40	2,481.40	2,481.40	2,481.40
189	2,481.40	2,481.40	2,481.40	2,481.40
190	2,481.40	2,481.40	2,481.40	2,481.40
191	2,481.40	2,481.40	2,481.40	2,481.40
192	1,836.56	1,836.56	1,836.56	2,203.87

193	2,481.40	2,481.40	2,481.40	2,481.40
194	2,189.47	2,189.47	2,189.47	2,189.47
195	2,326.31	2,326.31	2,326.31	2,326.31
196	3,722.10	3,722.10	3,722.10	3,722.10
197	1,959.00	1,959.00	1,959.00	1,959.00
198	1,850.17	1,850.17	1,850.17	2,775.25
199	1,959.00	1,959.00	1,959.00	1,959.00
200	1,959.00	1,959.00	1,959.00	2,938.50
201	1,959.00	1,959.00	1,959.00	1,959.00
202	1,959.00	1,959.00	1,959.00	1,959.00
203	1,714.12	1,714.12	1,714.12	1,714.12
204	2,238.86	2,238.86	2,238.86	2,238.86
205	2,238.86	2,238.86	2,238.86	2,238.86
206	2,350.80	2,350.80	2,350.80	2,350.80
207	2,481.40	2,481.40	2,481.40	2,481.40
208	2,481.40	2,481.40	2,481.40	2,757.11
209	2,350.80	2,350.80	2,350.80	2,742.60
210	2,326.31	2,326.31	2,326.31	3,877.18
211	1,336.22	1,336.22	1,336.22	1,336.22
212	1,336.22	1,336.22	1,336.22	1,336.22
213	1,527.11	1,527.11	1,527.11	1,527.11
214	1,527.11	1,527.11	1,527.11	1,527.11
215	1,586.77	1,586.77	1,586.77	1,586.77
216	1,336.22	1,336.22	1,336.22	1,336.22
217	1,336.22	1,336.22	1,336.22	1,336.22
218	1,425.31	1,425.31	1,425.31	1,425.31
219	1,336.22	1,336.22	1,336.22	1,336.22
220	1,527.11	1,527.11	1,527.11	1,527.11
221	1,425.31	1,425.31	1,425.31	1,425.31
222	1,414.83	1,414.83	1,414.83	1,414.83
223	1,527.11	1,527.11	1,527.11	1,527.11
224	1,257.62	1,257.62	1,257.62	1,257.62
225	1,425.31	1,425.31	1,425.31	1,425.31
226	1,527.11	1,527.11	1,527.11	1,527.11
227	1,336.22	1,336.22	1,336.22	1,336.22
228	1,527.11	1,527.11	2,036.15	3,054.23
229	1,336.22	1,336.22	1,336.22	1,484.69
230	1,425.31	1,425.31	1,425.31	1,425.31
231	1,169.20	1,169.20	1,169.20	1,364.06

232	1,252.71	1,252.71	1,252.71	1,252.71
233	1,125.24	1,125.24	1,125.24	1,125.24
234	1,425.31	1,425.31	1,425.31	1,710.37
235	1,336.22	1,336.22	1,336.22	1,336.22
236	1,336.22	1,336.22	1,336.22	1,336.22
237	1,692.55	1,692.55	1,692.55	1,692.55
238	1,425.31	1,425.31	1,425.31	1,425.31
239	1,692.55	1,692.55	1,692.55	1,692.55
240	1,527.11	1,527.11	1,527.11	1,527.11
241	1,026.01	1,026.01	1,710.01	1,710.01
242	1,099.29	1,099.29	1,099.29	1,099.29
243	961.88	961.88	961.88	961.88
244	1,099.29	1,099.29	1,221.44	1,221.44
245	961.88	961.88	961.88	1,923.76
246	1,026.01	1,026.01	1,026.01	1,231.21
247	961.88	961.88	961.88	961.88
248	961.88	961.88	961.88	1,346.63
249	1,405.83	1,405.83	1,405.83	1,405.83
250	1,026.01	1,026.01	1,026.01	1,026.01
251	1,026.01	1,026.01	1,026.01	1,026.01
252	1,099.29	1,099.29	1,099.29	2,198.58
253	961.88	961.88	1,603.13	1,603.13
254	855.01	855.01	855.01	855.01
255	1,099.29	1,099.29	1,099.29	1,099.29
256	1,099.29	1,099.29	1,099.29	1,099.29
257	1,218.38	1,218.38	1,218.38	1,218.38
258	1,026.01	1,026.01	1,026.01	1,026.01
259	1,026.01	1,026.01	1,026.01	1,026.01
260	855.01	855.01	855.01	855.01
261	841.65	841.65	841.65	841.65
262	901.76	901.76	901.76	901.76
263	961.88	961.88	961.88	1,042.04
264	1,026.01	1,026.01	1,026.01	1,026.01
265	506.25	506.25	506.25	506.25
266	1,026.01	1,026.01	1,026.01	1,026.01
267	961.88	961.88	961.88	961.88
268	1,026.01	1,026.01	1,026.01	1,026.01
269	810.00	810.00	810.00	877.51
270	1,099.29	1,099.29	1,099.29	1,099.29

Appendix 9: List of survey field staff, field supervisors, and data entry staff

Survey field staff and field supervisors

Role	Name
Team 1	
Team leader	İlhamə Ramazanova
Enumerator	Ülkər Əsədova
Anthropometrist	Arzu Süleymanova
Phlebotomist	Rəminə Müstafayeva
Team 2	
Team leader	Cəmilə Hüseynova
Enumerator	Elmira Eslamova
Anthropometrist	Elnarə Zamanova
Phlebotomist	Leyla Qarayusifli
Team 3	
Team leader	Xatirə Ağayeva
Enumerator	Səltənət Şirinova
Anthropometrist	İlahə Ağayeva
Phlebotomist	Nüşabə Məmmədova
Team 4	
Team leader	Günay Allahverdiyeva
Enumerator	Jalə Bağırova
Anthropometrist	Ofelya Fərzəliyeva
Phlebotomist	Sara Həsənova
Team 5	
Team leader	Aytən Əsədova
Enumerator	Rəfiqə Əşrəfova
Anthropometrist	Gözəl Bağırova
Phlebotomist	Natəvan Sultanova
Team 6	
Team leader	Sevda Mehdiyeva
Enumerator	Natəvan Qardaşxanova
Anthropometrist	Eliza Hüseynquliyeva
Phlebotomist	Natella Əşrəfova

Role	Name
Team 7	
Team leader	Leyla Zeynalova
Enumerator	Fəridə Əbdülhəsənova
Anthropometrist	Tubu Məhərrəmova
Phlebotomist	Afaq Sultanova
Team 8	
Team leader	Afaq Əlili
Enumerator	Ülkər Əliyeva
Anthropometrist	Vüsalə Ataşova
Phlebotomist	Zibeydə Qədimova
Team 9	
Team leader	Mətanət Əliyeva
Enumerator	Nuranə Məlikova
Anthropometrist	Nuranə Yusubova
Phlebotomist	Mətanət İsmayılova
Team 10	
Team leader	Aida İsmayılova
Enumerator	Ədilə Hüseynova
Anthropometrist	Günəş Abdinova
Phlebotomist	Aygün Novruzova
Team 11	
Team leader	Pərvanə Suxandani
Enumerator	Könül Suxandani
Anthropometrist	Təranə Məmmədova
Phlebotomist	Yeganə Məmməd
Field coordinators	
	Tamilla Qudavasova
	Sevinc Nuriyeva
	Zəminə Abbasova
	Sənubər Heydərova

Data Entry Operators

Mehri Aslanlı	Sona Mədətova
Nilufər Səftərova	Aytən İsmayılxanova
Aygün Məmmədova	Nəcibə Yusifova
Vəfa Məmmədli	Günəş Məmmədova

Affix HOUSEHOLD label here (starts with "E")	**AZERBAIJAN NATIONAL NUTRITION SURVEY 2012** **HOUSEHOLD QUESTIONNAIRE**

Region Baku .....1 Absheron.....2 Aran .....3 Dakhlik Shirvan.....4 Ganja-Gazakh.....5 Guba-Khachmaz .....6 Lankaran.....7 Shaki-Zaqatala .....8 Yukhari Karabakh 9	2. Rayon: _____ 3. Village/Place: _____ 4. Location of this cluster Urban ..... 1 Rural 2
5. Altitude of this location:.....	..... meters ☐☐☐☐
6. Cluster number ..... ☐☐☐	7. Klasterə nəzarət formasında ev təsərrüfatı nömrəsi ☐☐
8. Name of head of household _____	9. Team number..... ☐☐
10. Household selected for recruitment of non-pregnant women	Yes .....1 No 2

	Visit 1	Visit 2	Visit 3	11. Final visit
Date	__ __ / __ __	__ __ / __ __	__ __ / __ __	☐☐ ☐☐ ☐☐ Day Month Year
Interviewer no.	_____	_____	_____	12. Interviewer no. ..... ☐☐
Next visit: Date Time	__ __ / __ __ __ __ : __ __	__ __ / __ __ __ __ : __ __	__ __ / __ __ __ __ : __ __	13. Number of visits ..... ☐
Result	___	___	___	14. Final result ..... ☐

FINAL RESULT CODES: Completed ..... 1 No household member or no competent respondent at home at time of visit ..... 2 Entire household absent for long period or moved away 3	Refused ..... 4 Dwelling vacant / Address not a dwelling ..... 5 Dwelling destroyed ..... 6 Dwelling not found ..... 7 Other (specify) _____9
15. Number of eligible children ..... ☐☐	16. Number of children with data ..... ☐☐
17. Number of eligible women ..... ☐☐	18. Number of women with data..... ☐☐

We are from the Ministry of Health and UNICEF. We are working on a project concerned with nutrition and health. I would like to talk to you about this. The interview will take about 20-30 minutes. All the information we obtain will remain strictly confidential and your answers will never be identified. After these questions to you, I will speak with some of the women in your household and the women who take care of the children 0-59 months.
May I startnow?

☐ YES, PERMISSION IS GIVEN ->BEGIN THE INTERVIEW.

☐ NO, PERMISSION IS NOT GIVEN ->COMPLETE THIS COVER PAGE. DISCUSS RESULT WITH TEAM LEADER.

First, I would like to ask you some general questions about the people who live in this household.

Please tell me the name of each person who usually lives here, starting with the head of the household.
List the head of the household in line 01. List all household members, their relationship to the household head, and their sex. Then ask: **Are there any others who live here, even if they are not at home now?** If yes, complete listing for questions 20-22. Then, ask questions starting with 23 for each person at a time.
Use an additional questionnaire if all rows in the household listing form have been used.

								15-49 yaşlı qadınlar	0-59 aylıq uşaqlar	< 5 yaşadək uşaqlar
19. Line No	20. Name	21. **What is the relationship of (name) to the head of household?**	22. **Is (name) male or female?**		23. **What is (name)'s date of birth?**		24. **How old is(name)?** Record in completed years. If age is 95 or above, record '95'	25. Circle line no. if woman is age	26. Circle line no. if child is age	27. **Who is the mother or primary caretaker of this child?** Record line no. of mother or caretaker
					99 DK	9999 DK				
Line	Name	Relation*	M	F	Month	Year	Age	15-49	0-59	Mother
01		0 1	1	2	__ __	__ __ __ __	___ ___	01	01	___ ___
02		___ ___	1	2	__ __	__ __ __ __	___ ___	02	02	___ ___
03		___ ___	1	2	__ __	__ __ __ __	___ ___	03	03	___ ___
04		___ ___	1	2	__ __	__ __ __ __	___ ___	04	04	___ ___
05		___ ___	1	2	__ __	__ __ __ __	___ ___	05	05	___ ___
06		___ ___	1	2	__ __	__ __ __ __	___ ___	06	06	___ ___
07		___ ___	1	2	__ __	__ __ __ __	___ ___	07	07	___ ___
08		___ ___	1	2	__ __	__ __ __ __	___ ___	08	08	___ ___
09		___ ___	1	2	__ __	__ __ __ __	___ ___	09	09	___ ___
10		___ ___	1	2	__ __	__ __ __ __	___ ___	10	10	___ ___
11		___ ___	1	2	__ __	__ __ __ __	___ ___	11	11	___ ___
12		___ ___	1	2	__ __	__ __ __ __	___ ___	12	12	___ ___
13		___ ___	1	2	__ __	__ __ __ __	___ ___	13	13	___ ___
14		___ ___	1	2	__ __	__ __ __ __	___ ___	14	14	___ ___
15		___ ___	1	2	__ __	__ __ __ __	___ ___	15	15	___ ___
16		___ ___	1	2	__ __	__ __ __ __	___ ___	16	16	___ ___
17		___ ___	1	2	__ __	__ __ __ __	___ ___	17	17	___ ___
18		___ ___	1	2	__ __	__ __ __ __	___ ___	18	18	___ ___
19		___ ___	1	2	__ __	__ __ __ __	___ ___	19	19	___ ___
20		___ ___	1	2	__ __	__ __ __ __	___ ___	20	20	___ ___

Tick here if household listing continuation form used ☐

**Codes for question 21: Relationship to head of household:*

01 Head of household	05 Grandchild	09 Brother-in-law or sister-in-law	13 Adopted / Foster / Stepchild
02 Wife / husband	06 Parent	10 Uncle / aunt	14 Not related
03 Son / daughter	07 Parent-in-law	11 Niece / nephew	99 Don't know
04 Son-In-law or daughter-in-law	08 Brother / sister	12 Other _____	

28. How many of the women 15-49 years of age in this household are pregnant?..... ☐

Be sure to complete a woman questionnaire for every pregnant woman and measure hemoglobin, regardless if women are to be recruited from this household.

Probe for additional household members. Probe especially for any infants or small children not listed, and others who may not be members of the family (such as servants, friends) but who usually live in the household. Insert names of additional members in the household list and complete form accordingly.
If non-pregnant women are to be recruited from this household, for each woman age 15-49 years, create a woman number and write her name and this number and other identifying information in the information panel of a separate woman questionnaire. Remember to include ALL pregnant women in ALL households. For each child under age 5, create a child number and write his/her name and this number AND the woman number of his/her mother or caretaker in the information panel of a separate child questionnaire. You should now have a separate questionnaire for each eligible woman and each child under five in the household.

29. How many years have your family lived in this house or apartment?	Number of years..... ☐☐	Unk = 99
30. Was your family displaced by the fighting in the 1990s?	Yes.....1 No.....2 Don't know 9	
31. How many people live in this household during last one month?	Number of people ..... ☐☐	Unk = 99
32. What is the ethnicity of the head of the household?	Azerbaijani ..... 1 Lezgin..... 2 Russian ..... 3 Talyish ..... 4 Other (specify _____) ..... 8 Don't know 9	
33. Are any household members employed or earning income?	Yes.....1 No.....2 Don't know 9	-> Next Q -> Q35 -> Q35
34. How many household members are employed or earning income?	Number of members ..... ☐☐	

Now I would like to ask you about water and sanitation in your household.

35. What is the <u>main</u> source of water used by your household for purposes other than drinking, such as handwashingwashing clothes, and watering garden ?	Piped water Piped into dwelling ..... 11 Piped into compound, yard or plot..... 12 Piped to neighbour ..... 13 Public tap / standpipe ..... 14 Tube well or borehole..... 21 Dug well Protected well..... 31 Unprotected well..... 32 Water from spring Protected spring..... 41 Unprotected spring..... 42 Rainwater collection ..... 51 Tanker-truck ..... 61 Cart with small tank or drum ..... 71 Surface water (river, stream, dam, lake, pond, canal, irrigation channel)..... 81 Bottled water..... 91 Other (specify)..... 98 Don't know 99	-> Q39 -> Q39 -> Q39
36. Where is that water source located?	In own dwelling ..... 1 In own yard / plot..... 2 Elsewhere..... 3	-> Q39 -> Q39
37. How long does it take to go there, get water, and come back?	Number of minutes ..... ☐☐ DK..... 999	
38. Who usually goes to this source to collect the water for your household? Probe: **Is this person under age 15? What sex?**	YAdult woman (age 15+ years)..... 1 Adult man (age 15+ years)..... 2 Female child (under 15)..... 3 Male child (under 15)..... 4 Don't know 9	
39. What is the main source of <u>drinking</u> water for members of your household?	Piped water Piped into dwelling ..... 11 Piped into compound, yard or plot..... 12 Piped to neighbour ..... 13 Public tap / standpipe ..... 14 Tube well or borehole..... 21 Dug well Protected well..... 31 Unprotected well..... 32 Water from spring Protected spring..... 41 Unprotected spring..... 42 Rainwater collection ..... 51 Tanker-truck ..... 61 Cart with small tank or drum ..... 71 Surface water (river, stream, dam, lake, pond, canal, irrigation channel)..... 81 Bottled water..... 91 Other (specify)..... 98 Don't know 99	

40. Do you do anything at home to the water to make it safer to drink?	Yes.....1 No.....2 Don't know 9	-> Next Q -> Q42 -> Q42
41. What do you usually do to make the water safer to drink? Probe: **Anything else?** <u>Record all responses mentioned.</u>	Boil ..... A Add bleach or chlorine ..... B Strain it through a cloth ..... C Use water filter (ceramic, sand, composite, etc.)..... D Solar disinfection.....E Let it stand and settle .....F Special stone filter ..... G Other (specify)..... X Don't know .....Z	
42. What kind of toilet facility do members of your household usually use? If "flush" or "pour flush", probe: **Where does it flush to?** If necessary, ask permission to observe the facility.	Flush / Pour flush Flush to piped sewer system ..... 11 Flush to septic tank.....12 Flush to somewhere else .....13 Don't know where.....19 Pit latrine Pit latrine with slab .....22 Pit latrine without slab / Open pit .....23 Composting toilet .....31 Bucket .....41 Hanging toilet, Hanging latrine .....51 No facility, Bush, Field.....61 Other (specify)..... 98 Don't know 99	 -> Q45 -> Q45 -> Q45
43. Where is that toilet facility located?	In own dwelling .....1 In own yard / plot.....2 Elsewhere.....3	
44. Do you share this facility with others who are not members of your household?	Yes.....1 No.....2 Don't know 9	
45. Please show me where members of your household most often wash their hands.	Observed .....1 Not observed Not in dwelling / plot / yard.....2 No permission to see.....3 Other reason.....6	 -> Q48 -> Q48 -> Q48
46. Observe presence of water at the specific place for handwashing. Verify by checking the tap/pump, or basin, bucket, water container or similar objects for presence of water.	Water is available.....1 Water is not available.....2	
47. Record if soap or detergent is present at the specific place for handwashing. Circle Yes for each type of soap seen. Skip to Q50 if any soap or detergent code (A, B, or C) is YES. If D and E is is circled YES, continue with next question.	Yes No A. Bar soap ..... 1 2 B. Detergent ..... 1 2 (Powder / Liquid / Paste) C. Liquid soap ..... 1 2 D. Ash / Mud / Sand ..... 1 2 E. None 1 2	 1-> Q50 1-> Q50 1-> Q50

48. Do you have any soap or detergent (or other locally used cleansing agent) in your household for washing hands?	Yes.....1 No.....2	-> Q50
49. Can you please show it to me? Circle Yes for each type of soap seen.	Yes No A. Bar soap .....1 2 B. Detergent .....1 2 (Powder / Liquid / Paste) C. Liquid soap .....1 2 D. Ash / Mud / Sand .....1 2 E. None 1 2	

Now I would like to ask you some questions about things people in your household may own and things you may use at home.

50. Does your household have _____? <u>Ask about each item separately.</u>	Yes No A. Electricity?..... 1 2 B. A clock?.....1 2 C. A radio? .....1 2 D. A camera? ..... 1 2 E. A video camera? .....1 2 F. An audio tape player? ..... 1 2 G. A divan or sofa? ..... 1 2 H. Mebelnaya stenka? ..... 1 2 I. Gorka? ..... 1 2 J. A computer?..... 1 2 K. A black and white television? ..... 1 2 L. A color television? .....1 2 M. A satellite dish?..... 1 2 N. A DVD player? ..... 1 2 O. A mobile telephone?..... 1 2 P. Landline telephone?..... 1 2 Q. A refrigerator? ..... 1 2 R. A freezer? ..... 1 2 S. A washing machine? ..... 1 2 T. An electric generator? ..... 1 2 U. A ventilator or air conditioner?..... 1 2 V. A water heater?.....1 2	
51. What type of fuel does your household mainly use for cooking?	Electricity ..... 1 Natural gas ..... 3 Compressed (liquid) gas ..... 4 Kerosene/solyarka ..... 5 Coal, lignite ..... 6 Charcoal ..... 7 Firewood/straw..... 8 Animal dung ..... 9 No food cooked in household ..... 95 Other (specify: _____) ..... 98 Don't know 99	-> Q54 -> Q54 -> Q54 -> Q56 -> Q54
52. In this household, is food cooked on an open fire, an open stove, or a closed stove?	Open fire ..... 1 Open stove ..... 2 Closed stove with chimney ..... 3 Other (specify: _____)..... 8 Don't know 9	 -> Q54

53. Does this (fire/stove) have a chimney, a hood, or neither of these?	Chimney ..... 1 Hood ..... 2 Neither ..... 3 Don't know 9	
54. Is the cooking usually done in the house, a separate building, or outdoors?	In the house ..... 1 In a separate building ..... 2 Outdoors ..... 3 Other (specify: _____)..... 8 Don't know 9	-> Next Q -> Q56 -> Q56 -> Q56 -> Q56
55. Do you have a separate room which is used as a kitchen?	Yes.....1 No.....2 Don't know 9	
56. Main material of the floor Record observations	Natural floor (earth, sand, adobe) ..... 11 Rudimentary floor (wood planks) .....21 Finished floor Parquet or polished wood ..... 31 Vinyl or asphalt strips ..... 32 Ceramic tiles ..... 33 Cement ..... 34 Carpet covering ..... 35 Laminate ..... 36 Linoleum ..... 37 Stone ..... 38 Other (specify: _____) 98	
57. Main material of the roof Record observations	Natural roof No roof ..... 11 Thatch ..... 12 Rudimentary roof Rustic mat ..... 21 Wood planks ..... 22 Cardboard ..... 23 Finished roof Metal ..... 31 Wood ..... 32 Calamine/cement fiber ..... 33 Ceramic tiles ..... 34 Cement ..... 35 Beton panels ..... 36 Slate ..... 37 Adobe ..... 38 Tol/kir .....39 Ruberoid/asbest ..... 40 Other (specify: _____) 98	

58. Main material of the exterior walls Record observations	Natural walls No walls ..... 11 Trunks ..... 12 Dirt ..... 13 Rudimentary walls Stone with mud ..... 21 Uncovered adobe ..... 22 Plywood / reused wood ..... 23 Cardboard ..... 24 Finished walls Cement ..... 31 Stone with lime / cement ..... 32 Bricks ..... 33 Cement blocks ..... 34 Covered adobe ..... 35 Wood planks / shingles ..... 36 Pillared stones ..... 37 Adobe with sod ..... 38 Beton panels .....39 Other (specify: _____) 98	
59. How many rooms in this household are used for sleeping?	Rooms ..... ☐☐	
60. Does any member of this household own _____? <u>Ask about each item separately.</u>	Yes No A. A bicycle? ..... 1 2 B. A motorcycle / scooter? ..... 1 2 C. An animal-drawn cart? ..... 1 2 D. A car or truck? ..... 1 2 E. A boat? ..... 1 2 F. A tractor? 1 2	
61. Does any member of this household own any agricultural land?	Yes.....1 No.....2 Don't know 9	-> Next Q -> Q63 -> Q63
62. If yes, how many hectares of agricultural land do members of this household own?	If >= 1 hectare..... hectares ☐☐ If <1 hectare..... ari ☐☐ Don't know 999	
63. Does this household own any livestock, herds, other farm animals, or poultry?	Yes..... 1 No..... 2 Don't know 9	-> Next Q -> Q65 -> Q65

64. How many of the following animals does this household own? Ask about each item separately. If none, enter '00' If more than 95, enter '95' If unknown, enter '99'	A. Cattle, cows, bulls ..... ☐☐ B. Horses, donkeys, mules..... ☐☐ C. Goats ..... ☐☐ D. Sheep ..... ☐☐ E. Fowl ..... ☐☐ F. Pigs ..... ☐☐ G. Rabbits ..... ☐☐	
65. Does any member of this household have a bank account?	Yes.....1 No.....2 Don't know 9	
66. If you consider your current income, are you and this household able to make ends meet with: great difficulty, some difficulty, a little difficulty, fairly easily, easily, or very easily?	Great difficulty ..... 1 Some difficulty ..... 2 A little difficulty ..... 3 Fairly easily ..... 4 Easily ..... 5 Very easily ..... 6 Don't know 9	
67. Has this household had problems paying bills for rent, electricity, or gas during the last 12 months?	Yes.....1 No.....2 Don't know 9	
68. If you were in a situation where you had to get 50 New Manat (around US$ 63) in one week, would you manage to do that?	Yes.....1 No.....2 Don't know 9	-> Next Q -> Q70 -> Q70
69. If you could raise 50 New Manat in one week, how would you do it? Mark all responses mentioned.	Own savings ..... A Borrow from family ..... B Borrow from friends or relatives ..... C Borrow from bank or creditors ..... D Other (specify: _____) X	

Now I would like to ask you some questions about the salt most commonly used in this household.

70. Do you have salt in your house now?	Yes.....1 No.....2 Don't know 9	-> Next Q -> Q76 -> Q76

71. Is this salt iodized?	Yes.....1 No.....2 Don't know 9	
72. May I have a small sample of the salt?	Yes.....1 No.....2 Don't know 9	-> Collect Salt -> Q76 -> Q76
73. Salt specimen collected?	Yes.....1 No.....2	
74. Does salt container show that it is iodized?	Yes, original package says fortified ..... 1 Original package not mention fortification ... 2 Undermined, not in original package ..... 3 Undetermined 9	
75. Result of rapid test kit salt testing.	Positive ..... 1 Negative 2	

Now I would like to ask you some questions about the purchase and use of some foods in this household.

76. How often is cooking oil purchased for consumption in this household on average? Fill in number of times for only 1 time period.	Number of times a: Day ..... ☐☐ Week ..... ☐☐ Month ..... ☐☐ Year ..... ☐☐ I don't use it .....00 Don't know / not sure 99	 ->Q79
77. What quantity is usually obtained whenever some cooking oil is bought? Fill in amount for either millilitres or litres, but NOT BOTH.	Millilitres..... ☐☐ Litres ..... ☐☐ Don't know / not sure 9999	
78. How much does such a quantity of cooking oil cost?	New Manat..... ☐.☐ Don't know / not sure 99	

79. How often is corn flour (mealy meal) purchased for consumption in this household on average? Fill in number of times for only 1 time period.	Number of times a: Day ..... ☐☐ Week ..... ☐☐ Month ..... ☐☐ Year ..... ☐☐ I don't use it.....00 Don't know / not sure 99	-> Q82
80. What quantity is usually obtained whenever some corn flour (mealy meal) is bought? Fill in amount for either grams or kilograms, but NOT BOTH.	Grams ..... ☐☐☐☐ Kilograms ..... ☐☐ Don't know / not sure ..... 9999 or 99	
81. How much does such a quantity of corn flour (mealy meal) cost?	New Manat..... ☐.☐ Don't know / not sure 99	
82. How often is wheat flour purchased for consumption in this household on average? Fill in number of times for only 1 time period.	Number of times a: Day ..... ☐☐ Week ..... ☐☐ Month ..... ☐☐ Year ..... ☐☐ I don't use it.....00 Don't know / not sure 99	-> Q85
83. What quantity is usually obtained whenever some wheat flour is bought? Fill in amount for either grams or kilograms, but NOT BOTH.	Grams ..... ☐☐☐☐ Kilograms ..... ☐☐ Don't know / not sure ..... 9999 or 99	
84. How much does such a quantity of wheat flour cost?	New Manat..... ☐.☐ Don't know / not sure 99	

85. What type of bread do you eat most often in this household?	Factory white bread ..... 1 Factory brown bread ..... 2 Other bread from bakery or factory ..... 3 Lavyash..... 4 Home-made ..... 5 Other (specify _____) ..... 8 Unknown 9	-> Q90 -> Q87
86. Where do you most often purchase this bread?	From the supermarket or shop..... 1 From the bakery ..... 2 Other (specify) _____ .....8 Unknown 9	
87. How often is bread purchased for consumption in this household on average? Fill in number of times for only 1 time period.	Number of times a: Day..... ☐☐ Week ..... ☐☐ Month ..... ☐☐ Year ..... ☐☐ Don't know / not sure 99	
88. What quantity is usually obtained whenever some bread is bought? Fill in number of loaves for either full-size loaves or small loaves, if BOTH is bought then fill BOTH	Number of full-size loaves ..... ☐☐ Number of small loaves (baguettes)... ☐☐ Don't know 99	
89. How much does such a quantity of bread cost?	New Manat..... ☐.☐ Don't know 99.9	
90. How often is sugar purchased for consumption in this household on average? Fill in number of times for only 1 time period.	Number of times a: Day..... ☐☐ Week ..... ☐☐ Month ..... ☐☐ Year ..... ☐☐ Don't know / not sure 99	
91. What quantity is usually obtained whenever some sugar is bought? Fill in amount for either grams or kilograms, but NOT BOTH.	Grams ..... ☐☐☐☐ Kilograms ..... ☐☐ Don't know / not sure ..... 9999 or 99	

92. How much does such a quantity of sugar cost?	New Manat ..... ☐ . ☐ Don't know / not sure 99

Comments about data collection at this household:

The form was reviewed by: _____Tarix: _____

Supervisor's signature

Data entry clerk name: _____

Data entry clerk code number: ☐

AZERBAIJAN NATIONAL NUTRITION SURVEY 2012

WOMAN QUESTIONNAIRE

1. Cluster number ..... ☐☐	2. Cluster control form HH number ..... ☐☐
3. Name of this woman: _____	4. Woman number ..... ☐☐
5. Interviewer number ..... ☐☐	
6. Date of data collection ..... ☐☐ / ☐☐ / ☐☐ Day Month Year	
7. Final result of woman data collection (enter code from below) ..... ☐☐	

FINAL RESULT CODES:

Completed data collection 1	Refused anthropometric measurements 4
Woman not at home..... 2	Refused blood collection 5
Refused interview and all data collection 3	Other (specify) _____ 9

Repeat greeting if not already read to this respondent: **We are from the Ministry of Health and UNICEF. We are working on a project concerned with nutrition and health. I would like to talk to you about this. The interview will take about 20-30 minutes. All the information we obtain will remain strictly confidential and your answers will never be identified. After these questions to you, I will speak with some of the women in your household and the women who take care of the children 0-59 months.**	If greeting at the beginning of the household questionnaire has already been read to this woman, then read the following: **Now I would like to talk to you more about your health and other topics. This interview will take about (15-20) minutes. Again, all the information we obtain will remain strictly confidential and your answers will never be shared with anyone other than our project team.**

May I start now?

☐ YES, PERMISSION IS GIVEN ->BEGIN THE INTERVIEW.

☐ NO, PERMISSION IS NOT GIVEN ->COMPLETE THIS COVER PAGE. DISCUSS THIS RESULT WITH YOUR TEAM LEADER.

8. In what month and year were you born?	Month ..... ☐☐ Year ..... ☐☐☐☐	Don't know, enter '99' or '9999'
9. How old are you? Probe: **How old were you at your last birthday?** Compare month and year of birth and stated age; correct one if necessary	Age ..... ☐☐ (in completed years) (enter '99' if unknown)	
10. What was the highest level of school (in years) you attained? If never attended school, enter "00".	Years ..... ☐☐	
11. What is your ethnicity?	Azerbaijani ..... 1 Lezgin..... 2 Russian ..... 3 Talyish..... 4 Other (specify_____)..... 8 Don't know 9	
12. What is your marital status now?	Never married, never lived with a man .....1 Currently married .....2 Living with a man, but not married.....3 Divorced .....4 Separated .....5 Widowed 6	
13. Do you work outside the home for money?	Yes .....1 No ..... 2 Don't know 9	-> Next Q ->Q15 -> Q15
14. What is your job outside the home?	Unskilled labor ..... 1 Skilled labor ..... 2 Agriculture ..... 3 Shop or office ..... 4 Own business ..... 5 Professional ..... 6 Other(specify: _____) .....8 Don't know 9	
15. Do you smoke cigarettes?	Yes.....1 No.....2	-> Next Q -> Q17

16. On average, how many cigarettes per day do you smoke?	Number ..... ☐☐	
17. Are you pregnant now?	Yes .....1 No ..... 2 Unsure 9	-> Next Q -> Q20 -> Q20
18. How many months pregnant are you?	Number of months ..... ☐	
19. When did your last menstrual period start?	☐☐ / ☐☐ / ☐☐ Day Month Year or A. Days ago ..... ☐☐ B. Weeks ago ..... ☐☐ C. Months ago ..... ☐☐ D. No period for many months 99	
20. How many times, in total, have you been pregnant? If pregnant now, include this pregnancy. If never pregnant, enter "00".	Number of times ..... ☐☐	00->Q43
21. How many times, in total, have you given birth to a baby?	Number of times ..... ☐☐	
22. Are you currently breastfeeding a child?	Yes.....1 No.....2	-> Next Q ->Q24
23. For how long have you been breastfeeding this child (or children)?	Number of months ..... ☐☐	

Now I want to ask you some questions about medical care during a recent pregnancy.

24. Have you give birth to a live baby in the past 2 years?	Yes ..... 1 No 2	-> Next Q -> Q43
25. What name did you give to the child born most recently?	Name _____	

26. Did you see anyone for antenatal care during your pregnancy with (name)?	Yes.....1 No.....2	->Next Q -> Q30
27. Whom did you see? **Mark all responses mentioned.** Probe: **Anyone else?** Probe for the type of person seen and circle all answers given.	Doctor ..... A Nurse / Midwife ..... B Auxiliary midwife..... C Traditional birth attendant .....F Community health worker ..... G Other (specify_____)..... X	
28. How many times did you receive antenatal care during this pregnancy?	Number of times..... ☐☐ Don't know 99	
29. As part of your antenatal care during this pregnancy, were any of the following done at least once: **A. Was your blood pressure measured?** **B. Did you give a urine sample?** **C. Did you give a blood sample?**	Yes No A. Blood pressure ..... 1 2 B. Urine sample ..... 1 2 C. Blood sample..... 1 2	
30. Who assisted with the delivery of (name)? Mark all responses mentioned. Probe: **Anyone else?** Probe for the type of person assisting and circle all answers given. If respondent says no one assisted, probe to determine whether any adults were present at the delivery.	Doctor ..... A Nurse / Midwife ..... B Auxiliary midwife..... C Traditional birth attendant .....F Community health worker ..... G Relative / Friend ..... H **Other (specify_____) ..... X** No one ..... Y	
31. **Where did you give birth to (name)?** Probe to identify the type of source. If unable to determine whether public or private, write the name of the place. _____ (Name of place)	Your home..... 11 Other home .....12 Govt. hospital.....21 Govt. clinic / health centre .....22 Govt. health post .....23 **Other public (specify_____) .....28** Private hospital .....31 Private clinic.....32 Private maternity home.....33 **Other privatemedical (specify_____).38** **Other (specify_____) 98**	-> Q33 -> Q33

32. Was (name) delivered by caesarean section? That is, did they cut your belly open to take the baby out?	Yes.....1 No.....2	
33. Was (name) weighed at birth?	Yes.....1 No.....2 Don't know 9	->Next Q -> Q35 -> Q35
34. How much did (name) weigh? Record weight from health card, if available.	A. From card ..... (kg) ☐☐.☐☐ B. From recall ..... (kg) ☐☐.☐☐ Don't know 9999	
35. Did you ever breastfeed (name)?	Yes.....1 No.....2	->Next Q -> Q37
36. How long after birth did you first put (name) to the breast? If less than 1 hour, record '00' hours. If less than 24 hours, record hours. Otherwise, record days.	Immediately .....00 A. Hours ..... ☐☐ B. Days..... ☐☐ Don't know .....99 in A. Hours	

Now I would like to ask you aboutmedical care for you and (name)shortly after (name) was born.

37. The child was delivered in a health facility The child was not delivered in a health facility	..... 1 2	-> Next Q ->Q40
38. I would like to talk to you about checks on (name)'s health– for example, someone examining (name), checking the cord, or seeing if the baby is ok. **After (name) was delivered and you were still in** (name or type of facility in Q31)**, did anyone check on his/her health?**	Yes.....1 No.....2 Don't know 9	

39. After (name) was delivered and you were still in (name or type of facility in Q31)**, did anyone check on your health?** **I mean someone assessing your health, for example asking questions about your health or examining you.**	Yes.....1 No.....2 Don't know 9	-> Q42 -> Q42 -> Q42
40. I would like to talk to you about checks on (name)'s health– for example, someone examining (name), checking the cord, or seeing if the baby is ok. **After (name) was delivered and** (persons mentioned in Q30 was still there)**, did anyone check on his/her health?**	Yes.....1 No.....2 Don't know 9	
41. After (name) was delivered and (persons mentioned in Q30 was still there)**, did anyone check on your health?** **I mean someone assessing your health, for example asking questions about your health or examining you.**	Yes.....1 No.....2 Don't know 9	
42. A few days after the birth of (name), did you go to a clinic or did anyone come to your home to check on (name)'s and your health?	Yes.....1 No.....2 Don't know 9	

Now I would like to ask you about some foods which may contain extra nutrients.

43. Have you heard about fortified flour?	Yes ..... 1 No ..... 2 Don't know 9	 ->Q46 ->Q46
44. Do you use fortified flour?	Always ..... 1 Usually ..... 2 Sometimes ..... 3 Never ..... 4 Don't know 9	
45. What do you think are the benefits of fortified flour? Mark all responses mentioned.	Improves health ..... A Prevents anemia ..... B Prevents iron deficiency ..... C Other ..... Y (specify: _____) Don't know ..... Z	
46. Have you heard about iodized salt?	Yes ..... 1 No ..... 2 Don't know 9	 ->Q49 ->Q49
47. Do you use iodized salt?	Prevents iodine deficiency ..... A Improves intelligence ..... B Prevents vitamin deficiency ..... C Improve health status ..... D Other ..... Y (specify: _____) Don't know ..... Z	
48. Sizin zənninizcə yodlaşdırılmış duz nə üçün bu qədər önəmlidir? <u>Sadalanmış bütün cavabları qeyd edin.</u>	Yod çatışmazlığının profilaktikasını təmin edir ..... A İntellekti inkişaf etdirir ..... B Vitamin çatışmazlığının qarşısını alır ..... C Sağlamlıq vəziyyətini yaxşılaşdırır ..... D Digər (konkretləşdirir: _____)..... Y Bilmirəm ..... Z	

Now I would like to ask you some questions about vitamins you may be taking or have recently taken.

49. During the last six months did you take any iron tablets or syrup? Show iron tablets and syrup.	Yes.....1 No.....2 Not sure if it was iron.....9	-> Next Q -> Q53 -> Q53
50. For how long did you take iron tablets or syrup?	One week or less.....1 More than 1 week, less than 1 month.....2 One month or more.....3	
51. Are you still taking iron tablets or syrup?	Yes.....1 No.....2	-> Q53 -> Next Q

52. When did you stop taking iron tablets or syrup?	Less than 3 months ago.....0 3 months ago or more.....1	
53. During the last six months did you take any folic acid tablets or syrup? Show folic acid tablets and syrup.	Yes.....1 No.....2 Not sure if it was folic acid.....9	-> Next Q -> Q57 -> Q57
54. For how long did you take folic acid tablets or syrup?	One week or less.....1 More than 1 week, less than 1 month.....2 One month or more.....3	
55. Are you still taking folic acid tablets or syrup?	Yes.....1 No.....2	-> Q57 -> Next Q
56. When did you stop taking folic acid tablets or syrup?	Less than 3 months ago.....0 3 months ago or more.....1	
57. During the last six months did you take any vitamin A capsules? Show vitamin A capsule.	Yes.....1 No.....2 Not sure if it was vitamin A.....9	

Affix HOUSEHOLD label here (starts with "E")	Cluster number	Household number	Woman number	Affix WOMAN label here (starts with "Q")
	☐☐	☐☐	☐☐	

Address: _____ Family name: _____ Woman's name: _____

Is this woman pregnant? ..... Yes / No

Anthropometric measurements

58. Measurer's code number:	☐☐

Non-pregnant women:

59. Woman's weight	Kilograms (kg)..... ☐☐☐.☐
60. Woman's height	Centimeters (cm) ..... ☐☐☐.☐
61. Reason why weight or height measurement missing	Disabled, cannot stand on scale ..... 1 Disabled, cannot measure height ..... 2 Uncooperative or uncontrolable ..... 3 Other (specify) _____ ..... 8 Refused..... 9

Both non-pregnant and pregnant women:

62. Woman's MUAC	MUAC (cm)..... ☐☐.☐

Non-pregnant women: Now we would like to take some blood from your vein for testing for vitamin levels. Pregnant women: Now we would like to do a fingerstick to measure anemia. Do you give permission?

63. Consent granted for phlebotomy or fingerstick	Yes .....1 No 2	-> Next Q ->END
64. Hemoglobin concentration	Hb..... ☐☐☐	
65. Approximate volume of blood collected (ml)	ml ..... ☐.☐ No blood, pregnant woman.....99	

Comments about data collection with this woman:

The form was reviewed by: _____Date: _____
Supervisor's signature

Data entry clerk name: _____

Data entry clerk code number: ☐

AZERBAIJAN NATIONAL NUTRITION SURVEY 2012

CHILD QUESTIONNAIRE

1. Cluster number ..... ☐☐☐	2. Cluster control form HH number ..... ☐☐
3. Name of this child: _____	4. Child number ..... ☐☐
5. Date of data collection ..... ☐☐ / ☐☐ / ☐☐ Day Month Year	
6. Child's mother's woman number ..... ☐☐	
7. Final result of child data collection ..... ☐	

FINAL RESULT CODES

Completed data collection 1	Refused anthropometric measurements 4
No household member or no competent respondent at home at time of visit 2	Refused blood collection 5
Refused interview and all data collection 3	Other (specify_____)9

Repeat greeting if not already read to this respondent: **We are from the Ministry of Health and UNICEF. We are working on a project concerned with nutrition and health. I would like to talk to you about this. The interview will take about 20-30 minutes. All the information we obtain will remain strictly confidential and your answers will never be identified. I want to speak with some of the women in your household and the women who take care of the children 0-59 months.**	If greeting at the beginning of the household questionnaire has already been read to this woman, then read the following: **Now I would like to talk to you more about (*child's name*)'s health and other topics. When I ask about (NAME), please think only of this child and answer only about this child. Try not to mix up other children in the household. This interview will take about (*number*) minutes. Again, all the information we obtain will remain strictly confidential and your answers will never be shared with anyone other than our project team.**

May I start now?

☐ YES, PERMISSION IS GIVEN ->BEGIN THE INTERVIEW.

☐ NO, PERMISSION IS NOT GIVEN ->COMPLETE THIS COVER PAGE.
DISCUSS THIS RESULT WITH YOUR TEAM LEADER.

Now I would like to ask you some questions about the health of (NAME).

8. Is (NAME) a boy or girl?	Male .....1 Female 2
9. What is (NAME)'s date of birth? Copy date of birth from document, if available, or probe: **What month and year was (NAME) born?**	D. Date ..... ☐☐ (enter '99' if unknown) M. Month ..... ☐☐ Y. Year ..... ☐☐
10. How old is (NAME)? Probe: **How old was (NAME) at his / her last birthday?** *Record '0' if less than 1 month.* *Record '99' if unknown.* *Compare date of birth and stated age; correct one if necessary.*	Age..... ☐☐ (in completedmonths) (enter '99' if unknown)

Now i would like to ask you about illnesses (NAME) may have had in the past 2 weeks. Please keep in mind only this time period; do not include any illnesses (NAME) had before 2 week ago.

11. At any time in the last 2 weeks, has (NAME) had diarrhoea?	Yes..... 1 No ..... 2 Don't know 9	-> Next Q -> Q17 -> Q17
12. I would like to know how much (NAME) was given to drink during the diarrhoea (including breast-milk). **During the time (NAME) had diarrhoea, was he/she given less than usual to drink, about the same amount, or more than usual?** If less, probe: **Was he/she given much less than usual to drink, or somewhat less?**	Much less.....1 Somewhat less.....2 About the same.....3 More.....4 Nothing to drink.....5 Don't know 9	

13. During the time (NAME) had diarrhoea, was he/she given less than usual to eat, about the same amount, more than usual, or nothing to eat? *If "less", probe:* **Was he/she given much less than usual to eat or somewhat less?**	Much less.....1 Somewhat less.....2 About the same.....3 More.....4 Stopped food .....5 Never gave food .....6 Don't know 9	
14. During the episode of diarrhoea, was (NAME) given to drink any of the following: *Read each item aloud and record response before proceeding to the next item.* **A. A fluid made from a special packet of powder called oral rehydration solution?** **B. A pre-packaged rehydration fluid for diarrhoea?**	Y N DK Fluid from ORS packet.....1 2 9 Pre-packaged ORS fluid.....1 2 9	
15. Was anything (else) given to treat the diarrhoea?	Yes.....1 No.....2 Don't know 9	->Next Q -> Q17 -> Q17
16. What (else) was given to treat the diarrhoea? Probe: **Anything else?** Record all treatments given. Write brand name(s) of all medicines mentioned. _____ (NAME)	<u>Pill or Syrup</u> Antibiotic ..... A Antimotility..... B Zinc ..... C Other (Not antibiotic, antimotilityor zinc)..... G Unknown pill or syrup..... H <u>Injection</u> Antibiotic .....L Non-antibiotic ..... M Unknown injection.....N Intravenous .....O Home remedy / Herbal medicine.....P Other (specify_____)..... X Don't know .....Z	
17. At any time in the last 2 weeks, has (NAME) had an illness with a cough?	Yes.....1 No.....2 Don't know 9	-> Next Q -> Q25 -> Q25

18. At any time in the last 2 weeks, has (NAME) had an illness with a cough and fever together?	Yes.....1 No.....2 Don't know 9	-> Next Q -> Q25 -> Q25
19. When (NAME) had an illness with a cough, did he/she breathe faster than usual with short, rapid breaths or have difficulty breathing?	Yes.....1 No.....2 Don't know 9	-> Next Q -> Q25 -> Q25
20. Was the fast or difficult breathing due to a problem in the chest or a blocked or runny nose?	Problem in chest only..... 1 Blocked or runny nose only ..... 2 Both ..... 3 Other (specify) _____..... 8 Don't know 9	-> Next Q -> Q25 -> Next Q -> Q25 -> Q25
21. Did you seek any advice or treatment for the illness from any source?	Yes.....1 No.....2 Don't know 9	->Next Q -> Q23 -> Q23
22. From where did you seek advice or treatment? Probe: **Anywhere else?** <u>*Circle all providers mentioned,*</u> *But do not prompt with any suggestions.* *Probe to identify each type of source.* *If unable to determine if public or private sector, write the name of the place.* _____ *(name of place)*	Govt. hospital..... A Govt. health centre ..... B Govt. health post ..... C Village health worker..... D Mobile / Outreach clinic.....E **Other public (specify_____).....H** Private hospital / clinic .....I Private physician.....J Private pharmacy ..... K Mobile clinic .....L **Other private medical (specify_____).O** Relative / Friend .....P Shop ..... Q Traditional practitioner ..... R **Other (specify_____) ..... X**	
23. Was (NAME) given any medicine to treat this illness?	Yes.....1 No.....2 Don't know 9	->Next Q -> Q25 -> Q25

24. What medicine was (NAME) given? Probe: **Any other medicine?** *Circle all medicines given. Write brand name(s) of all medicines mentioned.* _____ *(names of medicines)*	Antibiotic Pill / Syrup ..... A Injection ..... B Anti-malarials ..... M Paracetamol / Panadol / Acetaminophen ..... P Aspirin ..... Q Ibuprofen ..... R **Other (specify) ..... X** Don't know ..... Z
25. In the last two weeks, has (NAME) been ill with a fever at any time?	Yes ..... 1 No ..... 2 Don't know 9

NOTE: Dietary questions (questions 26 -35) are to be asked ONLY about children less than 2 years of age. Check the child's date of birth and age above. If the child is 24 months of age or older, skip to question36.

Now I will ask you questions about (NAME)'s diet. Please answer only for (NAME). Do not confuse (NAME) with other young children in the household.

26. Has (NAME) ever been breast-fed? Include giving breastmilk by spoon or bottle or breastfeeding by other women.	Yes ..... 1 No ..... 2 Don't know 9	-> Next Q -> Q29 -> Q29
27. How long after birth was (NAME) first put to the breast? If respondent reports she put the infant to the breast immediately after birth, circle '00' for 'immediately'. If less than 1 hour, circle 'A' for hours and record '00' hours. If less than 24 hours, circle 'A' and record number of completed hours, from 01 to 23. If 24 hours or longer, circle 'B' and record number of completed days.	Immediately ..... 00 or A. Hours ..... ☐☐ or B. Days ..... ☐☐	
28. Was (NAME) breastfed yesterday during the day or at night?	Yes ..... 1 No ..... 2 Don't know 9	

29. Sometimes babies are fed breast milk in different ways, for example by spoon, cup or bottle. This can happen when the mother cannot always be with her baby. Sometimes babies are breastfed by another woman, or given breast milk from another woman by spoon, cup or bottle or some other way. **This can happen if a mother cannot breastfeed her own baby.** **Did (NAME) consume breast milk in any of these ways yesterday during the day or at night?**	Yes.....1 No.....2 Don't know 9

30. Next I would like to ask you about some liquids that (NAME) may have had yesterday during the day or at night. **Did (NAME) have any (**item from the list**)?:** Read the list of liquids starting with 'plain water'.	Yes	No	DK	**31. How many times yesterday during the day or at night did (NAME) consume any (**item from list**)?**
A. Plain water?	1	2	9	
B. Infant formula such as Humana, Malutka, or Nutrelak?	1	2	9	B. ..... ☐☐
C. Milk, such as tinned, powdered, or fresh animal milk?	1	2	9	C. ..... ☐☐
D. Juice or juice drinks or liquid from stewed fruit?	1	2	9	
E. Clear broth?	1	2	9	
F. Yogurt?	1	2	9	F. ..... ☐☐
G. Thin porridge?	1	2	9	
H. Any other liquids such as sweet tea?	1	2	9	
I. Any other liquids?	1	2	9	

32. Please describe everything that (NAME) ate yesterday during the day or night, whether at home or outside the home.

a)Think about when (NAME) first woke up yesterday. Did (NAME) eat anything at that time? if yes: Please tell me everything (NAME) ate at that time.
Probe:**"Anything else?"** until respondent says nothing else. If no, continue to question b).
b)What did (NAME) do after that? Did (NAME) eat anything at that time? If yes: Please tell me everything (NAME) ate at that time.
Probe: **"Anything else?"**until respondent says nothing else.
Repeat question b) above until respondent says the child went to sleep until the next day.
If respondent mentions mixed dishes like a porridge, sauce or stew, probe:
c)What ingredients were in that (mixed dish)?
Probe: **"Anything else?" until respondent says nothing else.**

As the respondent recalls foods, underline the corresponding food and circle '1' in the column next to the food group. If the food is not listed in any of the food groups below, write the food in the box labeled 'other foods'. If foods are used in small amounts for seasoning or as a condiment, include them under the condiments food group. Once the respondent finishes recalling foods eaten, read each food group where '1' was not circled, ask the following question and circle '1' if respondent says yes, '2' if no and '9' if don't know:
Yesterday during the day or night, did (NAME) drink/eat any (food group items not already marked '1')?

Other foods:	Yes	No	DK
A. Porridge, bread, rice, noodles, or other foods made from grains?	1	2	9
B. Pumpkin, carrots, squash, or sweet potatoes that are yellow or orange inside	1	2	9
C.White potatoes, beets, or any other foods made from roots	1	2	9
D. Any dark green leafy vegetables?	1	2	9
E. Apricot, peach, cantaloupe, oranges, plums?	1	2	9
F. Any other fruits or vegetables?	1	2	9
G. Liver, kidney, heart, or other organ meats?	1	2	9
H. Any meat, such as beef, pork, lamb, goat, chicken, or duck?	1	2	9
I. Eggs	1	2	9
J. Fresh or dried fish, shellfish, or seafood	1	2	9
K. Any foods made from beans, peas, lentils, nuts, or seeds	1	2	9
L. Cheese, yogurt, or other milk products	1	2	9
M. Any oil, fats, or butter, or foods made with any of these	1	2	9
N. Any sugary foods such as chocolates, sweets, candies, pastries, cakes, or biscuits	1	2	9
O. Condiments for flavor, such as chilies, spices, herbs, or fish powder	1	2	9
P. Grubs, snails, or insects	1	2	9
Q. Foods made with red palm oil, red palm nut, or red palm nut pulp sauce	1	2	9

If all 'NO', go to Q33
If at least 1 'YES' or all 'DK' go to Q34

33. Did (NAME) eat solid or semi-solid (soft, mushy) food yesterday, during the day or night?	Yes.....1 No.....2 Don't know 9	If '1' and all foods above = NO, go back to probe.
34. How many times did (NAME) eat solid or semi-solid (soft, mushy) food yesterday, during the day or night?	Number of times..... ☐☐	
35. Yesterday, during the day or night, did (NAME) drink anything from a bottle with a nipple?	Yes.....1 No.....2 Don't know 9	

NOTE: Include the following questions for ALL children less than 5 years of age:

36. What time did (NAME) last eat anything? Use the 24-hour clock (for example, 13:00 is 1:00 pm)	Time ..... ☐:☐ Did not yet eat today ..... 77:77 Don't know 99:99

Now I would like to ask you about some additional foods and pills (NAME) may have recently received.

37. Now I would like to ask you about some particular foods (NAME) may have eaten. I am interested in whether your child had the item even if it was combined with other foods. **Yesterday, during the day or night, did (NAME) consume any iron-fortified cookies or other foods which have added iron?**	Yes.....1 No.....2 Don't know 9
38. Yesterday, during the day or night, did (NAME) consume any food to which you added a special powder containing nutrients?	Yes.....1 No.....2 Don't know 9
39. Yesterday, during the day or night, did (NAME) consume any lipid based nutrient supplement (LNS)?	Yes.....1 No.....2 Don't know 9
40. Yesterday, during the day or night, did (NAME) consume any infant formula containing extra iron, such as Nutrilon 2, Han, Hipp, Humana, or Heintz?	Yes.....1 No.....2 Don't know 9

41. During the last six months was (NAME) given any iron tablets or syrup? Show iron tablets and syrup.	Yes ..... 1 No ..... 2 Not sure if it was iron ..... 3 Don't know 9	-> Next Q ->Q45 ->Q45 ->Q45
42. For how long did (NAME) take iron tablets or syrup?	One week or less..... 1 More than 1 week, less than 1 month ..... 2 1 month or more..... 3 Don't know 9	
43. Is (NAME) still taking iron tablets or syrup?	Yes..... 1 No..... 2 Don't know 9	->Q45 -> Next Q -> Q45
44. When did (NAME) stop taking iron tablets or syrup?	Less than 3 months ago .....1 3 months ago or more .....2 Don't know 9	
45. During the last six months was (NAME) given a vitamin A capsule? Show vitamin A capsule.	Yes ..... 1 No ..... 2 Not sure if it was vitamin A.....3 Don't know 9	

Comments about data collection with this child:

The form was reviewed by:_____Date: _____
Supervisor's signature

Data entry clerk name: _____

Data entry clerk code number: ☐

Affix HOUSEHOLD label here (starts with "E")	Cluster number ☐☐	Household number ☐☐	Child number ☐☐	Affix CHILD label here (starts with "U")

Address: _____ Family name: _____ Child's name: _____

Age of child: ..... less than 6 months / 6-59 months

Anthropometric measurements

46. Measurer's code number: ..... ☐☐	
47. Child's weight	Kilograms (kg)..... ☐☐☐.☐
48. Child's length or height • Child <2 years old. Measure length (lying down). • Child > years old. Measure height (standing up).	Centimeters (cm) ..... ☐☐☐.☐
49. Reason why weight or height/ length measurement missing	Disabled, cannot stand on scale ..... 1 Disabled, cannot measure height ..... 2 Uncooperative or uncontrolable ..... 3 Other (specify) _____ ..... 8 Refused 9
50. Child's mid-upper arm circumference (MUAC)	MUAC (cm)..... ☐☐.☐
51. Oedema	Oedema present ..... 1 Oedema not present..... 2 Unsure ..... 3 Not checked ..... 9 (specify reason: _____)

52. Consent granted for phlebotomy?	Yes .....1 No 2	-> Next Q ->STOP
53. Hemoglobin concentration	Hb ..... ☐☐☐	
54. Approximate volume of blood collected (ml)	ml ..... ☐.☐	
55. Time of blood collection Use the 24-hour clock (for example, 13:00 is 1:00 pm)	Vaxt ..... ☐☐:☐☐	

Comments about measurements or blood collection with this child:

The form was reviewed by: _____Date: _____
Supervisor's signature

Data entry clerk name: _____

Data entry clerk code number: ☐