Democratic People's Republic of Korea

Monitoring the situation of children and women

Multiple Indicator Cluster Survey 2009

Central Bureau of Statistics

United Nations Children's Fund unicef

MICS

MICS

Democratic People's Republic of Korea

Multiple Indicator Cluster Survey

2009

Final Report

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CBS

unicef

The Democratic People's Republic of Korea (DPR Korea) Multiple Indicator Cluster Survey (MICS) was carried out in 2009 by the Central Bureau of Statistics (CBS) in collaboration with the Institute of Children's Nutrition. Financial and technical support was provided by the United Nations Children's Fund (UNICEF).

MICS is an international household survey programme developed by UNICEF. The DPR Korea MICS was conducted as part of the fourth global round of MICS (MICS4). MICS provides up-to-date information on the situation of children and women and measures key indicators that allow countries to monitor progress towards the Millennium Development Goals (MDGs) and other internationally agreed-upon commitments. Additional information on the global MICS project may be obtained from www.childinfo.org.

DPR Korea Multiple Indicator Cluster Survey 2009, Final Report, CBS, Pyongyang, DPR Korea, 2010.

Summary table of findings

Multiple Indicator Cluster Surveys (MICS) and Millennium Development Goals (MDGs) indicators, DPR Korea, 2009

Topic	MICS4 Indicator Number	MDG Indicator Number	Indicator	Value	
Nutrition					
Nutritional status		*1.8*	Underweight prevalence		
	2.1a		Moderate and Severe (- 2 SD)	18.8	per cent
	2.1b		Severe (- 3 SD)	3.9	per cent
			Stunting prevalence		
	2.2a		Moderate and Severe (- 2 SD)	32.4	per cent
	2.2b		Severe (- 3 SD)	8.4	per cent
			Wasting prevalence		
	2.3a		Moderate and Severe (- 2 SD)	5.2	per cent
	2.3b		Severe (- 3 SD)	0.5	per cent
Breastfeeding and infant feeding	2.4		Children ever breastfed	98.8	per cent
	2.5		Early initiation of breastfeeding	18.4	per cent
	2.6		Exclusive breastfeeding under 6 months	88.6	per cent
	2.7		Continued breastfeeding at 1 year	86.3	per cent
	2.8		Continued breastfeeding at 2 years	36.0	per cent
	2.9		Predominant breastfeeding under 6 months	91.8	per cent
	2.10		Duration of breastfeeding	17.2	per cent
	2.11		Bottle feeding	3.5	per cent
	2.12		Introduction of solid, semi-solid or soft foods	28.9	per cent
	2.13		Minimum meal frequency	48.7	per cent
	2.14		Age-appropriate breastfeeding	50.6	per cent
	2.15		Milk feeding frequency for non-breastfed children	10.4	per cent
Salt iodization	2.16		Iodized salt consumption (15ppm or more)	24.5	per cent
Vitamin A	2.17		Vitamin A supplementation (children under age 5)	98.0	per cent
Low birthweight	2.18		Low-birthweight infants	5.7	per cent
	2.19		Infants weighed at birth	91.2	per cent
Child health					
Care of illness	3.8		Oral rehydration therapy with continued feeding	67.1	per cent
	3.9		Care-seeking for suspected pneumonia	79.8	per cent
	3.10		Antibiotic treatment of suspected pneumonia	87.6	per cent
	3.21		Place for handwashing	100.0	Per cent
	3.22		Availability of soap	100.0	Per cent
Water and sanitation					
Water and sanitation	4.1	*7.8*	Use of improved drinking water sources	99.9	per cent
	4.3	*7.9*	Use of improved sanitation facilities	83.2	per cent
	4.4		Safe disposal of child's faeces	66.8	per cent

Topic	MICS4 Indicator Number	MDG Indicator Number	Indicator	Value	
Reproductive health					
Maternal and newborn health			Antenatal care coverage		
	5.5a	*5.5*	At least once by skilled personnel	100.0	per cent
	5.5b		At least four times by any provider	93.5	per cent
	5.6		Content of antenatal care	79.0	per cent
	5.7	*5.2*	Skilled attendant at delivery	100.0	per cent
	5.8		Institutional deliveries	94.7	per cent
	5.9		Caesarean section	12.5	per cent
Child development					
Child development	6.1		Support for learning	90.8	per cent
	6.2		Father's support for learning	75.2	per cent
	6.3		Learning materials: children's books	79.1	per cent
	6.4		Learning materials: playthings	47.3	per cent
	6.5		Inadequate care	16.5	per cent
	6.6		Early child development index	75.3	per cent
	6.7		Attendance to early childhood education	97.8	Per cent
Education					
Education	7.2		School readiness	98.9	per cent
	7.3		Net intake rate in primary education	96.4	per cent
	7.4	*2.1*	Primary school net attendance rate (adjusted)	99.1	per cent
	7.5		Secondary school net attendance rate (adjusted)	97.7	per cent
	7.6	*2.2*	Children reaching last grade of primary	100.0	per cent
	7.7		Primary completion rate	104.3	per cent
	7.8		Transition rate to secondary school	100.0	per cent
	7.9		Gender parity index (primary school)	1.0	ratio
	7.10		Gender parity index (secondary school)	1.0	ratio
Child protection					
Birth registration	8.1		Birth registration	100.0	per cent
HIV/AIDS, sexual behaviour, and orphaned and vulnerable children					
HIV/AIDS knowledge and attitudes	9.1		Comprehensive knowledge about HIV prevention	8.8	per cent
	9.2	*6.3*	Comprehensive knowledge about HIV prevention among young people	7.9	per cent
	9.3		Knowledge of mother- to-child transmission of HIV	21.0	per cent
	9.4		Accepting attitude towards people with HIV	8.6	per cent
Orphaned children	9.17		Children's living arrangements	0.9	per cent
	9.18		Prevalence of children with at least one parent dead	5.0	per cent

Contents

Tables and figures

Abbreviations and acronyms

AIDS	acquired immune deficiency syndrome
AMS	Academy of Medical Science of DPR Korea
CBS	Central Bureau of Statistics of DPR Korea
CSPro	Census and Survey Processing System
EC	Education Commission of DPR Korea
EPI	expanded programme on immunization
ECDI	early child development index
GPI	gender parity index
HIV	Human Immunodeficiency Virus
ICN	Institute of Children's Nutrition of DPR Korea
IDD	iodine deficiency disorders
JMP	Joint Monitoring Programme for Water Supply and Sanitation of WHO/UNICEF
MDGs	Millennium Development Goals
MICS	Multiple Indicator Cluster Surveys
MoCM	Ministry of City Management of DPR Korea
MoLEP	Ministry of Land and Environment Protection of DPR Korea
MoPH	Ministry of Public Health of DPR Korea
MUAC	mid-upper arm circumference
NAR	net attendance rate
NCC	National Coordination Committee of DPK Korea
ORS	oral rehydration salts
ORT	oral rehydration therapy
PPM	parts per million
PPS	probability proportional to size
PSO	Provincial Statistics Office of DPR Korea
PSU	primary sampling unit
RHF	recommended home fluid
SPC	State Planning Committee of DPR Korea
SPSS	Statistical Package for Social Sciences
STI	sexually transmitted infection
UNAIDS	United Nations Programme on HIV/AIDS
UNFPA	United Nations Population Fund
UNGASS	United Nations General Assembly Special Session on HIV/AIDS
UNICEF	United Nations Children's Fund
WFFC	A World Fit for Children
WHO	World Health Organization

Acknowledgements

To monitor implementation progress towards international conventions, UNICEF, in collaboration with the World Health Organization (WHO) and other UN agencies, developed Multiple Indicator Cluster surveys (MICS) in the mid-1990s. MICS is a household survey programme designed to collect comprehensive data related to the welfare of children and women.

The DPR Korea MICS4 2009 was mandated to the Central Bureau of Statistics (CBS) of DPR Korea. CBS worked with close inter-agency cooperation of the Ministry of Public Health (MoPH), Education Commission (EC), Ministry of Land and Environment Protection (MoLEP), Ministry of City Management (MoCM), Institute of Children's Nutrition (ICN) and related ministries and institutions to successfully carry out the survey. Staff of CBS, the Provincial Statistics Offices (PSOs), 180 city and county statistics offices, and Ri/Up/Ku/Dong, the smallest administrative units of DPR Korea, and many other people took part in MICS 2009 to successfully conduct the survey.

As the MICS 2009 indicators monitored the nutritional status of children and women, 20 ICN specialists and researchers gave technical assistance for scientific accuracy. We appreciate and give thanks to all related ministries and people who cooperated in MICS 2009.

The Global MICS team of UNICEF defined the MICS protocols and methodology and designed and standardized MICS tools that countries can customize for their use. Standardized MICS questionnaires, sample selection processes and software for tabulation provided by UNICEF improved the understanding and capacity of the MICS team at CBS, something that will give great help in future statistical projects.

During the MICS process several UNICEF consultants made great efforts in training, sampling, accuracy of data processing and tabulation, analysis and report writing.

UNICEF provided in-country and overseas training to the DPR Korea MICS team to enable it to fulfill its task successfully. We express our gratitude for all the technical and financial support UNICEF provided for the successful implementation of the survey and to the sincere efforts that consultant Muhammad Shuaib of Dhaka University, Ivana Bjelic of UNICEF HQs, NY and Rhiannon James from the UNICEF Asia Pacific Shared Service Centre made at all stages of the survey.

Executive summary

Introduction

The Democratic People's Republic of Korea (DPR Korea) Multiple Indicator Cluster Survey (MICS 2009) was carried out in 2009 by the Central Bureau of Statistics (CBS) of DPR Korea with financial and technical support from the United Nations Children's Fund (UNICEF).

MICS is an international household survey programme developed by UNICEF. MICS provides up-to-date information on the situation of children and women and measures key indicators that allow countries to monitor progress towards the Millennium Development Goals (MDGs) and other internationally agreed-upon commitments.

MICS 2009 is part of the fourth global round of MICS surveys (MICS4). It follows the national nutrition survey in 2004 and previous MICS conducted in DPR Korea in 1998 and 2000. For the first time, MICS 2009 surveyed all 10 provinces of DPR Korea.

Sample coverage and the characteristics of households and respondents

Sample coverage

Of 7 500 households selected for the sample, 7 500 were occupied. Of these, 7 496 were successfully interviewed. In the interviewed households, 8 249 women aged 15-49 years were successfully interviewed. In addition, interviews to mothers and caretakers were completed for 2 175 children under age five.

Response rates were so high because selected households were contacted before the teams arrived and it was recommended to them that they stay at home to await the survey team.

The overall sample size was calculated to obtain results at the national level that would be statistically robust. It is important to emphasize that due to logistical and financial reasons the same sample size required for the national level could not be applied for each of the sample domains (the 10 provinces). Provincial estimates throughout the report should be interpreted with some caution.

Nutrition

Nutritional Status

Children's nutritional status is a reflection of their overall health. In DPR Korea MICS 2009, weights and heights of all children under 5 years of age were measured using anthropometric equipment recommended by UNICEF.

Almost one in five children under age five in DPR Korea are moderately underweight (19 per cent) with 4 per cent severely underweight. About one in three children (32 per cent) are moderately stunted (too short) for their age; this worsens with age, with 47 per cent of children 48-59 months moderately stunted. Five per cent are moderately wasted (too thin) for their height. There is no sex differential in terms of all indicators. There are striking differences among provinces and by urban-rural regions. For example, 45 per cent of children living in rural areas are too short for their height compared to 23 percent in urban areas.

Breastfeeding and infant and young feeding
Almost all children born within the two years preceding the survey (99 per cent) had been breastfed. Although breastfeeding in the first hour of life is a very important step in the management of lactation and the establishment of a physical and emotional relationship between the baby and the mother, only 18 per cent of babies were breastfed for the first time within one hour of birth; however, 99 per cent of newborns in DPR Korea start breastfeeding within one day of birth. Births in recent times (0-11 months) were nearly twice as likely to be breastfed within one hour of birth than those who born 12-23 months preceding the survey (25 per cent compared to 13 per cent, respectively)

Approximately 89 per cent of children aged less than six months are exclusively breastfed, a level considerably higher in DPR Korea than in many countries. By age 12-15 months, 86 per cent of children are still being breastfed, and 36 per cent by age 20-23 months. Boys were more likely to be exclusively breastfed than girls. There is a significant difference between urban and rural areas, with higher rural rates of breastfeeding across all age groups.

Less than half of the children aged 6-23 months (49 per cent) received solid, semi-solid and soft foods the minimum number of times.

Salt Iodization
In all households, salt used for cooking was tested for iodine content using salt test kits to test for potassium iodate content. In only 25 per cent of households salt was found to contain 15 parts per million (ppm) or more of iodine, the recommended indicator standard.

Children's vitamin A supplementation
Based on UNICEF/WHO guidelines, the DPR Korea Ministry of Public Health recommends that children aged 6-11 months be given one vitamin A capsule (100,000 IU) and that children aged 12-59 months be given a vitamin A capsule (200,000 IU) every six months

In the six months prior to MICS 2009, 98 per cent of children aged 6-59 months received a high dose Vitamin A supplement.

Low birthweight
Weight at birth is a good indicator not only of a mother's health and nutritional status but also of a newborn's chances for survival, growth, long-term health and psychosocial development. Low birthweight (less than 2,500 grams) carries a range of grave health risks for children.

In DPR Korea, 91 per cent of births were weighed at birth; only 6 per cent of infants are estimated to weigh less than 2,500 grams at birth.

Child health

Oral rehydration therapy and diarrhoea
Diarrhoea is the second leading cause of death among children under five worldwide. Most diarrhoea-related deaths in children are due to dehydration from loss of large quantities of water and electrolytes from the body in liquid stools. Management of diarrhoea, either through oral rehydration salts (ORS) or a recommended home fluid (RHF) can prevent many of these deaths. Preventing dehydration and malnutrition by increasing fluid intake and continuing to feed the child are also important strategies for managing diarrhoea.

Fourteen per cent of children under five had diarrhoea in the two weeks preceding the survey. About 74 per cent of children with diarrhoea received fluids from ORS packets and 76 per cent other fluids. In total, 92 per cent received ORS or other fluids, while 8 per cent received no treatment.

Increasing fluid intake and continuing to feed the child are important strategies for managing diarrhoea. Less than half (43 per cent) of children under five with diarrhoea drank more than usual; only 20 per cent were given more to eat. While 56 per cent drank the same or less, 78 per cent ate much less, somewhat less and the same — 23 per cent were given much less or stopped food.

Care seeking and antibiotic treatment of pneumonia
Pneumonia is the leading cause of death in children globally, and the use of antibiotics in under-5s with suspected pneumonia is a key intervention.

During the two weeks preceding the survey, 6 per cent of children aged 0-59 months had symptoms of pneumonia; 80 per cent of these children were taken to an appropriate provider; 88 per cent of under-5 children with suspected pneumonia received an antibiotic in the two weeks prior to the survey. The percentage was higher in urban areas than rural areas (93 per cent versus 80 per cent, respectively).

A mother or caretaker's knowledge of the danger signs of pneumonia is an important determinant of care-seeking behaviour. Overall, just under one fifth of mothers or caretakers (19 per cent) know the two danger signs of pneumonia: fast and difficult breathing.

The most commonly identified symptom for taking a child to a health facility is when a child develops a fever (75 per cent), although 39 per cent of mothers identified fast breathing and 23 per cent identified difficult breathing as symptoms for taking children immediately to a health care provider.

When pneumonia is suspected, 80 per cent of children are taken to hospital, but only 19 per cent of children are taken to hospital when they show the two danger signs of pneumonia, fast and difficult breathing. This indicates the need to make mothers and caretakers more aware of the danger signs of pneumonia.

Handwashing
Although100 per cent of observed households had a specific place for handwashing where both water and soap were available, it must be stressed that the MICS 2009 did not monitor actual handwashing by household members.

Water and sanitation

Use of improved water sources
In the surveyed households, almost all (99.9 per cent) of the population uses improved sources of drinking water, with no differences between urban-rural, provinces or education of household head observed.

An important lesson for future household data collection activities in DPR Korea is as well as asking about the 'main source' it may be necessary to include questions on the frequency and duration water can be obtained from this 'main' source as well as questions on the secondary source of water for the household.

Use of improved sanitation facilities
In all, 83 per cent of DPR Korea lives in households using improved sanitation facilities. This increases to 90 per cent in urban areas and drops to 73 per cent in rural areas. In urban areas, 73 per cent of households use flush toilets connected to a sewer system or septic tank, while in rural areas 49 per cent of households use pit latrines with or without slabs.

According to the survey, 41 per cent of rural households use a piped sewer system, while only 22 per cent use pit latrines with a slab. Latrines in rural apartments in DPR Korea are mostly connected to a common septic tank, but they are still a pour flush latrine. Respondents may not have differentiated between a system with sewer connection and a system with a common septic tank. For future surveys, the definition of improved sanitation needs to be further clarified.

Overall, 83 per cent of households use improved sanitation facilities, with 78 per cent using not-shared improved sanitation facilities. There is an urban-rural difference, with 27 per cent of rural household populations using unimproved sanitation facilities versus only 10 per cent in urban areas.

Safe disposal of a child's faeces by disposing of the stool, by the child using a toilet or by rinsing the stool into a toilet or latrine was found to be practiced by 67 per cent of households.

Reproductive health

Antenatal care

UNICEF and WHO recommend a minimum of at least four antenatal care visits during pregnancy. Almost all mothers (99.6 per cent) received antenatal care more than once and around 94 per cent mothers received antenatal care at least four times.

Assistance at delivery

All births occurring in the two years preceding the MICS survey were delivered by skilled personnel. A nurse/midwife assisted at 37 per cent of the births while doctors assisted with the delivery of the remaining 63 per cent of births.

Place of delivery

In DPR Korea, 95 per cent of births are delivered in a health facility; the remaining five per cent occur at home.

Post-partum vitamin A supplementation

Nearly all women (98 per cent) aged 15-49 who delivered a child 2 years prior to survey were provided vitamin A within 2 months after delivery. There is no difference by province, urban-rural areas.

Mid-upper arm circumference (MUAC) of women

The mid-upper arm circumference of women is an indicator used to evaluate the nutrition status of women. When the MUAC of a woman is less than 225 mm, she is considered under-nourished.

DPR Korea added a women's anthropometry module in the women's questionnaire and measured women's MUAC. In all, just over a quarter of women aged 15-49 (26 per cent) are under-nourished, with a MUAC of less than 225 mm. There was no difference between urban and rural residents, and by educational attainment.

Child development

Early childhood education and learning

Attendance to pre-school education in an organized learning or child education program is important for the readiness of children to school.

MICS 2009 found that 98 per cent of children aged 36-59 months attend pre-school. Urban-rural and regional differentials are not significant. No gender differential exists.

The survey collected information on a number of activities that support early child development. These included adults involved with children in reading books, telling stories, singing songs, taking children outside, playing with them, and spending time with children naming, counting or drawing things.

For 91 per cent of under-five children, an adult household member engaged in more than four activities that promote learning and school readiness during the 3 days preceding the survey

Leaving children alone or in the presence of other young children is known to increase the risk of accidents. It was found that 12 per cent of children aged 0-59 months were left in the care of other children under 10 years of age, while 6 per cent of children aged 0-59 months were left alone during the week preceding the interview. Combining the two care indicators, it is calculated that 17 per cent of children were left with inadequate care during the week preceding the survey, either by being left alone or in the care of another child.

Early childhood development
A 10-item module developed for the MICS programme was used to calculate the early child development index (ECDI). The indicator is based on benchmarks that children would be expected to have if they are developing as the majority of children in that age group. The primary purpose of the ECDI is to inform public policy regarding the developmental status of children in DPR Korea.

The results include: 75 per cent of children aged 36-59 months are developmentally on track. ECDI is slightly higher among boys (76 per cent) than girls (74 per cent). ECDI is slightly lower in the older age group (74 per cent among 48-59 months old compared to 77 per cent among 36-47 months old). Children are on track in the learning (97 percent) and in the physical (95 per cent) domains but much less so in literacy-numeracy (13 per cent).

Education

School readiness
Almost all children (99 per cent) who are currently attending the first grade of primary school were attending pre-school the previous year.

Primary and secondary school participation
Of children who were of primary school entry age (age 7), 96 per cent attended the first grade of primary school. Nearly all children of primary school age attend school (99 per cent) as to almost children (97 per cent) of secondary school age.

Gender parity for primary school and for secondary school is 1.00.

Birth registration
The births of all children under-five years have been registered.

HIV/AIDS

Knowledge about HIV transmission and misconceptions about HIV/AIDS

In DPR Korea MICS all women aged 15-49 who heard of AIDS were asked whether they knew of the two main ways of preventing HIV transmission – having only one faithful uninfected partner and using a condom every time. More than two thirds of the interviewed women (69 per cent) had heard of AIDS. However, the percentage of women who know both main ways of preventing HIV transmission is only 37 per cent. Only 9 per cent of women have a comprehensive knowledge about HIV transmission, although this increases to 24 per cent in Pyongyang.

Of the interviewed women, 20 per cent reject the two most common misconceptions and know that a healthy-looking person can be infected. Thirty six per cent of women know that HIV cannot be transmitted by mosquito bites, and 35 per cent of women know that HIV cannot be transmitted by sharing food, while 36 per cent of women aged 15-24 know that a healthy-looking person can be infected

Overall, 57 per cent of women know that HIV can be transmitted from mother to child. The percentage of women who know all three ways of mother-to-child transmission is 21 per cent, while 12 per cent of women did not know of any specific way. The provincial differences are quite significant.

Accepting attitudes towards people living with HIV/AIDS

In DPR Korea 80 per cent of women who have heard of AIDS agree with at least one accepting statement. The most common accepting attitude is the rejection of keeping secret that a family member is infected with the AIDS virus (66 per cent). However the least common accepting attitude is the willingness to care for a family member with the AIDS virus in the home (22 per cent).

I. Introduction

Background

This report is based on the DPR Korea Multiple Indicator Cluster Survey (MICS), conducted in 2009 by the Central Bureau of Statistics (CBS) of DPR Korea. The MICS 2009 survey provides valuable information on the situation of children and women in DPR Korea, and was based on the need to monitor progress towards goals and targets resulting from recent international agreements: the United Nations Millennium Declaration, adopted by all 191 United Nations Member States in September 2000, and the Plan of Action of A World Fit For Children, adopted by 189 Member States at the United Nations Special Session on Children in May 2002. Both of these commitments build upon promises made by the international community at the 1990 World Summit for Children.

In signing these international agreements, governments committed themselves to improving conditions for their children and to monitoring progress towards that end. UNICEF was assigned a supporting role in this task (see table below).

A commitment to action: National and international reporting responsibilities

The governments that signed the United Nations Millennium Declaration and the A World Fit for Children Declaration and Plan of Action also committed themselves to monitoring progress towards the goals and objectives they contained:

"We will monitor regularly at the national level and, where appropriate, at the regional level and assess progress towards the goals and targets of the present Plan of Action at the national, regional and global levels. Accordingly, we will strengthen our national statistical capacity to collect, analyse and disaggregate data, including by sex, age and other relevant factors that may lead to disparities, and support a wide range of child-focused research. We will enhance international cooperation to support statistical capacity-building efforts and build community capacity for monitoring, assessment and planning."
— A World Fit for Children 2002, paragraph 60

"We will conduct periodic reviews at the national and sub-national levels of progress in order to address obstacles more effectively and accelerate actions.…"
— A World Fit for Children 2002, paragraph 61

The Plan of Action of A World Fit for Children also calls for the specific involvement of UNICEF in the preparation of periodic progress reports:

"As the world's lead agency for children, the United Nations Children's Fund is requested to continue to prepare and disseminate, in close collaboration with Governments, relevant funds, programmes and the specialized agencies of the United Nations system, and all other relevant actors, as appropriate, information on the progress made in the implementation of the Declaration and the Plan of Action."
—Plan of Action of A World Fit for Children, paragraph 61

Similarly, the United Nations Millennium Declaration calls for periodic reporting on progress:
"We request the General Assembly to review on a regular basis the progress made in implementing the provisions of this Declaration, and ask the Secretary-General to issue periodic reports for consideration by the General Assembly and as a basis for further action."
— United Nations Millennium Declaration, paragraph 31

The Government of DPR Korea set national development goals to achieve the Millennium Development Goals (MDGs). But during the implementation process, the country faced many hardships. In the mid-1990s, DPR Korea had economical downturns and series of severe natural disasters. To overcome these difficulties, the country had to strive through hard period known as the “arduous march”. During that time, some indicators did not improve including average life expectancy and infant mortality. But thanks to efforts by the Government, the country’s indicators are improving. DPR Korea is contributing to MDG implementation with policies like free medical service and universal compulsory education.

MICS 2009 was conducted to collect up-to-date information of the status of children and women in DPR Korea. The survey was timed to provide data necessary to write the 2010 mid-term progress report on MDG implementation by DPR Korea.

Conducted in September and October 2009, MICS 2009 is the fourth round of the survey in DPR Korea following nutrition surveys and previous MICS conducted in 1998, 2000 and 2004. October was selected for nutrition fieldwork in order to compare with data from the 2004 nutrition survey which was also conducted in October. Importantly, MICS 2009 sampled all 10 provinces of the DPR Korea while the 2004 nutrition survey surveyed eight provinces.

To successfully implement MICS 2009, a Steering Committee was formed in June 2009 with representatives from the Central Bureau of Statistics (CBS), Ministry of Public Health (MoPH), Education Commission (EC), Ministry of City Management (MoCM), State Planning Committee (SPC) and National Coordinating Committee (NCC).

The Steering Committee met at critical points during the MICS 2009 survey to:

- discuss and make decisions on important issues such as finalizing the MICS questionnaires;
- oversee the smooth and successful implementation of the survey;
- review and advise on the correctness and objectivity of survey results.

Survey objectives

The primary objectives of MICS 2009 were to:

- collect data to monitor progress on achieving the goals of the National Programme of Action for the Well-being of Children (2001-2010) of DPR Korea and the United Nations Millennium Development Goals (MDGs);
- identify strategies to better target future programmes and expenditures of the Government and of international agencies such as UNICEF that seek to improve the status of women and children;
- further the capacity of national agencies including the CBS to carry out such surveys in the future.

This final report presents the results of the indicators and topics covered in the DPR Korea MICS 2009 survey.

II. Sample and survey methodology

Sample design

The sample for the DPR Korea MICS 2009 was designed to provide estimates for a large number of indicators on the situation of children and women at the national level, for urban and rural areas, and for all of the ten provinces of DPR Korea: Ryanggang, North Hamgyong, South Hamgyong, Kangwon, Jagang, North Phyongan, South Phyongan, North Hwanghae, South Hwanghae and Pyongyang. The urban and rural areas within each province were identified as the main sampling strata and the sample was selected in two stages. Within each province, a specified number of 30 census enumeration areas were selected systematically with probability proportional to size. After a household listing was carried out within the selected enumeration areas, a systematic sample of 25 households was drawn in each sample enumeration area. All of the selected enumeration areas were visited during the fieldwork period. The sample was stratified by province, urban and rural areas and is not self-weighting. For reporting national level results, sample weights are used. A more detailed description of the sample design can be found in Appendix A. Sample Design.

Questionnaires

Three sets of questionnaires were used in the survey: 1) a household questionnaire which was used to collect information on all *de jure* household members (usual residents) and the household; 2) a women's questionnaire administered in each household to all women aged 15-49 years; and 3) an under-5 questionnaire, administered to mothers or caretakers for all children under 5 living in the household.

The Household Questionnaire included the following modules:

- Household listing form
- Education
- Water and sanitation
- Handwashing
- Salt iodization

The Questionnaire for Individual Women was administered to all women aged 15-49 years living in the households, and included the following modules:

- Women's background
- Maternal and newborn health
- Illness symptoms
- HIV/AIDS
- Anthropometry

The Questionnaire for Children Under Five was administered to mothers or caretakers of children under 5 years of age[1] living in the households. In cases when the mother was not listed in the household roster, a primary caretaker for the child was identified and interviewed. The questionnaire included the following modules:

- Age
- Birth registration
- Early childhood development

[1] The terms 'children under 5', 'children aged 0-4 years', and 'children aged 0-59 months' are used interchangeably in this report.

- Vitamin A
- Breastfeeding
- Care of illness
- Anthropometry

The questionnaires are based on the MICS4 model questionnaire[2]. From the MICS4 model English version, the questionnaires were translated into Korean and were pre-tested in Songchon county of South Phyongan and Bopbdong county of Kangwon during August 2009. Based on the results of the pre-test, modifications were made to the wording and translation of the questionnaires. A copy of the English-language versions of the DPR Korea MICS questionnaires is provided in Appendix F.

In addition to administering questionnaires, fieldwork teams tested the salt used for cooking in the households for iodine content, observed the place for handwashing, measured the weights and heights of children aged under 5 years, and the mid-upper arm circumference (MUAC) of women aged 15-49 years. Details and findings of these measurements are provided in the respective sections of the report.

It was decided to drop the questionnaire on expanded programme on immunization (EPI) module because the nationwide EPI coverage was previously conducted in 2008. The early childhood development (ECD) module included in this study was piloted in UNICEF DPR Korea and hence offered opportunities of learning.

Training and fieldwork

Trainers were trained for four days in Pyongyang 6-10 September, 2009. The training sessions, facilitated by Mr. Muhammad Shuaib, MICS consultant, included 15 participants (12 from CBS, 2 from ICN and 1 from the Academy of Medicine Science).

Training for fieldwork was conducted for 11 days in September 2009[3]. Training included lectures on interviewing techniques and the contents of the questionnaires, and mock interviews between trainees to gain practice in asking questions. Towards the end of the training period, trainees spent three days in practice interviewing in Moranbong and Mangyongdae districts of Pyongyang.

The data were collected by 20 six-person teams of three interviewers, one driver, one editor/measurer[4] and one supervisor. Fieldwork began September 2009 and concluded in October 2009. In the evening before or in the morning of the enumeration, selected households received notification that they would be visited. It was recommended to household members, especially women aged 15-49 and children under five years, that they stay home on those days. UNICEF and World Food Programme (WFP) staff – both national and international – participated in field monitoring in October.

[2] The model MICS4 questionnaires can be found at www.childinfo.org

[3] The training duration for DPRK was less than the global MICS recommendation. The MICS Manual recommends that fieldwork training lasts approximately14 days

[4] In DPR Korea, same person worked as both editor and measure. The MICS Manual recommend recruitment of separate staff as measurer and editor

Data processing

Data were entered on 20 microcomputers using the standard UNICEF Census and Survey Processing System (CSPro) software by 20 data entry operators. Data entry was done in the field at the time of data collection and then brought to Pyongyang. Data was entered individually in the field, therefore data entry supervision was not valid. In order to ensure quality control, all questionnaires were double entered and internal consistency checks were performed. Two data processing supervisors checked data quality. Procedures and standard programs developed under the global MICS4 programme and adapted to the DPR Korea questionnaire were used throughout. Data processing began simultaneously with data collection in September 2009 and was completed in November 2009. Data were analysed using the Statistical Package for Social Sciences (SPSS) software program, Version 18, and model syntax and tabulation plans developed by UNICEF.

III. Sample coverage and the characteristics of households and respondents

Sample coverage

Table HH.1 shows the results of household, women's and under-5 interviews. Of the 7 500 households selected for the sample, 7 500 were found to be occupied. Of these, 7 496 were successfully interviewed, for a response rate of 99.9 per cent. In the interviewed households, 8 249 women (aged 15-49 years) of 8 253 identified were successfully interviewed, yielding a response rate of 100 per cent. In addition, questionnaires were completed for 2 172 of 2 175 children under age five listed in the household questionnaire, a response rate of 99.9 per cent within interviewed households. Overall response rates of 99.9 per cent and 99.8 per cent are calculated for the women's and under-5 interviews, respectively.

Table HH.1: Results of household, women's and under-5 interviews

Number of households, women, and children under 5 by results of the household, women's and under-5 interviews, and by household, women's and under-5 response rates, DPRK, 2009

	Residence		Province										
	Urban	Rural	Ryanggang	North Hamgyong	South Hamgyong	Kangwon	Jagang	North Phyongan	South Phyongan	North Hwanghae	South Hwanghae	Pyongyang	Total
Households													
Sampled	4 450	3 050	750	750	750	750	750	750	750	750	750	750	7 500
Occupied	4 450	3 050	750	750	750	750	750	750	750	750	750	750	7 500
Interviewed	4 448	3 048	748	749	750	750	750	750	750	749	750	750	7 496
Household response rate	100.0	99.9	99.7	99.9	100.0	100.0	100.0	100.0	100.0	99.9	100.0	100.0	99.9
Women													
Eligible	4 942	3 311	809	825	846	867	829	810	801	821	785	860	8 253
Interviewed	4 940	3 309	808	823	846	867	829	810	801	821	785	859	8 249
Women's response rate	100.0	99.9	99.9	99.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	100.0
Women's overall response rate	99.9	99.9	99.6	99.6	100.0	100.0	100.0	100.0	100.0	99.9	100.0	99.9	99.9
Children under 5													
Eligible	1 249	926	220	222	221	206	216	232	219	228	197	214	2 175
Mothers/caretakers interviewed	1 246	926	220	222	221	206	216	232	219	227	197	212	2 172
Under-5's response rate	99.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.6	100.0	99.1	99.9
Under-5's overall response rate	99.7	99.9	99.7	99.9	100.0	100.0	100.0	100.0	100.0	99.4	100.0	99.1	99.8

There is little variation in response rates between provinces or urban-rural areas. Response rates were so high because selected households were contacted before the teams arrived and it was recommended to them that they stay at home to await the survey team.

The overall sample size was calculated to obtain results at the national level that would be statistically robust. It is important to emphasize that due to logistical and financial reasons the same sample size required for the national level could not be applied for each of the sample domains, i.e. the 10 provinces. Therefore, the provincial level results will not be as statistically reliable as the results at the national level. Small sample sizes at the provincial level particularly became a problem for indicators that are based on a subset of the whole sample. For some indicators the overall sample size will not be large enough to contain a sufficient number of cases per province that fall into the required subset of the sample. Provincial

estimates throughout the report should therefore be interpreted with some degree of caution; for particularly rare events results disaggregated by provincial level have been excluded altogether.

Characteristics of households

Table HH.2 provides the weighted age and sex distribution of the survey population. The distribution is also used to produce the population pyramid in Figure HH.1. In the 7 496 households successfully interviewed in the survey, 29 744 household members were listed. Of these, 14 008 were males (47.1 per cent), and 15 736 were females (52.9 per cent). According to the 2008 population census the sex distribution was 48.7 per cent male and 51.3 per cent female.

The sex distribution of sampled household population does not significantly differ from the demographic statistical data from the census. The number of males is smaller than females in the 15-29 age group because the population living in institutional living quarters was not included in the survey. The age groups with the highest population proportions are 35-39 years (9.2 per cent) and 40-44 years (8.7 per cent). Children aged 0-17 years make up just over a quarter of the total population (28.3 per cent).

Table HH.2: Household age distribution by sex

Percent and frequency distribution of the household population by five-year age groups, dependency age groups, and by child (age 0-17 years) and adult populations (age 18 or more), by sex, DPR Korea, 2009

	Males		Females		Total	
	Number	Percent	Number	Percent	Number	Percent
Age						
0-4	1 113	7.9	1 077	6.8	2 190	7.4
5-9	1 159	8.3	1 144	7.3	2 303	7.7
10-14	1 273	9.1	1 220	7.8	2 493	8.4
15-19	1 058	7.6	1 191	7.6	2 249	7.6
20-24	710	5.1	1 151	7.3	1 862	6.3
25-29	965	6.9	1 123	7.1	2 089	7.0
30-34	1 074	7.7	1 073	6.8	2 147	7.2
35-39	1 383	9.9	1 357	8.6	2 740	9.2
40-44	1 298	9.3	1 281	8.1	2 579	8.7
45-49	1 019	7.3	1 068	6.8	2 087	7.0
50-54	886	6.3	959	6.1	1 845	6.2
55-59	552	3.9	632	4.0	1 184	4.0
60-64	721	5.1	800	5.1	1 521	5.1
65-69	454	3.2	646	4.1	1 100	3.7
70-74	243	1.7	473	3.0	716	2.4
75-79	82	0.6	340	2.2	422	1.4
80-84	11	0.1	140	0.9	151	0.5
85+	7	0.1	60	0.4	67	0.2
Dependency age groups						
0-14	3 544	25.3	3 441	21.9	6 985	23.5
15-64	9 666	69.0	10 636	67.6	20 302	68.3
65+	798	5.7	1 659	10.5	2 456	8.3
Child and adult populations						
Children aged 0-17 years	4 237	30.2	4 172	26.5	8 409	28.3
Adults aged 18+ years	9 771	69.8	11 563	73.5	21 334	71.7
Total	14 008	100.0	15 736	100.0	29 744	100.0

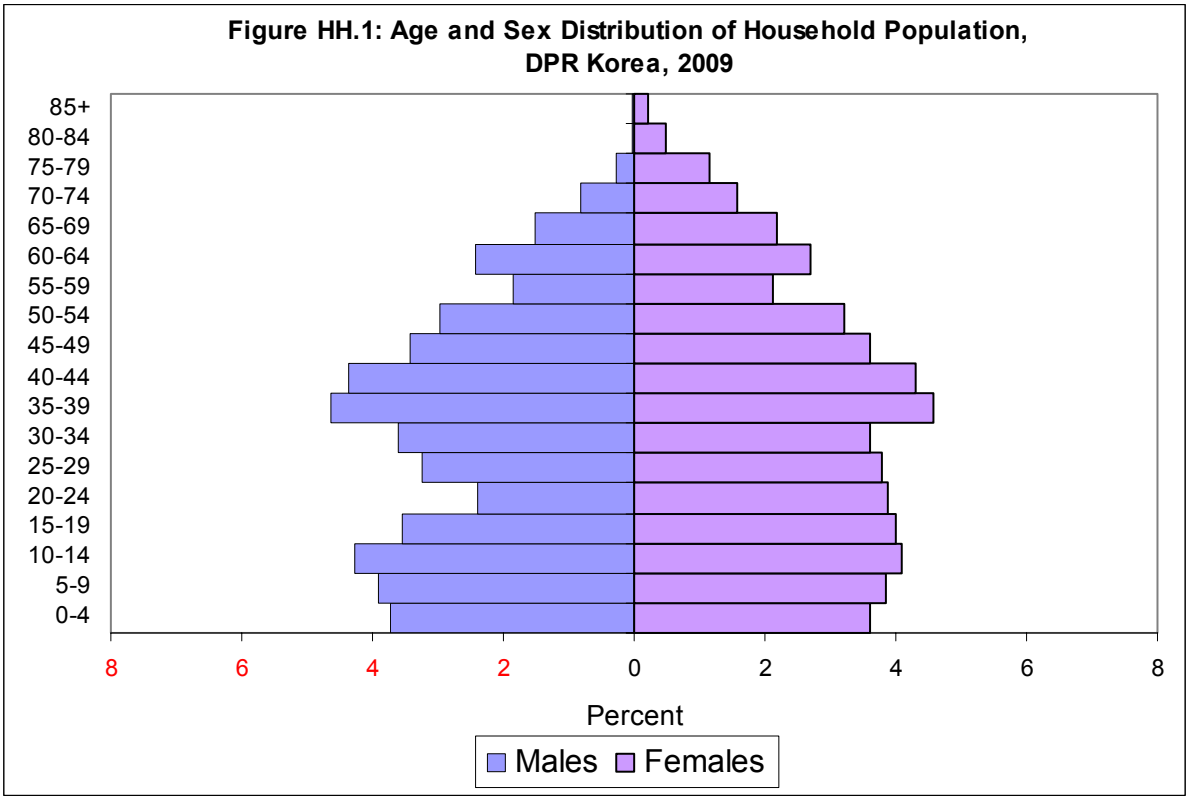


Table HH.3 provides basic background information on surveyed households including the sex of the household head, provincial and urban-rural data, the number of household members, and the education of the household head. These characteristics are used in subsequent tables in this report. Table HH.3 also shows the numbers of observations by major categories of analysis in the report.

The weighted and unweighted numbers of households are equal, since sample weights were normalized (see Appendix A). The table also shows the proportions of households with at least one child under age 18, at least one child under age 5, and at least one eligible woman aged 15-49. The table also shows the weighted average household size estimated by the survey.

Males head 92 per cent of all households and females 8 per cent, as in the 2008 census. Urban households are 60 per cent of the sample and rural 40 per cent, compared to 2008 figures of 61 per cent urban and 39 per cent rural. The average household size is 4 persons, with 67 per cent of households having 4+ persons. Nearly 27 per cent of household heads have higher education; 0.4 per cent received only primary education. Similar to the 2008 census, 24 per cent of all households have at least one child under 5 years, while 83 per cent of households have at least one woman aged 15-49.

Table HH.3: Household composition

Percent and frequency distribution of households by selected characteristics, DPR Korea, 2009

	Weighted percentage	Number of households	
		Weighted	Unweighted
Sex of household head			
Male	92.0	6 898	6 892
Female	8.0	598	604
Region			
Ryanggang	3.2	237	748
North Hamgyong	10.3	776	749
South Hamgyong	12.9	964	750
Kangwon	6.2	463	750
Jagang	5.5	416	750
North Phyongan	11.9	889	750
South Phyongan	17.5	1 311	750
North Hwanghae	8.9	670	749
South Hwanghae	9.9	744	750
Pyongyang	13.7	1 028	750
Residence			
Urban	60.2	4 514	4 448
Rural	39.8	2 982	3 048
Number of household members			
1	1.1	83	95
2	11.4	852	862
3	19.9	1 495	1 521
4	37.4	2 807	2 714
5	20.4	1 532	1 539
6+	9.7	728	765
Education of household head			
Primary	0.4	32	32
Secondary	72.9	5 467	5 491
Higher	26.6	1 997	1 973
Total	100.0	7 496	7 496
Households with at least			
One child age 0-4 years	23.7	7496	7 496
One child age 0-17 years	63.4	7496	7 496
One woman aged 15-49 years	82.6	7496	7 496
Mean household size	4.0	7496	7 496

Characteristics of female respondents 15-49 years of age and children under-5

Table HH.4 provides the background characteristics of female respondents 15-49 years of age, while Table HH.5 does the same for children under age 5. In both tables, the total numbers of weighted and unweighted observations are equal, since sample weights have been normalized (standardized). In addition, the tables also show the numbers of observations in each background category. These categories are used in the subsequent tabulations of this report.

Table HH.4: Women's background characteristics

Percentage and frequency distribution of women aged 15-49 years by selected background characteristics, DPR Korea, 2009

	Weighted percentage	Number of women	
		Weighted	Unweighted
Region			
Ryanggang	3.1	257	808
North Hamgyong	10.4	856	823
South Hamgyong	13.1	1083	846
Kangwon	6.5	534	867
Jagang	5.6	459	829
North Phyongan	11.7	964	810
South Phyongan	17.0	1 403	801
North Hwanghae	8.9	735	821
South Hwanghae	9.4	779	785
Pyongyang	14.3	1 179	859
Residence			
Urban	61.0	5 033	4 940
Rural	39.0	3 216	3 309
Age			
15-19	14.5	1 192	1 199
20-24	14.0	1 151	1 153
25-29	13.6	1 124	1 148
30-34	13.0	1 074	1 072
35-39	16.5	1 357	1 326
40-44	15.5	1 281	1 280
45-49	13.0	1 069	1 071
Births in last two years			
Had a birth in last two years	16.1	854	841
Had no birth in last two years	83.9	4 458	4 442
Education			
Secondary	83.7	6 902	6 910
Higher	16.3	1 347	1 339
Total	100.0	8 249	8 249

Table HH.4 provides background characteristics of female respondents 15-49 years of age. The table includes information on the distribution of women according to region, residence, age, births in last two years and education[5].

The sample was selected equally in all regions; however certain regions in DPR Korea have higher population density than others. Consequently the weighted number of women in South Phyongan is 1.7 times greater than that of the unweighted number. Conversely the number of women in Ryanggang is 0.3 of the unweighted number. In age distribution, proportion of age groups 35-39 and 40-44 were the highest. It's due to "baby boom" occurred in 1960s and beginning of 1970s. No difference was found in comparing distribution of women age 15-49 with 2008 census. In the past two years, 16 per cent of women have had a birth.

[5] Unless otherwise stated, "education" refers to educational level attended by the respondent throughout this report when it is used as a background variable.

Table HH.5: Background characteristics of children under 5

Percent and frequency distribution of children under five years of age by selected characteristics, DPR Korea, 2009

	Weighted percentage	Number of under-5 children	
		Weighted	Unweighted
Sex			
Male	50.9	1 106	1 110
Female	49.1	1 066	1 062
Region			
Ryanggang	3.1	68	220
North Hamgyong	10.6	230	222
South Hamgyong	13.2	287	221
Kangwon	5.8	125	206
Jagang	5.4	118	216
North Phyongan	12.7	275	232
South Phyongan	17.5	381	219
North Hwanghae	9.3	202	227
South Hwanghae	8.8	192	197
Pyongyang	13.5	293	212
Residence			
Urban	58.4	1 268	1 246
Rural	41.6	904	926
Age			
0-5 months	7.5	164	158
6-11 months	11.0	238	234
12-23 months	20.7	450	454
24-35 months	20.0	433	436
36-47 months	21.1	459	461
48-59 months	19.7	428	429
Mother's education*			
Secondary	81.9	1 779	1 782
Higher	18.1	393	390
Total	100.0	2 172	2 172

* Mother's education refers to educational attainment of mothers and caretakers of children under 5.

Some background characteristics of children under 5 are presented in Table HH.5. These include the distribution of children by several attributes: sex, region and residence, age, and mother's or caretaker's education.

Provincial distribution of children under 5 shows a similar tendency to distribution of women age 15-49. Data by sex show among children under 5, male proportion is 51 per cent and female proportion is 49 per cent. Comparing distribution of children under 5 with 2008 census data, there was no change. By education level of the mothers, all the mothers had over secondary education. 82 per cent of the mothers had secondary education and 18 per cent had post secondary education.

Orphanhood

The frequency of children living with neither parent, mother only, and father only is presented in Table HH.6. While 93 per cent of children aged 0-17 years in DPR Korea live with both parents, 5 per cent of children aged 0-17 years have one or both parents dead. This

increases with age, with 8 per cent of children aged 15-17 having lost one or both parents compared to 2 percent of children aged 0-4. There are no significant variations by sex and urban-rural areas, but there are regional variations.

Table HH.6: Children's living arrangements and orphanhood

Percent distribution of children aged 0-17 years according to living arrangements, percentage of children aged 0-17 years in households not living with a biological parent and percentage of children who have one or both parents dead, DPR Korea, 2009

		Living with neither parent				Living with mother only		Living with father only					
	Living with both parents	Only father alive	Only mother alive	Both are alive	Both are dead	Father alive	Father dead	Mother alive	Mother dead	Total	Not living with a biological parent[1]	One or both parents dead [2]	Number of children aged 0-17 years
Sex													
Male	92.7	0.0	0.0	0.6	0.3	1.5	4.3	0.1	0.5	100.0	0.9	5.0	4 237
Female	93.3	0.0	0.0	0.5	0.4	1.1	4.0	0.1	0.6	100.0	0.9	5.0	4 172
Region													
Ryanggang	92.8	0.0	0.0	1.6	0.1	1.1	4.3	0.0	0.2	100.0	1.7	4.6	286
North Hamgyong	95.5	0.0	0.0	0.4	0.0	0.6	3.3	0.0	0.1	100.0	0.4	3.4	867
South Hamgyong	95.5	0.0	0.0	0.5	0.4	1.0	2.6	0.0	0.0	100.0	0.8	3.0	1 103
Kangwon	91.3	0.0	0.0	0.4	0.8	0.9	5.8	0.1	0.7	100.0	1.2	7.3	532
Jagang	93.8	0.0	0.0	0.1	0.1	0.2	5.1	0.1	0.5	100.0	0.2	5.7	452
North Phyongan	91.6	0.0	0.0	0.1	0.7	1.1	5.8	0.1	0.5	100.0	0.8	7.0	1 037
South Phyongan	92.9	0.0	0.0	0.3	0.3	1.8	3.1	0.5	1.0	100.0	0.6	4.4	1 426
North Hwanghae	93.2	0.0	0.2	1.3	0.7	0.9	3.2	0.0	0.6	100.0	2.1	4.6	761
South Hwanghae	91.8	0.0	0.0	1.7	0.0	2.1	3.7	0.0	0.7	100.0	1.7	4.4	817
Pyongyang	91.4	0.1	0.0	0.0	0.2	1.9	5.7	0.1	0.6	100.0	0.4	6.7	1 130
Residence													
Urban	93.2	0.0	0.0	0.3	0.3	1.3	4.1	0.2	0.5	100.0	0.7	5.0	4 883
Rural	92.7	0.0	0.0	0.9	0.3	1.3	4.2	0.0	0.6	100.0	1.2	5.1	3 526
Age													
0-4	96.0	0.1	0.0	0.1	0.1	1.4	2.0	0.1	0.1	100.0	0.3	2.3	2 190
5-9	93.4	0.0	0.0	0.6	0.2	1.4	3.8	0.2	0.6	100.0	0.8	4.5	2 303
10-14	92.2	0.0	0.0	0.5	0.3	1.0	5.3	0.1	0.7	100.0	0.7	6.3	2 493
15-17	89.3	0.0	0.1	1.3	1.0	1.4	6.0	0.1	0.7	100.0	2.4	7.8	1 424
Total	93.0	0.0	0.0	0.5	0.3	1.3	4.1	0.1	0.5	100.0	0.9	5.0	8 409

[1] MICS indicator 9.17, [2] MICS indicator 9.18

IV. Nutrition

Nutritional status

Children's nutritional status is a reflection of their overall health. When children have access to an adequate food supply, are not exposed to repeated illness, and are well cared for, they reach their growth potential and are considered well nourished.

Malnutrition is associated with more than half of all child deaths worldwide. Undernourished children are more likely to die from common childhood ailments, and for those who survive, have recurring sicknesses and faltering growth. Three-quarters of the children who die from causes related to malnutrition were only mildly or moderately malnourished – showing no outward sign of their vulnerability. The Millennium Development target is to reduce by half the proportion of people who suffer from hunger between 1990 and 2015. A reduction in the prevalence of malnutrition will also assist in the goal to reduce child mortality.

In a well-nourished population, there is a reference distribution of height and weight for children under age five. Under-nourishment in a population can be gauged by comparing children to a reference population. The reference population used in this report is based on new WHO growth standards[6]. Each of the three nutritional status indicators can be expressed in standard deviation units (z-scores) from the median of the reference population.

Weight-for-age is a measure of both acute and chronic malnutrition. Children whose weight-for-age is more than two standard deviations below the median of the reference population are considered *moderately or severely underweight* while those whose weight-for-age is more than three standard deviations below the median are classified as *severely underweight.*

Height-for-age is a measure of linear growth. Children whose height-for-age is more than two standard deviations below the median of the reference population are considered short for their age and are classified as *moderately or severely stunted.* Those whose height-for-age is more than three standard deviations below the median are classified as *severely stunted.* Stunting is a reflection of chronic malnutrition as a result of failure to receive adequate nutrition over a long period and of recurrent or chronic illness.

Finally, children whose *weight-for-height* is more than two standard deviations below the median of the reference population are classified as *moderately or severely wasted,* while those who fall more than three standard deviations below the median are classified as *severely wasted*. Wasting is usually the result of a recent nutritional deficiency. The indicator may exhibit significant seasonal shifts associated with changes in the availability of food or disease prevalence.

In DPR Korea MICS 2009, weights and heights of all children under 5 years of age were measured using anthropometric equipment recommended by UNICEF (www.childinfo.org)**.** Findings in this section are based on the results of these measurements.

Table NU.1 shows percentages of children classified into each of these categories, based on the anthropometric measurements taken during fieldwork. Additionally, the table includes the percentage of children who are overweight, which takes into account those children whose weight-for-height is above two standard deviations from the median of the reference population, and mean z-scores for all three anthropometric indicators.

[6] http://www.who.int/childgrowth/standards/second_set/technical_report_2.pdf

Table NU.1: Nutritional status of children

Percentage of children under age 5 by nutritional status according to three anthropometric indices: weight for age, height for age, and weight for height, DPR Korea, 2009

	Weight for age				Height for age				Weight for height				
	Underweight per cent below		Mean	Number of	Stunted per cent below		Mean	Number of	Wasted per cent below		Overweight per cent above	Mean	Number of
	- 2 SD[1]	- 3 SD[2]	Z-Score (SD)	children under age 5	- 2 SD[3]	- 3 SD[4]	Z-Score (SD)	children under age 5	- 2 SD[5]	- 3 SD[6]	+ 2 SD	Z-Score (SD)	children under age 5
Sex													
Male	18.8	4.1	-1.1	1 106	32.4	8.4	-1.5	1 106	5.0	0.4	0.0	-0.3	1 106
Female	18.8	3.6	-1.0	1 066	32.4	8.4	-1.4	1 066	5.3	0.6	0.0	-0.3	1 066
Region													
Ryanggang	25.4	5.4	-1.3	68	44.9	15.8	-1.8	68	7.9	0.5	0.0	-0.4	68
North Hamgyong	21.9	4.8	-1.2	230	38.0	10.4	-1.6	230	7.2	1.0	0.0	-0.4	230
South Hamgyong	21.5	4.6	-1.3	287	38.5	11.4	-1.7	287	7.3	1.0	0.0	-0.4	287
Kangwon	19.4	4.3	-1.1	125	34.2	9.2	-1.5	125	5.7	0.0	0.0	-0.3	125
Jagang	22.0	5.1	-1.3	118	40.9	13.0	-1.8	118	6.9	1.0	0.0	-0.3	118
North Phyongan	18.0	3.9	-1.0	275	30.4	8.5	-1.4	275	4.9	0.0	0.0	-0.3	275
South Phyongan	17.7	3.3	-0.9	381	30.5	5.4	-1.4	381	4.4	0.5	0.0	-0.2	381
North Hwanghae	18.0	3.6	-1.1	202	30.8	8.7	-1.4	202	4.5	0.5	0.0	-0.4	202
South Hwanghae	17.4	3.3	-1.0	192	29.2	7.2	-1.2	192	4.0	0.4	0.0	-0.4	192
Pyongyang	14.4	2.8	-0.7	293	22.5	4.3	-0.9	293	2.3	0.0	0.0	-0.2	293
Residence													
Urban	13.2	1.9	-0.9	1 268	23.4	5.0	-1.3	1 268	4.1	0.2	0.0	-0.3	1 268
Rural	26.7	6.6	-1.2	904	45.0	13.1	-1.6	904	6.7	0.9	0.0	-0.4	904
Age													
0-5 months	5.6	1.0	-0.4	164	12.5	1.0	-0.6	164	1.8	0.0	0.0	0.1	164
6-11 months	17.4	3.1	-0.9	238	23.6	7.1	-1.1	238	4.8	0.1	0.0	-0.3	238
12-23 months	16.2	3.0	-0.9	450	23.9	6.1	-1.1	450	5.7	0.5	0.0	-0.5	450
24-35 months	21.7	4.8	-1.1	433	32.1	8.3	-1.4	433	6.2	0.4	0.0	-0.5	433
36-47 months	21.7	4.1	-1.2	459	39.5	10.2	-1.7	459	5.0	0.6	0.0	-0.4	459
48-59 months	21.3	5.2	-1.3	428	46.5	12.5	-1.9	428	5.2	0.8	0.0	-0.1	428
Mother's education													
Secondary	18.7	3.9	-1.1	1 779	33.0	8.9	-1.5	1 779	5.1	0.5	0.0	-0.3	1 779
Higher	19.3	3.6	-1.0	393	29.8	6.2	-1.3	393	5.5	0.3	0.0	-0.4	393
Total	18.8	3.9	-1.0	2 172	32.4	8.4	-1.4	2 172	5.2	0.5	0.0	-0.3	2 172

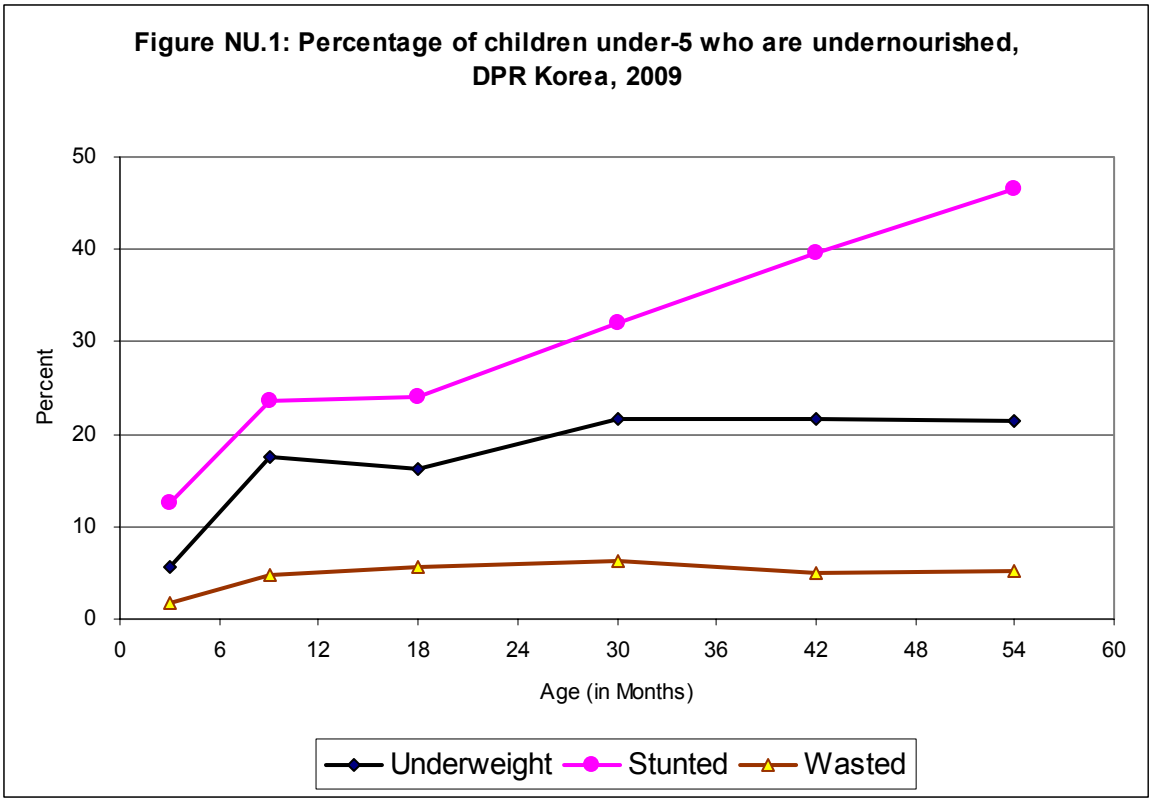
[1] MICS indicator 2.1a and MDG indicator 1.8, [2] MICS indicator 2.1b

[3] MICS indicator 2.2a, [4] MICS indicator 2.2b, [5] MICS indicator 2.3a, [6] MICS indicator 2.3b

Table NU.1 shows that almost one in five children under age five in DPR Korea are moderately underweight (19 per cent) with 4 per cent severely underweight. About one in three children (32 per cent) are moderately stunted (too short) for their age; this worsens with age, with 47 per cent of children 48-59 months moderately stunted. Five per cent are moderately wasted (too thin) for their height. There is no sex differential visible in terms of all indicators. There is a strong variation among provinces and by urban-rural regions.

Children in rural areas are more likely to be malnourished in terms of all three indicators than the urban children. For example, rural children twice as likely to be underweight compared to their counterparts in urban areas (27 percent versus 13 percent, respectively) and too short for height (45 per cent rural versus 23 per cent urban). By province, the percentage of malnutrition is highest in Ryanggang province, followed by Jagang, North Hamgyong and South Hamgyong. Figure NU.1 shows the rates of undernourishment in children from 6-59 months. The proportion of children suffering from stunting increases with each age interval until 47 per cent of children aged 48-59 months were found to be stunted.

Figure NU.1: Percentage of children under-5 who are undernourished, DPR Korea, 2009



Breastfeeding and infant and young child feeding

Breastfeeding for the first six months — exclusive breastfeeding with early initiation within one hour of birth — protects children from infection, provides an ideal source of nutrients, is economical and safe, and enhances emotional bonding between mother and child. However, many mothers stop breastfeeding too soon and are often pressured to switch to infant formula, which can contribute to growth faltering and micronutrient malnutrition and is unsafe if clean water is not readily available.

WHO/UNICEF have the following feeding recommendations:

- Exclusive breastfeeding for first six months
- Continued breastfeeding for two years or more
- Safe, appropriate and adequate complementary foods beginning at 6 months
- Frequency of complementary feeding: two times per day for 6-8 month olds; three times per day for 9-23 month olds

It is also recommended that breastfeeding be initiated within one hour of birth.

The indicators related to recommended child feeding practices are as follows:

- Early initiation of breastfeeding (within one hour of birth)
- Exclusive breastfeeding rate (< 6 months)
- Predominant breastfeeding (< 6 months)
- Continued breastfeeding rate (at 1 year and at 2 years)
- Duration of breastfeeding
- Age-appropriate breastfeeding (0-23 months)
- Introduction of solid, semi-solid and soft foods (6-8 months)

- Minimum meal frequency (6-23 months)
- Milk feeding frequency for non-breastfeeding children (6-23 months)
- Bottle feeding (0-23 months)

Table NU.2: Initial breastfeeding

Percentage of last-born children in the two years preceding the survey who were ever breastfed, percentage who were breastfed within one hour of birth and within one day of birth, and percentage who received a prelacteal feed, DPR Korea, 2009

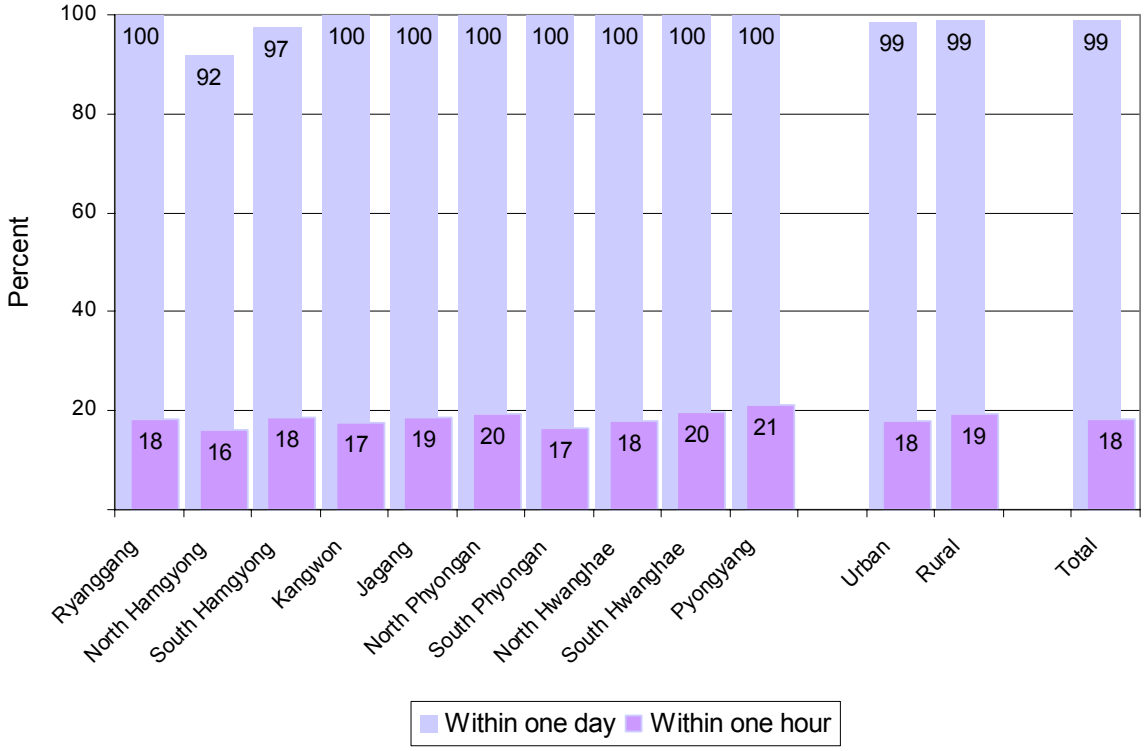
	Percentage who were ever breastfed[1]	Percentage who were first breastfed:		Percentage who received a prelacteal feed	Number of last-born children in the two years preceding the survey
		Within one hour of birth[2]	Within one day of birth		
Region					
Ryanggang	100.0	18.2	100.0	0.0	22
North Hamgyong	91.7	16.1	91.7	0.0	94
South Hamgyong	97.4	18.5	97.4	0.0	112
Kangwon	100.0	17.4	100.0	0.0	49
Jagang	100.0	18.7	100.0	0.0	50
North Phyongan	100.0	19.5	100.0	0.0	98
South Phyongan	100.0	16.6	100.0	0.0	155
North Hwanghae	100.0	18.0	100.0	0.0	89
South Hwanghae	100.0	19.6	100.0	0.0	72
Pyongyang	100.0	21.3	100.0	0.0	114
Residence					
Urban	98.5	17.8	98.5	0.0	518
Rural	99.1	19.3	99.1	0.0	336
Months since birth					
0-11 months	97.9	25.0	97.9	0.0	378
12-23 months	99.4	13.0	99.4	0.0	456
Assistance at delivery					
Skilled attendant	98.8	18.4	98.8	0.0	854
Place of delivery					
Public sector health facility	98.7	16.4	98.7	0.0	809
Home	100.0	54.2	100.0	0.0	45
Mother's education					
Secondary	98.6	16.2	98.6	0.0	710
Higher	99.3	28.9	99.3	0.0	144
Total	98.8	18.4	98.8	0.0	854

[1] MICS indicator 2.4 [2] MICS indicator 2.5

Table NU.2 provides the percentages of children born in the last two years who were ever breastfed, those who were first breastfed within one hour and one day of birth, and those who received a prelacteal feed. Almost all children born within the two years preceding the survey (99 per cent) had been breastfed. Although breastfeeding in the first hour of life is a very important step in the management of lactation and the establishment of a physical and emotional relationship between the baby and the mother, only 18 per cent of babies were breastfed within one hour of birth; however, 99 per cent of newborns in DPR Korea start breastfeeding within one day of birth. Births in recent times (0-11 months) were nearly twice as likely to be breastfed within one hour of birth than those who born 12-23 months preceding the survey (25 per cent compared to 13 per cent, respectively)

Figure NU.2 illustrates regional and urban-rural start of breastfeeding figures.They are more-or-less similar in all regions and areas.

Figure NU.2 Percentage of mothers who started breastfeeding within one hour and within one day of birth, DPR Korea, 2009



In Table NU.3, breastfeeding status is based on the reports by mothers or caretakers of children's consumption of food and fluids in the 24 hours prior to the interview. 'Exclusively breastfed' refers to infants who received only breast milk (and vitamins, mineral supplements, or medicine). Table NU.3 shows exclusive breastfeeding of infants during the first six months of life, as well as continued breastfeeding of children at 12-15 and 20-23 months of age.

Table NU. 3 shows that approximately 89 per cent of children aged less than six months are exclusively breastfed, a level considerably higher in DPR Korea than in many countries. By age 12-15 months, 86 per cent of children are still being breastfed, and 36 per cent by age 20-23 months. Boys were more likely to be exclusively breastfed than girls. There is a significant difference between urban and rural areas, with higher rural rates of breastfeeding across all age groups.

The reason that exclusive breastfeeding proportion became high can be explained that according to national policy on health care of maternity and children, Ministry of Public Health made lots of efforts for implementation of the exclusive breastfeeding policy.

The improvement may also be inflated due to methodological problems with MICS 2009 data collection. In DPR Korea, almost all children of working mothers are cared for in nurseries, making it possible that some mothers or caretakers did not have full knowledge of all the liquids given to their children the previous day. Mothers may have not always known if their child was given anything other than breast milk; this could have made the exclusive breastfeeding proportion high. For future surveys, it is recommended that this type of information be collected at both households and nurseries.

Table NU.3: Breastfeeding

Percentage of living children according to breastfeeding status at selected age groups, DPR Korea, 2009

	Children age 0-5 months			Children age 12-15 months		Children age 20-23 months	
	Percent exclusively breastfed[1]	Percent predominantly breastfed[2]	Number of children	Percent breastfed (Continued breastfeeding at 1 year)[3]	Number of children	Percent breastfed (Continued breastfeeding at 2 years)[4]	Number of children
Sex							
Male	90.5	92.6	80	87.8	84	36.1	81
Female	86.9	91.1	84	84.9	79	35.9	71
Residence							
Urban	84.1	89.0	97	78.8	91	25.5	95
Rural	95.3	96.0	66	96.0	71	53.5	57
Mother's education							
Secondary	88.2	91.7	146	87.5	130	37.6	122
Higher	92.7	92.7	17	81.8	32	29.6	30
Total	88.6	91.8	164	86.3	162	36.0	152

[1] MICS indicator 2.6, [2] MICS indicator 2.9, [3] MICS indicator 2.7, [4] MICS indicator 2.8

Note: By provinces is not shown because the number of unweighted observations is lower than 25 or 50

Figure NU.3 shows infant feeding patterns by the child's age in months. At the earliest ages, the majority of children are exclusively breastfed. By the end of the sixth month, nearly 42 per cent of children are still exclusively breastfed. In 20-23 month, 36 per cent of children continue to breast feed.

Figure NU.3 Infant feeding patterns by age: Percent distribution of children aged under 3 years by feeding pattern by age group, DPR Korea, 2009

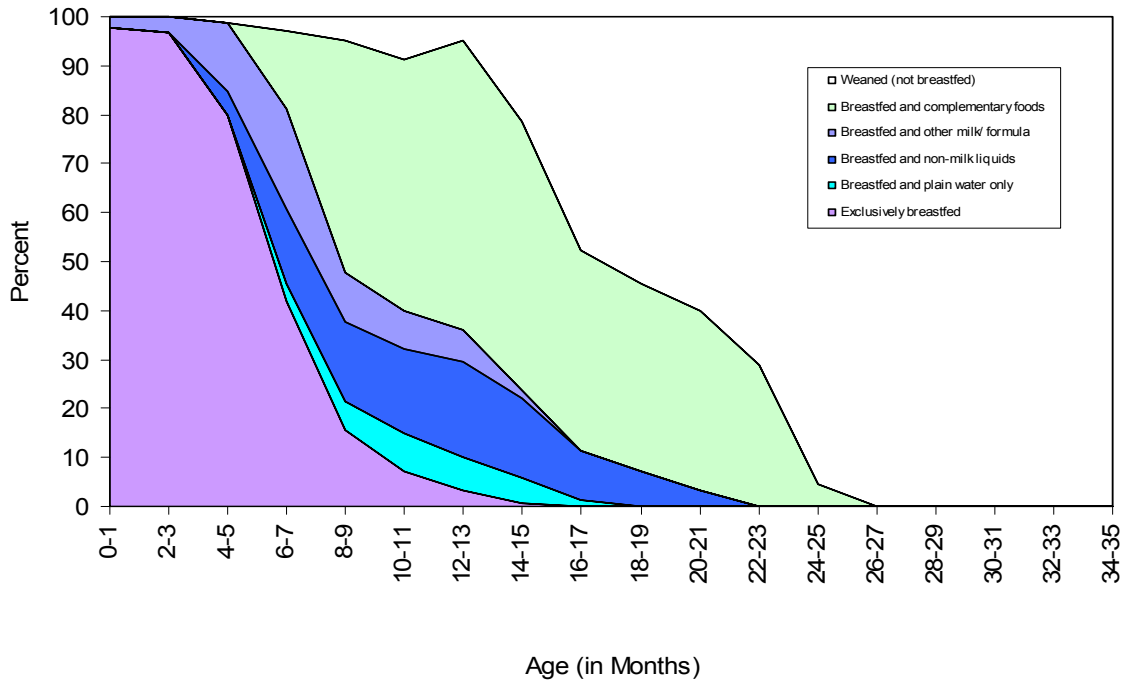


Table NU.4 shows the median duration of breastfeeding by selected background characteristics. Among children under age 3, the median duration is 17 months for any breastfeeding, 5 months for exclusive breastfeeding, and 7 months for predominant breastfeeding.

Table NU.4: Duration of breastfeeding

Median duration of any breastfeeding, exclusive breastfeeding, and predominant breastfeeding among children age 0-35 months, DPR Korea, 2009

	Median duration (in months) of			
	Any breastfeeding[1]	Exclusive breastfeeding	Predominant breastfeeding	Number of children age 0-35 months
Sex				
Male	16.8	4.8	6.5	659
Female	18.5	4.9	6.6	626
Region				
Ryanggang	20.9	6.7	6.8	40
North Hamgyong	16.7	4.7	4.7	139
South Hamgyong	14.9	6.9	6.9	171
Kangwon	16.7	5.0	6.7	71
Jagang	18.7	5.0	6.9	70
North Phyongan	18.6	4.8	4.9	160
South Phyongan	15.0	4.6	4.7	215
North Hwanghae	18.8	6.8	6.8	124
South Hwanghae	16.8	4.9	6.8	113
Pyongyang	18.7	2.9	4.7	181
Residence				
Urban	16.7	4.7	4.9	755
Rural	20.6	6.6	6.8	530
Mother's education				
Secondary	16.7	4.9	6.6	1 063
Higher	18.7	3.0	4.8	222
Median	16.9	4.9	6.6	1 282
Mean for all children (0-35 months)	17.2	5.4	7.0	1 282

[1] **MICS indicator 2.10**

Different criteria of adequate feeding are used depending on the age of the child. For infants aged 0-5 months, exclusive breastfeeding is considered as adequate feeding, while infants aged 6-23 months are considered to be adequately fed if they receive breast milk and solid, semi-solid or soft food.

Table NU.5 details the adequacy of infant breastfeeding in children under 24 months. Among infants aged 0-5 months, 89 per cent were exclusively breastfed, as is appropriate for their age. At 6-23 months, 42 per cent receive an appropriate mixture of breast milk and solid, semi-solid or soft foods. Overall, 51 per cent of children aged 0-23 months are appropriately fed. Slightly more female children than male are appropriately fed from 0-23 months (52 percent versus 49 percent, respectively). Rural children are much more appropriately fed than urban ones (58 per cent versus 46 per cent, respectively).

The data by province for appropriate breastfeeding in children 0-23 months varies from high of 58 per cent in South Hamgyong province to a low of 38 per cent in Jagang province.

Table NU.5: Age-appropriate breastfeeding

Percentage of children aged 0-23 months who were appropriately breastfed during the previous day, DPR Korea, 2009

	Children aged 0-5 months		Children aged 6-23 months		Children aged 0-23 months	
	Percent exclusively breastfed[1]	Number of children	Percent currently breastfeeding and receiving solid, semi-solid or soft foods	Number of children	Percent appropriately breastfed[2]	Number of children
Sex						
Male	90.5	80	39.9	356	49.2	436
Female	86.9	84	43.3	332	52.1	416
Region						
Ryanggang	(*)	2	45.1	20	49.5	22
North Hamgyong	(*)	12	36.9	80	42.9	92
South Hamgyong	(*)	38	37.7	74	57.8	112
Kangwon	(*)	11	33.8	38	46.6	49
Jagang	(*)	10	26.1	40	37.6	51
North Phyongan	(*)	24	51.1	73	61.5	97
South Phyongan	(*)	27	47.6	126	53.5	154
North Hwanghae	(*)	12	35.7	77	43.0	89
South Hwanghae	(*)	13	38.7	58	45.9	71
Pyongyang	(*)	14	47.8	102	52.9	115
Residence						
Urban	84.1	97	36.8	418	45.8	515
Rural	95.3	66	48.8	270	57.9	336
Mother's education						
Secondary	88.2	146	41.0	562	50.7	708
Higher	(*)	17	43.9	126	49.8	143
Total	88.6	164	41.5	688	50.6	851

[1] MICS indicator 2.6

[2] MICS indicator 2.14

Note: (*) An asterisk indicates that the percentage or proportion is calculated on fewer than 25 unweighted cases.

Adequate complementary feeding of children from 6-23 months of age is particularly important for growth and development and the prevention of under-nutrition. Continued breastfeeding beyond 6 months should be accompanied by consumption of nutritionally adequate, safe and appropriate complementary foods that help meet nutritional requirements when breast milk is no longer sufficient. This requires that for breastfed children, two or more meals of solid, semi-solid or soft foods are needed if they are six to eight months old, and three or more meals if they are 9-23 months of age. For children 6-23 months and older who are not breastfed, four or more meals of solid, semi-solid or soft foods or milk feeds are needed.

Table NU.6 data show that overall 29 per cent of on infants aged 6-8 months who received solid, semi-solid or soft foods. Among currently breastfeeding infants this percentage is 28 per cent. There were too few cases to calculate figures for those currently not breastfeeding.

Table NU.6: Introduction of solid, semi-solid or soft foods

Percentage of infants aged 6-8 months who received solid, semi-solid or soft foods during the previous day, DPR Korea, 2009

	Currently breastfeeding		Currently not breastfeeding		All	
	Percent receiving solid, semi-solid or soft foods	Number of children age 6-8 months	Percent receiving solid, semi-solid or soft foods	Number of children age 6-8 months	Percent receiving solid, semi-solid or soft foods[1]	Number of children age 6-8 months
Sex						
Male	26.4	68	(*)	4	28.3	72
Female	29.6	52	(*)	0	29.6	52
Residence						
Urban	32.4	87	(*)	1	31.8	88
Rural	(15.9)	33	(*)	2	(21.6)	36
Total	27.8	120	(*)	4	28.9	124

[1] **MICS indicator 2.12**

Note: (%.%) Figures in parenthesis indicate that the percentage or proportion is based on just 25 to 49 unweighted cases.
(*) An asterisk indicates that the percentage or proportion is calculated on fewer than 25 unweighted cases.
By provinces is not shown because the number of unweighted observations is lower than 25 or 50

Table NU.7 presents the proportion of children age 6-23 months who received semi-solid or soft foods the minimum number of times or more during the previous day according to breastfeeding status (see the note in Table NU.7 for a definition of minimum number of times for different age groups). Overall, less than half of the children aged 6-23 months (49 per cent) received solid, semi-solid and soft foods the minimum number of times. There was no statistical difference in minimum meal frequency by sex or for urban-rural areas. Among the provinces, Jagang had the lowest minimum meal frequency (32 per cent) and North Phyongan the highest (54 per cent).

Among currently breastfeeding children aged 6-23 months, less than half (48 per cent) received solid, semi-solid and soft foods the minimum number of times; this proportion was slightly higher among males (49 per cent) than females (47 per cent).

Table NU.7: Minimum meal frequency

Percentage of children aged 6-23 months who received solid, semi-solid, or soft foods (and milk feeds for non-breastfeeding children) the minimum number of times or more during the previous day, according to breastfeeding status, DPR Korea, 2009

	Currently breastfeeding		Currently not breastfeeding			All	
	Per cent receiving solid, semi-solid and soft foods the minimum number of times	Number of children age 6-23 months	Per cent receiving at least 2 milk feeds[1]	Per cent receiving solid, semi-solid and soft foods or milk feeds 4 times or more	Number of children age 6-23 months	Per cent with minimum meal frequency[2]	Number of children age 6-23 months
Sex							
Male	49.3	251	11.6	52.1	105	50.1	356
Female	46.7	235	9.0	48.3	97	47.1	332
Age							
6-8 months	26.5	120	(*)	(*)	4	26.9	124
9-11 months	39.8	105	(*)	(*)	9	43.4	114
12-17 months	57.1	176	25.1	55.3	55	56.6	231
18-23 months	70.0	85	4.2	46.2	134	55.4	218
Region							
Ryanggang	(48.9)	15	(*)	(*)	5	47.5	20
North Hamgyong	(49.4)	46	(*)	(*)	34	56.6	80
South Hamgyong	(51.7)	52	(*)	(*)	21	55.1	74
Kangwon	(27.4)	26	(*)	(*)	12	35.6	38
Jagang	(28.7)	30	(*)	(*)	11	32.3	40
North Phyongan	(58.5)	54	(*)	(*)	19	53.9	73
South Phyongan	51.2	90	(*)	(*)	37	48.9	126
North Hwanghae	45.5	57	(*)	(*)	20	44.4	77
South Hwanghae	(39.0)	40	(*)	(*)	18	42.5	58
Pyongyang	54.6	76	(*)	(*)	25	52.4	102
Residence							
Urban	48.9	276	12.2	54.0	142	50.6	418
Rural	47.0	211	5.9	41.3	59	45.7	270
Mother's education							
Secondary	47.1	396	8.0	49.8	166	47.9	562
Higher	52.3	90	21.2	52.4	36	52.3	126
Total	48.0	486	10.4	50.3	202	48.7	688

[1] **MICS indicator 2.15**

[2] **MICS indicator 2.13**

Among currently breastfeeding children age 6-8 months, minimum meal frequency is defined as children who also received solid, semi-solid or soft foods 2 times or more. Among currently breastfeeding children age 9-23 months, receipt of solid, semi-solid or soft foods at least 3 times constitutes minimum meal frequency. For non-breastfeeding children age 6-23 months, minimum meal frequency is defined as children receiving solid, semi-solid or soft foods, and milk feeds, at least 4 times during the previous day.

Note: (%.%) Figures in parenthesis indicate that the percentage or proportion is based on just 25 to 49 unweighted cases.
(*) An asterisk indicates that the percentage or proportion is calculated on fewer than 25 unweighted cases.

While the continued practice of bottle-feeding is a concern because of possible contamination due to unsafe water and lack of hygiene in preparation, Table NU.8 shows that bottle-feeding is not prevalent in DPR Korea: Only 4 per cent of children under 6 months are fed using a bottle with a nipple. Usage of milk bottle among boys is slightly higher than girls and in urban areas.

Table NU.8: Bottle feeding

Percentage of children age 0-23 months who were fed with a bottle with a nipple during the previous day, DPR Korea, 2009

	Percentage of children age 0-23 months fed with a bottle with a nipple[1]	Number of children age 0-23 months
Sex		
Male	3.9	436
Female	3.1	416
Age		
0-5 months	4.9	164
6-11 months	4.2	238
12-23 months	2.6	450
Region		
Ryanggang	3.9	22
North Hamgyong	2.6	92
South Hamgyong	2.2	112
Kangwon	4.0	49
Jagang	2.1	51
North Phyongan	4.7	97
South Phyongan	3.6	154
North Hwanghae	2.1	89
South Hwanghae	1.1	71
Pyongyang	7.3	115
Residence		
Urban	4.2	515
Rural	2.4	336
Mother's education		
Secondary	3.3	708
Higher	4.7	143
Total	3.5	851

[1] **MICS indicator 2.11**

Salt iodization

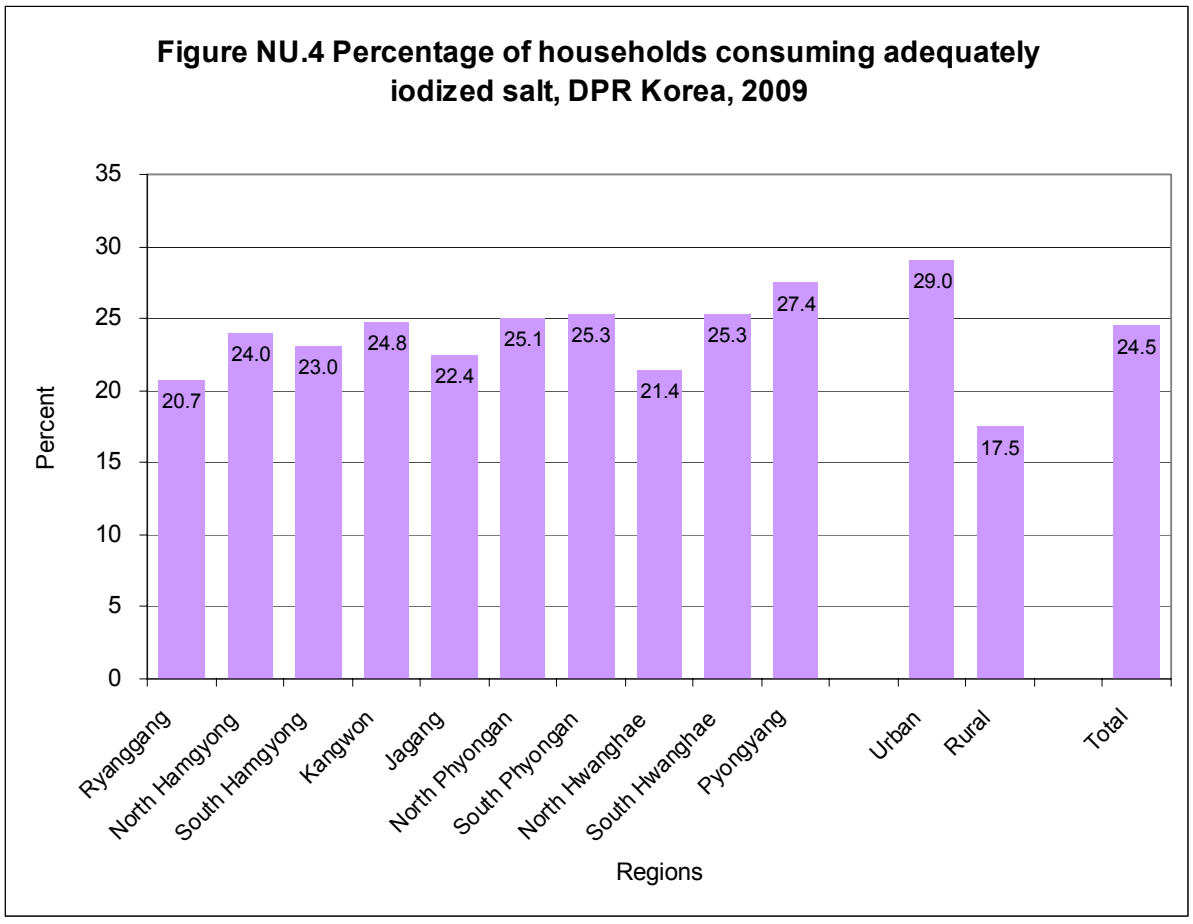
Iodine deficiency disorders (IDD) are the world's leading causes of preventable mental retardation and impaired psychomotor development in young children. In its most extreme form, iodine deficiency causes cretinism. It also increases the risks of stillbirth and miscarriage in pregnant women. Iodine deficiency is most commonly and visibly associated with goitre. IDD takes its greatest toll in impaired mental growth and development, contributing in turn to poor school performance, reduced intellectual ability, and impaired work performance. The international goal was to achieve sustainable elimination of iodine deficiency by 2005. The indicator is the percentage of households consuming adequately iodized salt ($\geq$15 parts per million).

Table NU.9: Iodized salt consumption

Percent distribution of households by consumption of iodized salt, DPR Korea, 2009

	Percentage of households in which salt was tested	Number of house holds	Salt test results			Total	Number of households in which salt was tested or with no salt
			Not iodized 0 PPM	>0 and <15 PPM	15+ PPM[1]		
Region							
Ryanggang	100	237	55.6	23.7	20.7	100.0	237
North Hamgyong	100	776	52.3	23.7	24.0	100.0	776
South Hamgyong	100	964	51.6	25.4	23.0	100.0	964
Kangwon	100	463	49.1	26.1	24.8	100.0	463
Jagang	100	416	55.7	21.9	22.4	100.0	416
North Phyongan	100	889	56.2	18.7	25.1	100.0	889
South Phyongan	100	1 311	54.6	20.1	25.3	100.0	1 311
North Hwanghae	100	670	56.1	22.4	21.4	100.0	670
South Hwanghae	100	744	47.9	26.8	25.3	100.0	744
Pyongyang	100	1 028	44.6	28.0	27.4	100.0	1028
Residence							
Urban	100	4 514	45.6	25.3	29.0	100.0	4 514
Rural	100	2 982	61.7	20.8	17.5	100.0	2 982
Total	100	7 496	52.0	23.5	24.5	100.0	7 496

[1] **MICS indicator 2.16**



In all households, salt used for cooking was tested for iodine content using salt test kits to test for potassium iodate content. Table NU.9 shows that 75 per cent of households did not meet

the indicator standard: only in 25 per cent of households salt was found to contain 15 parts per million (ppm) or more of iodine. Figure NU.4 illustrates provincial and urban-rural iodized salt use rates: The use of iodized salt was lowest in North Hwanghae (21 per cent) and highest in Pyongyang (27 per cent), and more urban households (29 per cent) used adequately iodized salt than rural ones (18 per cent).

Children's vitamin A supplementation

Vitamin A is essential for eye health and proper functioning of the immune system. It is found in foods such as milk, liver, eggs, red and orange fruits, red palm oil and green leafy vegetables, although the amount of vitamin A readily available to the body from these sources varies widely. In developing areas of the world, where vitamin A is largely consumed in the form of fruits and vegetables, daily per capita intake is often insufficient to meet dietary requirements. Inadequate intakes are further compromised by increased requirements for vitamin A as children grow or during periods of illness, and increased losses during common childhood infections. As a result, vitamin A deficiency is quite prevalent in the developing world, particularly in countries with the highest burden of under-five deaths.

The 1990 World Summit for Children set the goal of virtual elimination of vitamin A deficiency and its consequences, including blindness, by the year 2000. This goal was also endorsed at the Policy Conference on Ending Hidden Hunger in 1991, the 1992 International Conference on Nutrition, and the UN General Assembly's Special Session on Children in 2002. The critical role of vitamin A for child health and immune function also makes control of deficiency a primary component of child survival efforts, and therefore critical to the achievement of the fourth Millennium Development Goal: a two-thirds reduction in under-five mortality by 2015.

For countries with vitamin A deficiency problems, current international recommendations call for high-dose vitamin A supplementation every 4-6 months, targeted to all children between the ages of 6-59 months living in affected areas. Providing young children with two high-dose vitamin A capsules a year is a safe, cost-effective, efficient strategy for eliminating vitamin A deficiency and improving child survival. Giving vitamin A to new mothers who are breastfeeding helps protect their children during the first months of life and helps to replenish the mother's stores of vitamin A, which are depleted during pregnancy and lactation. For countries with vitamin A supplementation programs, the definition of the indicator is the percentage of children aged 6-59 months who received at least one high dose vitamin A supplement in the last six months.

Based on UNICEF/WHO guidelines, the DPR Korea Ministry of Public Health recommends that children aged 6-11 months be given one vitamin A capsule (100,000 IU) and that children aged 12-59 months be given a vitamin A capsule (200,000 IU) every six months during Child Health Day (CHD). Throughout DPR Korea, vitamin A supplementation is linked to immunization services and given on Child Health Day celebrated twice a year. It is also recommended that mothers take a vitamin A supplement within eight weeks of giving birth due to increased vitamin A requirements during pregnancy and lactation.

In the six months prior to MICS 2009, 98 per cent of children aged 6-59 months received a high dose Vitamin A supplement (see table NU.10). Approximately 2 per cent did not receive the supplement in the preceding 6 months but did receive one before that time. Vitamin A supplementation coverage is similar in all regions and rises from 93 per cent among children aged 6-11 months to 100 per cent in children aged 24 months or more.

Table NU.10: Children's vitamin A supplementation

Percent distribution of children aged 6-59 months by receipt of a high dose vitamin A supplement in the last 6 months, DPR Korea, 2009

	Percentage of children who received vitamin A during the last 6 months[1]	Number of children age 6-59 months
Sex		
Male	97.5	1 026
Female	98.5	983
Region		
Ryanggang	97.9	66
North Hamgyong	97.9	219
South Hamgyong	98.0	249
Kangwon	98.4	114
Jagang	98.1	108
North Phyongan	97.6	251
South Phyongan	98.4	354
North Hwanghae	97.4	190
South Hwanghae	97.4	178
Pyongyang	98.5	279
Residence		
Urban	98.6	1 170
Rural	97.1	838
Age		
6-11 months	93.3	238
12-23 months	94.6	450
24-35 months	100.0	433
36-47 months	100.0	459
48-59 months	100.0	428
Mother's education		
Secondary	97.9	1 633
Higher	98.5	375
Total	98.0	2 008

[1] **MICS indicator 2.17**

Low birthweight

Weight at birth is a good indicator not only of a mother's health and nutritional status but also of a newborn's chances for survival, growth, long-term health and psychosocial development. Low birthweight (less than 2,500 grams) carries a range of grave health risks for children. Babies who were undernourished in the womb face a greatly increased risk of dying during their early months and years. Those who survive have impaired immune function and increased risk of disease; they are likely to remain undernourished, with reduced muscle strength, throughout their lives, and suffer a higher incidence of diabetes and heart disease in later life. Children born underweight also tend to have a lower IQ and cognitive disabilities, affecting their performance in school and their usual activities.

In the developing world, low birthweight stems primarily from the mother's poor health and nutrition. Three factors have most impact: the mother's poor nutritional status before conception, short stature (due mostly to under nutrition and infections during her childhood), and poor nutrition during the pregnancy. Inadequate weight gain during pregnancy is particularly important since it accounts for a large proportion of foetal growth retardation. Moreover, diseases such as diarrhoea and malaria, which are common in many developing countries, can significantly impair foetal growth if the mother becomes infected while pregnant.

In the industrialized world, cigarette smoking during pregnancy is the leading cause of low birth weight. In developed and developing countries alike, teenagers who give birth when their own bodies have yet to finish growing run the risk of bearing underweight babies.

One of the major challenges in measuring the incidence of low birthweight is that more than half of infants in the developing world are not weighed. In the past, most estimates of low birthweight for developing countries were based on data compiled from health facilities. These estimates are biased for most developing countries because the majority of newborns are not delivered in facilities, and those who are represent only a selected sample of all births.

Because many infants are not weighed at birth and those who are weighed may be a biased sample of all births, reported birth weights usually cannot be used to estimate the prevalence of low birthweight among all children. Therefore, the percentage of births weighing below 2,500 grams is estimated from two items in the questionnaire: the mother's assessment of the child's size at birth (very small, smaller than average, average, larger than average, very large) and the mother's recall of the child's weight or the weight as recorded on a health card if the child was weighed at birth[7].

In the DPR Korea, however, Table NU.11 shows that 91 per cent of births were weighed at birth; only 6 per cent of infants are estimated to weigh less than 2,500 grams at birth. There was some variation by region (Figure NU.5). The percentage of low birthweight does not vary much by urban and rural areas or by mother's education.

Table NU.11: Low birthweight infants

Percentage of last-born children in the two years preceding the survey that are estimated to have weighed below 2 500 grams at birth and percentage of live births weighed at birth, DPR Korea, 2009

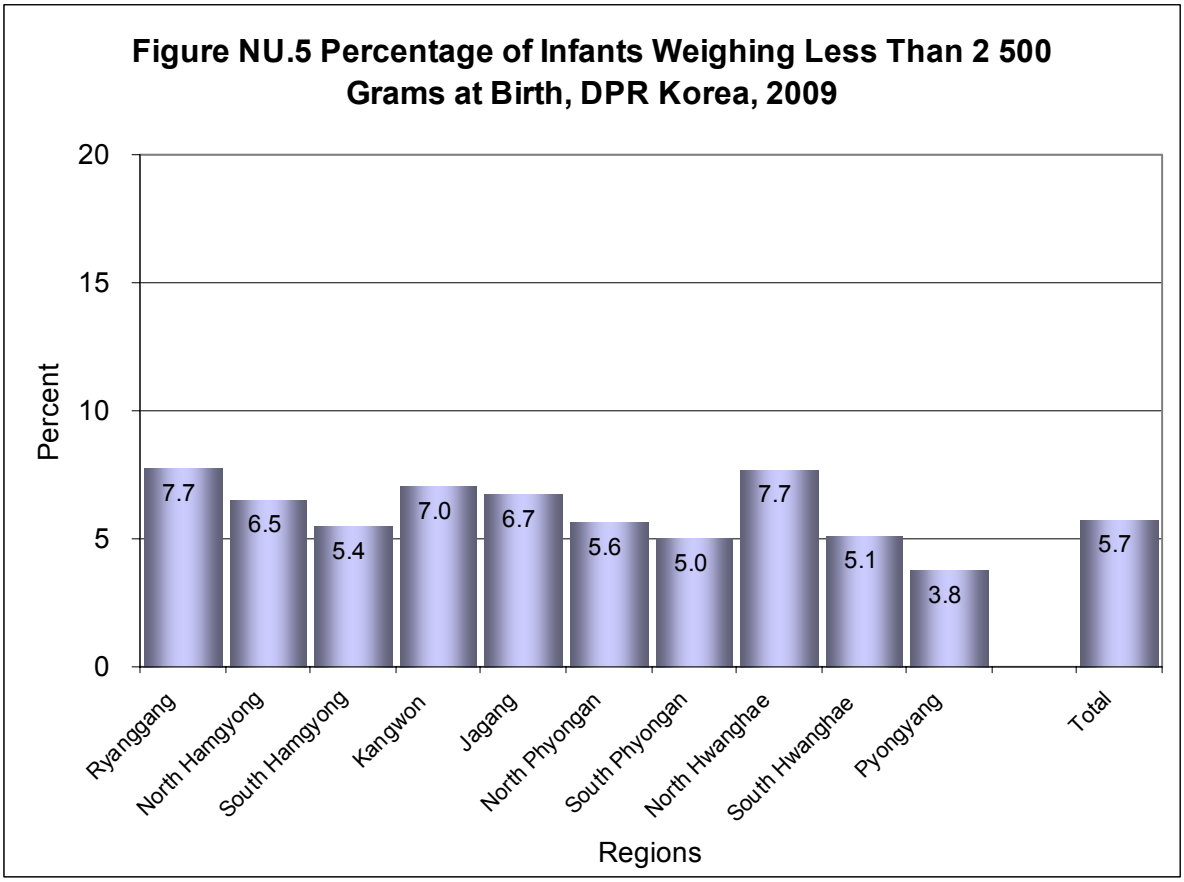
	Percent of live births		
	Below 2 500 grams[1]	Weighed at birth[2]	Number of live births in the last 2 years
Region			
Ryanggang	7.7	84.9	22
North Hamgyong	6.5	100.0	94
South Hamgyong	5.4	88.1	112
Kangwon	7.0	90.6	49
Jagang	6.7	100.0	50
North Phyongan	5.6	76.9	98
South Phyongan	5.0	98.8	155
North Hwanghae	7.7	80.0	89
South Hwanghae	5.1	91.8	72
Pyongyang	3.8	95.1	114
Residence			
Urban	5.6	93.5	518
Rural	5.8	87.7	336
Mother's education			
Secondary	5.9	91.0	710
Higher	4.6	92.2	144
Total	5.7	91.2	854

[1] **MICS indicator 2.18**

[2] **MICS indicator 2.19**

[7] For a detailed description of the methodology, see Boerma, Weinstein, Rutstein and Sommerfelt, 1996.

Figure NU.5 Percentage of Infants Weighing Less Than 2 500 Grams at Birth, DPR Korea, 2009



V. Child health

Oral rehydration therapy and diarrhoea

Diarrhoea is the second leading cause of death among children under five worldwide. Most diarrhoea-related deaths in children are due to dehydration from loss of large quantities of water and electrolytes from the body in liquid stools. Management of diarrhoea, either through oral rehydration salts (ORS) or a recommended home fluid (RHF) can prevent many of these deaths. Preventing dehydration and malnutrition by increasing fluid intake and continuing to feed the child are also important strategies for managing diarrhoea.

The goals are to: 1) reduce by one half death due to diarrhoea among children under five by 2010 compared to 2000 (A World Fit for Children); and 2) reduce by two thirds the mortality rate among children under five by 2015 compared to 1990 (Millennium Development Goals). In addition, the A World Fit for Children calls for a reduction in the incidence of diarrhoea by 25 per cent.

The indicators are:

- prevalence of diarrhoea
- oral rehydration therapy (ORT)
- home management of diarrhoea
- ORT with continued feeding

In the MICS 2009 questionnaire, mothers or caretakers were asked to report whether their child had diarrhoea in the two weeks prior to the survey. If so, the mother was asked a series of questions about what the child had to drink and eat during the episode and whether this was more or less than the child usually ate and drank.

Table CH.1 shows that 14 per cent of children under five had diarrhoea in the two weeks preceding the survey. Diarrhoea prevalence was not similar in all regions. It was high in Kangwon (18 per cent) and South Phyongan (17 per cent) and low in Pyongyang (9 per cent) and North Hwanghae (11 per cent). Nevertheless, the differences between the provinces are not statistically significant. The peak of diarrhoea prevalence occurs during the introduction of the complementary feeding among children aged 12-23 months.

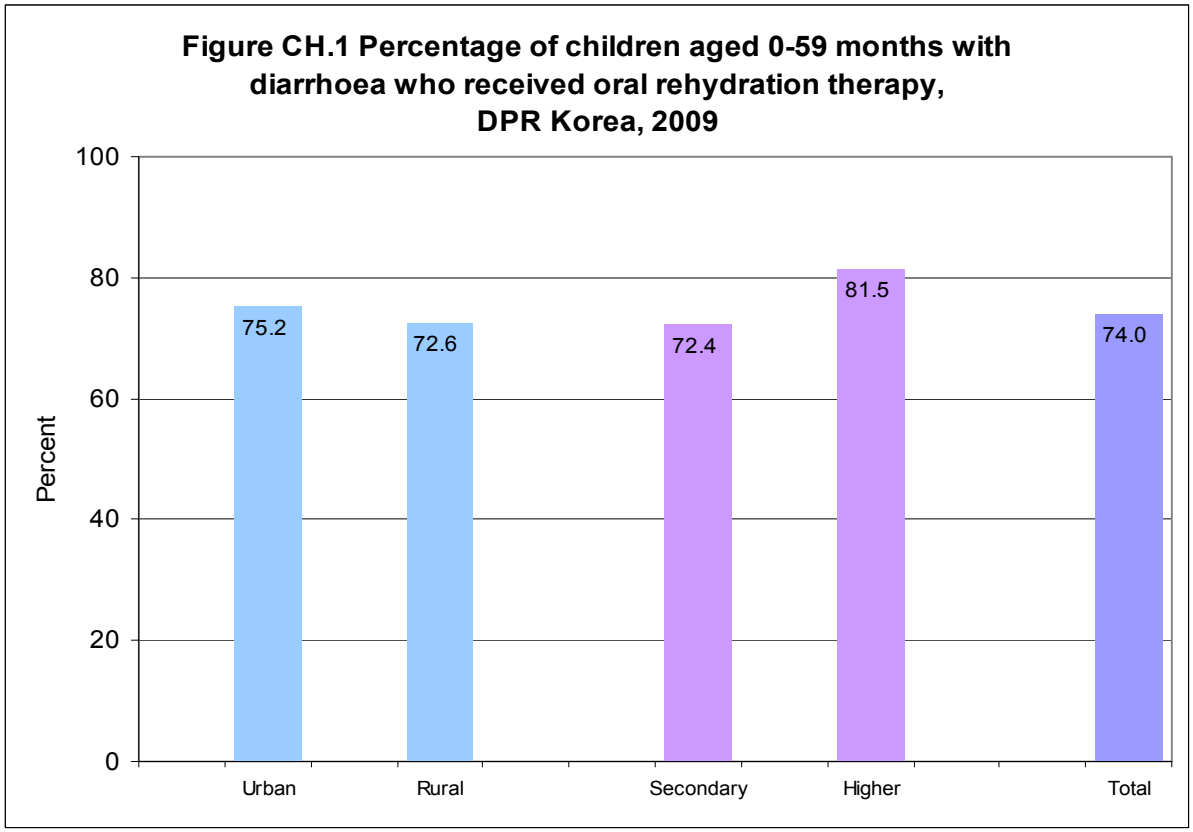
Table CH.1 also shows the percentage of children receiving various types of liquids during their diarrhoea episode. Since mothers could name more than one type of liquid, the percentages do not add up to 100. About 74 per cent of children with diarrhoea received fluids from ORS packets and 76 per cent other fluids. In total, 92 per cent received ORS or other fluids, while 8 per cent received no treatment. Children of mothers with secondary education were less likely to receive ORT than those whose mothers had higher education (72 per cent versus 82 per cent, see figure CH.1).

Table CH.1: Oral rehydration solutions and other fluids

Percentage of children aged 0-59 months with diarrhoea in the last two weeks, and treatment with oral rehydration solutions and recommended homemade fluids, DPR Korea, 2009

	Had diarrhoea in last two weeks	Number of children aged 0-59 months	Children with diarrhoea who received other fluids						Number of children aged 0-59 months with diarrhoea in last two weeks
			ORS (Fluid from ORS packet)	Breast milk	Soup	Rice water	Any other fluid	ORS or any other fluid	
Sex									
Male	14.1	1 106	75.4	29.3	62.6	21.3	78.8	92.2	156
Female	13.5	1 066	72.5	33.8	60.5	16.8	73.4	90.7	144
Residence									
Urban	13.4	1 268	75.2	35.9	59.6	18.4	76.4	92.6	170
Rural	14.4	904	72.6	25.6	64.4	20.0	76.0	90.0	130
Age									
0-11 months	14.2	402	74.9	62.4	59.1	19.9	83.5	96.7	57
12-23 months	16.7	450	77.7	49.9	64.4	16.6	78.3	92.3	75
24-35 months	14.4	433	67.0	19.4	62.1	16.8	76.1	89.0	63
36-47 months	13.2	459	67.2	11.1	59.9	21.2	67.3	87.6	61
48-59 months	10.3	428	86.0	4.8	62.1	22.9	75.6	92.3	44
Mother's education									
Secondary	13.8	1 779	72.4	32.1	61.6	20.8	76.8	90.5	246
Higher	13.7	393	81.5	28.4	62.0	11.5	73.8	96.0	54
Total	13.8	2 172	74.0	31.4	61.6	19.1	76.2	91.5	300

Note: By region (provinces) is not shown because the number of unweighted observations is lower than 25 or 50



Increasing fluid intake and continuing to feed the child are important strategies for managing diarrhoea. According to table CH. 2, less than half (43 per cent) of children under five with diarrhoea drank more than usual; only 20 per cent were given more to eat. While 56 per cent drank the same or less, 78 per cent ate much less, somewhat less and the same — 23 per cent were given much less or stopped food.

According to table CH.2, boys were more likely to be given more to drink than girls (45 per cent and 41 per cent, respectively) but girls were likely to be given more to eat (23 per cent compared to 17 per cent). Children whose mothers received higher education were more likely to get more to drink and eat.

Table CH.2: Feeding practices during diarrhoea

Percent distribution of children aged 0-59 months with diarrhoea in the last two weeks by amount of liquids and food given during episode of diarrhoea, DPR Korea, 2009

	Had diarrhoea in last two weeks	Number of children age 0-59 months	Drinking practices during diarrhoea						Eating practices during diarrhoea						Number of children age 0-59 months with diarrhoea in last two weeks
			Given much less to drink	Given somewhat less to drink	Given about the same to drink	Given more to drink	Given nothing to drink	Total	Given much less to eat	Given somewhat less to eat	Given about the same to eat	Given more to eat	Stopped food	Total	
Sex															
Male	14.1	1 106	11.9	15.3	26.2	45.0	1.6	100.0	25.9	20.7	34.3	17.3	1.7	100.0	156
Female	13.5	1 066	12.4	20.0	25.3	40.6	1.7	100.0	16.5	28.2	31.9	22.6	0.8	100.0	144
Residence															
Urban	13.4	1 268	12.3	17.9	28.3	40.8	0.7	100.0	20.2	24.0	34.5	20.1	1.1	100.0	170
Rural	14.4	904	11.9	17.2	22.4	45.5	2.9	100.0	23.0	24.7	31.3	19.5	1.5	100.0	130
Age															
0-11 months	14.2	402	15.0	13.6	31.9	39.5	0.0	100.0	28.9	16.2	36.7	18.2	0.0	100.0	57
12-23 months	16.7	450	6.3	18.9	34.8	38.4	1.5	100.0	21.1	21.2	32.5	22.9	2.3	100.0	75
24-35 months	14.4	433	10.4	24.7	23.1	40.5	1.3	100.0	12.6	33.7	33.0	19.3	1.4	100.0	63
36-47 months	13.2	459	4.6	16.7	19.5	56.9	2.2	100.0	24.0	26.0	32.0	16.1	1.9	100.0	61
48-59 months	10.3	428	(31.1)	(11.8)	(14.7)	(38.8)	(3.6)	100.0	(21.3)	(24.5)	(31.5)	(22.6)	(0.0)	100.0	44
Mother's education															
Secondary	13.8	1 779	12.6	18.6	25.0	41.9	2.0	100.0	24.2	24.1	32.4	18.1	1.2	100.0	246
Higher	13.7	393	10.1	13.1	29.4	47.4	0.0	100.0	8.8	25.2	36.6	27.9	1.4	100.0	54
Total	13.8	2 172	12.1	17.6	25.8	42.9	1.6	100.0	21.4	24.3	33.1	19.9	1.3	100.0	300

Note: (%.%) Figures in parenthesis indicate that the percentage or proportion is based on just 25 to 49 unweighted cases.
By region (provinces) data are not shown because the number of unweighted observations is lower than 25 or 50

Among the indicators MICS 2009 surveyed were the use of treatments after the onset of diarrhoea. Table CH.3 provides the percentage of children aged 0-59 months with diarrhoea in the last two weeks who received ORT with continued feeding, and those who received other treatments. Overall, 85 per cent of children with diarrhoea received ORS or increased fluids, and 95 per cent received ORT (ORS or other fluids or increased fluids). Combining the data in Table CH.2 with that in Table CH.1, it is observed that 67 per cent of children either received ORS or increased fluid and that their feeding was continued at the same time, as is the recommendation.

Table CH.3 also show differences in the home management of diarrhoea by background characteristics. Children of mothers with only secondary education or children in rural areas

were less likely to get ORS or increased fluids with continued feeding. Male children also received less ORS or increased fluid with continued feeding than female children.

While the national protocol of management of acute diarrhoea includes the use of zinc tablets together with ORS, the data in table CH 3 show that only 19 per cent of diarrhoea-affected children received zinc tablet as against 85 per cent receiving ORS or increased fluids.

Table CH.3: Oral rehydration therapy with continued feeding and other treatments

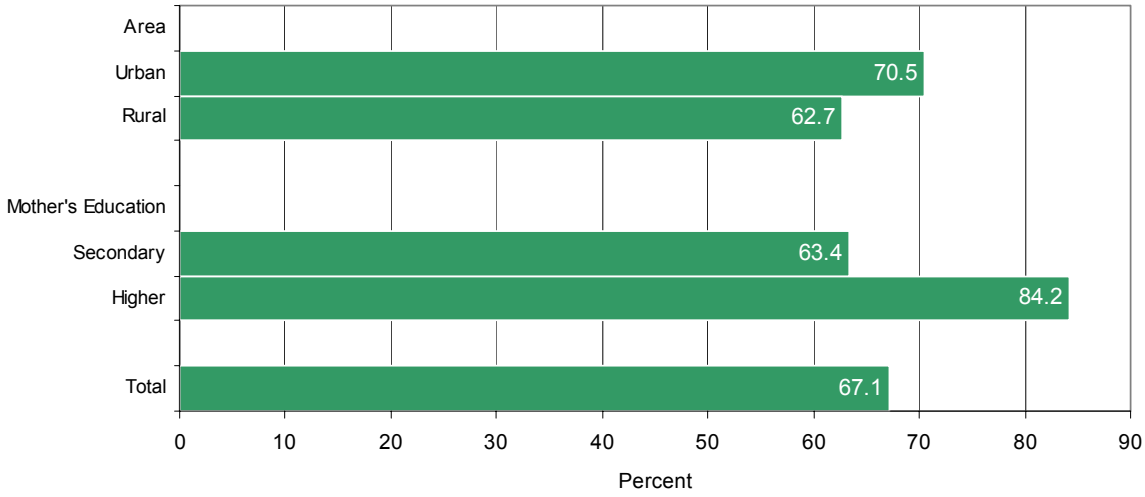
Percentage of children aged 0-59 months with diarrhoea in the last two weeks who received oral rehydration therapy with continued feeding, and percentage of children with diarrhoea who received other treatments, DPR Korea, 2009

	Children with diarrhoea who received			Other treatments								
				Pill or syrup			Injection					
	ORS or increased fluids	ORT (ORS or other fluids or increased fluids)	ORS or increased fluid with continued feeding [1]	Antibiotic	Anti-motility	Zinc	Anti- biotic	Non-antibiotic	Intravenous	Home remedy, herbal medicine	Not given any treatment or drug	0-59 months with diarrhoea in last two
Sex												
Male	85.2	95.5	63.3	50.5	43.5	16.2	29.4	17.3	35.3	21.4	2.6	156
Female	85.5	95.3	71.3	42.2	44.9	22.6	29.2	17.4	39.9	20.7	2.8	144
Residence												
Urban	87.5	97.9	70.5	42.6	45.5	26.1	32.0	21.1	36.7	21.3	0.4	170
Rural	82.5	92.1	62.7	51.6	42.4	10.5	25.7	12.5	38.5	20.8	5.8	130
Age												
0-11 months	87.4	100.0	63.3	49.2	48.5	18.5	19.1	14.5	31.6	27.9	0.0	57
12-23 months	87.3	93.5	70.3	37.2	35.1	18.9	35.7	16.9	35.0	17.1	4.3	75
24-35 months	78.9	91.9	70.8	49.8	36.8	12.4	25.2	26.6	45.8	16.3	5.3	63
36-47 months	83.4	96.2	61.1	50.6	52.1	21.8	34.1	7.2	38.0	25.2	2.6	61
48-59 months	(91.0)	(96.6)	(69.7)	(48.9)	(53.6)	(27.4)	(30.7)	(22.5)	(36.9)	(20.4)	(0.0)	44
Mother's education												
Secondary	83.9	94.9	63.4	47.9	43.6	19.4	25.7	19.2	36.9	20.7	3.3	246
Higher	92.0	97.7	84.2	40.4	47.0	19.0	45.6	8.7	40.2	22.8	0.0	54
Total	85.3	95.4	67.1	46.5	44.2	19.3	29.3	17.3	37.5	21.1	2.7	300

[1] MICS indicator 3.8

Note: (%.%) Figures in parenthesis indicate that the percentage or proportion is based on just 25 to 49 unweighted cases.
By provinces is not shown because the number of unweighted observations is lower than 25 or 50

Figure CH.2 Percentage of children aged 0-59 with diarrhoea who received ORT or increased fluids, and continued feeding DPR Korea, 2009



Care seeking and antibiotic treatment of pneumonia

Pneumonia is the leading cause of death in children globally, and the use of antibiotics in under-5s with suspected pneumonia is a key intervention. A World Fit for Children goal is to reduce by one third the deaths due to acute respiratory infections.

Children with suspected pneumonia are those who had an illness with a cough accompanied by rapid and difficult breathing and whose symptoms were NOT due to a problem in the chest and a blocked nose.

The indicators are:

- Prevalence of suspected pneumonia
- Care seeking for suspected pneumonia
- Antibiotic treatment for suspected pneumonia
- Knowledge of the danger signs of pneumonia

Table CH.4 presents the prevalence of suspected pneumonia and the site of care, if care was sought outside the home. During the two weeks preceding the survey, 6 per cent of children aged 0-59 months were reported to have had symptoms of pneumonia; 80 per cent of these children were taken to an appropriate provider.

Table CH.4: Care seeking for suspected pneumonia and antibiotic use during suspected pneumonia

Percentage of children aged 0-59 months with suspected pneumonia in the last two weeks who were taken to a health provider and percentage of children who were given antibiotics, DPR Korea, 2009

	Had suspected pneumonia in the last two weeks	Number of children age 0-59 months	Children with suspected pneumonia who were taken to: Public sources: Central hospital	Provincial hospital	County hospital	Clinic	Other public	Any appropriate provider[1]	Percentage of children with suspected pneumonia who received antibiotics in the last two weeks[2]	Number of children age 0-59 months with suspected pneumonia in the last two weeks
Sex										
Male	5.9	1 106	0.0	4.2	12.0	61.6	4.9	77.9	85.8	65
Female	6.0	1 066	2.6	3.9	15.4	59.8	3.0	81.8	89.4	63
Residence										
Urban	5.6	1 268	2.3	7.3	18.8	56.1	2.1	84.5	93.4	71
Rural	6.3	904	0.0	0.0	7.4	66.5	6.3	73.9	80.3	57
Mother's education										
Secondary	5.5	1 779	0.0	2.7	11.8	62.1	5.2	76.6	85.4	98
Higher	7.8	393	(5.5)	(8.4)	(20.0)	(56.2)	(0.0)	(90.1)	(94.5)	30
Total	5.9	2 172	1.3	4.1	13.7	60.7	3.9	79.8	87.6	129

[1] MICS indicator 3.9, [2] MICS indicator 3.10

Note: (%.%) Figures in parenthesis indicate that the percentage or proportion is based on just 25 to 49 unweighted cases.
By region (provinces) data not shown because the number of unweighted observations is lower than 25 or 50

The use of antibiotics for the treatment of suspected pneumonia in under-5s by sex, age, region, residence, age, and socioeconomic factors is also shown in table CH.4. In DPR Korea, 88 per cent of under-5 children with suspected pneumonia received an antibiotic in the two weeks prior to the survey. The percentage was higher in urban areas than rural areas (93 per cent versus 80 per cent, respectively). The table also shows that antibiotic treatment of suspected pneumonia is lower among children whose mothers or caretakers have secondary education. Desegregation by region and age is not possible because of the small number of unweighted cases.

A mother or caretaker's knowledge of the danger signs of pneumonia is an important determinant of care-seeking behaviour and is presented in Table CH.5. Overall, just under one fifth of mothers or caretakers (19 per cent) know the two danger signs of pneumonia: fast and difficult breathing. The most commonly identified symptom for taking a child to a health facility is when a child develops a fever (75 per cent), although 39 per cent of mothers identified fast breathing and 23 per cent identified difficult breathing as symptoms for taking children immediately to a health care provider. Mothers or caretakers of children under 5 in Pyongyang have a very high level of knowledge compared to other provinces.

Table CH.5: Knowledge of the two danger signs of pneumonia

Percentage of mothers and caretakers of children aged 0-59 months by symptoms that would cause them to take the child immediately to a health facility, and percentage of mothers who recognize fast and difficult breathing as signs for seeking care immediately, DPR Korea, 2009

	Percentage of mothers/caretakers of children age 0-59 months who think that a child should be taken immediately to a health facility if the child:								Mothers/caretakers who recognize the two danger signs of pneumonia	Number of mothers/caretakers of children age 0-59 months
	Is not able to drink or breastfeed	Becomes sicker	Develops a fever	Has fast breathing	Has difficult breathing	Has blood in stool	Is drinking poorly	Has other symptoms		
Region										
Ryanggang	37.1	72.3	97.7	40.5	12.7	40.5	12.9	27.8	12.7	55
North Hamgyong	42.8	48.7	60.0	17.2	22.1	40.7	19.3	13.6	10.9	199
South Hamgyong	13.9	38.8	81.0	48.9	12.6	49.0	19.1	33.2	12.6	220
Kangwon	43.7	74.2	54.6	27.2	24.1	34.3	35.0	28.2	17.6	102
Jagang	24.2	61.2	86.5	15.1	23.0	42.4	27.0	32.5	12.3	99
North Phyongan	36.7	48.8	59.0	40.0	19.2	30.7	26.5	31.7	18.2	239
South Phyongan	31.2	69.4	69.6	25.6	15.8	15.5	17.0	28.6	13.0	318
North Hwanghae	40.8	48.9	73.5	24.3	16.5	21.7	21.4	35.9	10.5	153
South Hwanghae	40.0	75.1	82.0	33.6	15.8	30.6	18.9	40.0	15.8	164
Pyongyang	46.1	59.5	97.5	91.0	57.6	58.1	59.1	38.1	55.7	232
Residence										
Urban	37.5	58.0	75.5	44.0	27.4	38.5	28.7	30.9	23.0	1 053
Rural	31.8	57.9	73.2	30.8	16.2	30.8	22.7	31.0	13.7	728
Mother's education										
Secondary	34.4	57.5	74.4	35.9	21.8	35.1	24.9	31.1	18.1	1 452
Higher	38.5	59.7	75.4	50.5	27.3	36.2	32.2	30.5	24.1	329
Total	35.2	57.9	74.6	38.6	22.8	35.3	26.3	31.0	19.2	1 782

Analysing data from tables CH.4 and CH.5 highlights areas that bear further examination: When pneumonia is suspected, 80 per cent of children are taken to hospital (see table CH.4), but only 19 per cent of children are taken to hospital when they show the two danger signs of pneumonia, fast and difficult breathing (see table CH. 5). This indicates the need to make mothers and caretakers more aware of the danger signs of pneumonia.

Handwashing

Handwashing with water and soap is the most cost-effective health intervention to reduce both the incidence of diarrhoea and pneumonia in children under five. It is most effective when done using water and soap after visiting a toilet or cleaning a child, before eating or handling food and, before feeding a child. Monitoring correct handwashing behaviour at these critical times is challenging. A reliable alternative to observations or self-reported behaviour is to assess the likelihood that handwashing takes place by observing if a household has a specific place where people most often wash their hands and observing if water and soap or other local cleansing materials are present at that specific handwashing place.

In DPRK, all surveyed households had a specific place for handwashing where both water and soap were 100 per cent available.However, it must be stressed that the MICS 2009 did not monitor actual handwashing by household members.

VI. Water and sanitation

Safe drinking water is a basic necessity for good health. Unsafe drinking water can be a significant carrier of diarrhoea, typhoid and skin diseases. Drinking water can also be tainted with chemical, physical and radiological contaminants with harmful effects on human health. In addition to its association with disease, access to drinking water is particularly important, especially in rural areas, for women and children who bear the primary responsibility for carrying water, often for long distances.

The MDG goal is to reduce by half, between 1990 and 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation. The A World Fit for Children goal calls for a reduction in the proportion of households without access to hygienic sanitation facilities and affordable and safe drinking water by at least one-third.

The indicators used in MICS are:

Water

- Use of improved drinking water sources
- Use of adequate water treatment methods
- Time to source of drinking water
- Person collecting drinking water

Sanitation

- Use of improved sanitation facilities
- Sanitary disposal of child's faeces

For more details on water and sanitation and access to reference documents, please visit the UNICEF website http://www.childinfo.org/wes.html.

Use of improved water sources

The distribution of the population by source of drinking water is shown in Table WS.1 and Figure WS.1. Using 'improved sources' of drinking water refers to those using any of the following types of supply: piped water (into dwelling, compound, yard or plot, to a neighbour's, or public tap/standpipe), tube well/borehole, protected well, and protected spring. Bottled water is considered as an improved water source only if the household is using an improved water source for other purposes, such as handwashing and cooking.

The indicator of interest for both MICS and the MDGs is the percentage using improved sources of drinking water. In surveyed households, almost all (99.9 per cent) of the population uses improved sources of drinking water, with no differences between urban-rural, provinces or education of household head observed.

Table WS.1 shows that the source of drinking water for the population varies slightly by region. In Pyongyang, 94 per cent use drinking water that is piped into their dwelling or into their yard or plot. In South Hwanghae and Jagang provinces, 77 and 79 per cent respectively use piped water. A significant difference is that 92 per cent of those in urban areas have piped water, compared to 79 per cent in rural areas. In DPR Korea, the second most important source of drinking water is a tube well/borehole.

Table WS.1: Use of improved water sources

Percent distribution of household population according to main source of drinking water and percentage of household population using improved drinking water sources, DPR Korea, 2009

	Main source of drinking water												
	Improved sources									Un-improved sources			
	Piped water												
	Into dwelling	Into yard/plot	To neighbour	Public tap/ stand-pipe	Tube well/ bore-hole	Pro-tected well	Protected spring	Rain-water collection	Bottled water	Other	Total	Percentage using improved sources of drinking water[1]	Number of household members
Region													
Ryanggang	84.6	0.4	0.0	3.7	7.7	2.3	1.0	0.0	0.0	0.2	100.0	99.8	940
North Hamgyong	87.5	0.6	1.1	0.9	6.6	1.7	1.4	0.0	0.0	0.0	100.0	100.0	3 108
South Hamgyong	87.0	0.7	0.9	1.4	5.9	3.7	0.4	0.0	0.1	0.0	100.0	100.0	3 859
Kangwon	86.6	0.0	0.0	2.9	7.0	3.3	0.1	0.0	0.0	0.2	100.0	99.8	1 849
Jagang	78.9	0.3	0.0	1.1	14.5	0.9	4.2	0.0	0.0	0.0	100.0	100.0	1 649
North Phyongan	83.9	0.0	0.0	3.7	11.1	0.8	0.4	0.0	0.0	0.2	100.0	99.8	3 555
South Phyongan	90.4	0.0	0.0	2.5	5.9	0.6	0.4	0.0	0.3	0.1	100.0	99.9	5 088
North Hwanghae	85.5	0.0	0.0	2.8	6.5	3.2	1.9	0.0	0.0	0.2	100.0	99.8	2 647
South Hwanghae	77.2	0.0	0.0	1.8	10.1	10.2	0.6	0.0	0.0	0.2	100.0	99.8	2 898
Pyongyang	94.1	0.0	0.0	0.3	0.6	4.4	0.1	0.0	0.4	0.0	100.0	100.0	4 151
Residence													
Urban	91.8	0.1	0.2	1.5	4.2	1.8	0.4	0.0	0.1	0.0	100.0	100.0	17 813
Rural	78.9	0.3	0.4	2.7	11.0	4.9	1.5	0.0	0.1	0.2	100.0	99.8	11 930
Education of household head													
Primary	98.0	0.0	0.0	0.0	0.5	0.0	1.5	0.0	0.0	0.0	100.0	100.0	64
Secondary	86.1	0.2	0.3	1.9	7.4	3.1	0.9	0.0	0.1	0.1	100.0	99.9	21 695
Higher	88.0	0.2	0.1	2.1	5.7	3.1	0.7	0.0	0.0	0.1	100.0	99.9	7 985
Total	86.6	0.2	0.2	2.0	6.9	3.1	0.8	0.0	0.1	0.1	100.0	99.9	29 744

[1] MICS indicator 4.1; MDG indicator 7.8

Households using bottled water as the main source of drinking water are classified into improved or unimproved drinking water users according whether they use an improved water source for other purposes such as cooking and handwashing.

Piped water is the most reported source of water, a finding that is consistent with the National Nutrition Survey 2004 and the 2008 population census, as shown in table WS.2.

Table WS.2: Improved water source and water piped across three recent data

Indicator	National Nutrition Survey 2004	Census 2008	MICS4 2009
Access to an improved water source (per cent)	100	99.5	99.9
Water piped into dwelling (per cent)	82	85	87

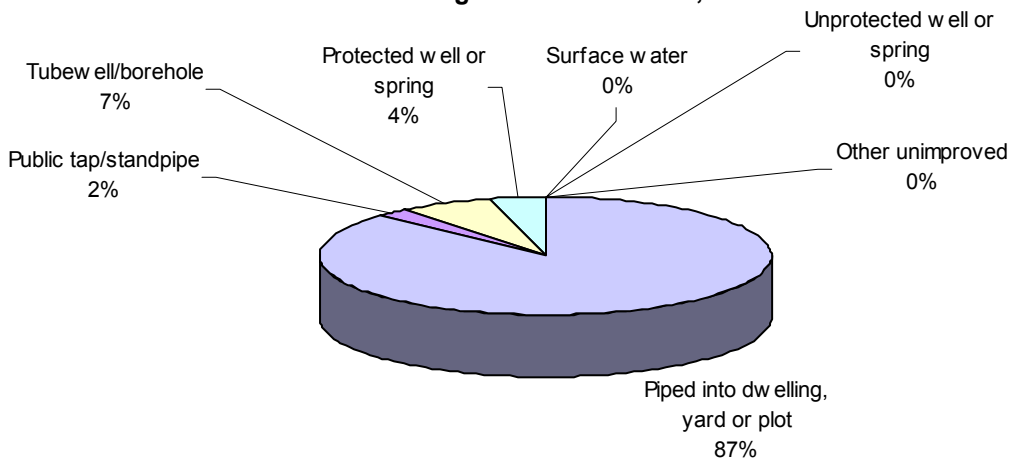
To obtain information for this indicator, MICS, the National Nutrition Survey 2004 and the 2008 census all used the following question: *"What is the **main** source of drinking water for members of your household?"*

In the 1970s there was a huge government effort to bring piped water to all households in DPR Korea. Today the piped water system does not always function well and is reliant on

electricity which is not always available. The piped system, however, remains in the household. Therefore when people are asked to identify their main source of drinking water they are likely to the 'piped water' even if that is not their only source of drinking water and even if they can only obtain water from this source for a short period in a day.

This is a lesson learned. Although the answers to the question are not necessarily wrong, the problem is that the question is not necessarily the right question or that other key questions are missing. Interviewers may also not be probing enough to collect accurate information: This is a survey training issue. This is an important lesson for future household data collection activities in DPR Korea; other than asking about the 'main source' it may be necessary to include further questions on the frequency and duration water can be obtained from this 'main' source as well as questions on the secondary source of water for the household.

Figure WS.1 Percentage distribution of household members by source of drinking water DPR Korea, 2009



Use of in-house water treatment is presented in Table WS.3. Households were asked of ways they treat water at home to make it safer to drink – boiling, adding bleach or chlorine, using a water filter, straining through a cloth, and solar disinfection were considered proper treatments of drinking water. Significantly, table WS.3 shows that 80 per cent of households do not treat their water at all, while 18 per cent boil water and 4 per cent add bleach or chlorine. There is a regional range in boiling water or adding chlorine, from a high of 32 per cent in South Phyongan to a low of 18 per cent in Jagang. It was not possible to calculate the percentage of household members living in households using unimproved water sources but using appropriate water treatment methods because of the small number of cases.

Table WS.3: Household water treatment

Percentage of household population by drinking water treatment method used in the household, DPR Korea, 2009.

	Water treatment method used in the household						
	None	Boil	Add bleach/ chlorine	Strain through a cloth	Use water filter	Solar disinfection	Number of household members
Region							
Ryanggang	83.1	15.1	3.3	0.0	0.4	0.3	940
North Hamgyong	84.9	13.3	1.7	0.3	1.5	0.0	3 108
South Hamgyong	74.7	23.8	3.7	0.0	0.1	0.0	3 859
Kangwon	78.5	21.1	3.0	0.0	0.4	0.0	1 849
Jagang	87.2	11.2	1.7	0.0	0.9	1.2	1 649
North Phyongan	89.0	10.7	1.0	0.0	0.1	0.0	3 555
South Phyongan	71.4	27.7	4.2	0.0	0.1	0.0	5 088
North Hwanghae	84.9	14.5	2.4	0.0	0.4	0.0	2 647
South Hwanghae	86.3	13.0	2.9	0.0	0.5	0.3	2 898
Pyongyang	74.0	20.2	7.9	0.0	2.7	0.0	4 151
Residence							
Urban	78.4	19.6	3.9	0.1	1.1	0.0	17 813
Rural	82.6	16.4	2.8	0.0	0.3	0.2	11 930
Education of household head							
Primary	83.7	12.3	4.0	0.0	4.2	0.0	64
Secondary	80.3	18.1	3.6	0.0	0.6	0.1	21 695
Higher	79.3	18.9	3.3	0.1	1.1	0.1	7 985
Total	80.0	18.3	3.5	0.0	0.7	0.1	29 744

The amount of time it takes to obtain water is presented in Table WS.4 and the person who usually collects the water in Table WS.5. Note that these results refer to one roundtrip from home to drinking water source. Information on the number of trips made in one day was not collected.

Table WS.4 shows that for the 94 per cent of households using improved source of water, their drinking water source is on the premises. For 6 per cent of all households, it takes less than 30 minutes to get to the water source and bring water home. In rural areas, more than twice as many households spend time in collecting water compared to those in urban areas (9 per cent versus 4 percent, respectively).

Table WS.5 indicates that in 68 per cent of the households, when the source of drinking water is not on the premises, an adult female is usually the person collecting the water. Disaggregating by regions is not possible because of the small number of unweighted cases.

The amount of time required to collect water is also linked to the question, “What is the *main* source of drinking water for members of your household?” Since for 94 per cent of families the main source of drinking water is on the premises, the response to the question, “How long does it take to go to the source, get water, and come back” was asked only to those who did not have their main water source in their dwelling or compound (Table WS 4).

Table WS.4: Time to source of drinking water

Percent distribution of household population according to time to go to source of drinking water, get water and return, for users of improved drinking water sources, DPR Korea, 2009

	Time to source of drinking water			
	Users of improved drinking water sources			
	Water on premises	Less than 30 minutes	Total	Number of household members
Region				
Ryanggang	91.0	8.9	100.0	940
North Hamgyong	96.6	3.4	100.0	3 108
South Hamgyong	94.9	5.1	100.0	3 859
Kangwon	92.6	7.4	100.0	1 849
Jagang	92.6	7.4	100.0	1 649
North Phyongan	94.5	5.5	100.0	3 555
South Phyongan	96.6	3.3	100.0	5 088
North Hwanghae	91.1	8.8	100.0	2 647
South Hwanghae	87.1	12.7	100.0	2 898
Pyongyang	97.2	2.8	100.0	4 151
Residence				
Urban	96.1	3.9	100.0	17 813
Rural	91.1	8.8	100.0	11 930
Education of household head				
Primary	98.0	2.0	100.0	64
Secondary	94.3	5.7	100.0	21 695
Higher	93.9	6.0	100.0	7 985
Total	94.2	5.8	100.0	29 744

Table WS.5: Person collecting water

Percentage of households without drinking water on premises, and per cent distribution of households without drinking water on premises according to the person usually collecting drinking water used in the household, DPR Korea, 2009

	Percentage of households without drinking water on premises	Number of households	Person usually collecting drinking water			Number of households without drinking water on premises
			Adult woman	Adult man	Total	
Residence						
Urban	3.8	4514	66.0	34.0	100.0	171
Rural	7.5	2982	68.7	31.3	100.0	224
Education of household head						
Primary	(2.5)	32	(*)	(*)	100.0	1
Secondary	5.1	5467	67.3	32.7	100.0	277
Higher	5.9	1997	67.8	32.2	100.0	118
Total	5.3	7496	67.5	32.5	100.0	396

Note: (%.%) Figures in parenthesis indicate that the percentage or proportion is based on just 25 to 49 unweighted cases.
(*) An asterisk indicates that the percentage or proportion is calculated on fewer than 25 unweighted cases.
By region (provinces) not shown because the number of unweighted observations is lower than 25 or 50

Use of improved sanitation facilities

Inadequate disposal of human excreta and personal hygiene are associated with a range of diseases including diarrhoeal diseases. An improved sanitation facility is one that hygienically separates human excreta from human contact. Improved sanitation can reduce diarrhoeal disease by more than a third, and significantly lessen the adverse health impacts of other disorders responsible for death and disease among millions of children in developing countries. Improved sanitation facilities for excreta disposal include flush or pour flush to a piped sewer system, septic tank or latrine; ventilated improved pit latrine; or pit latrine with slab.

Table WS.6: Use of improved sanitation facilities

Percent distribution of household population according to type of toilet facility used by the household, and the percentage of household population using improved sanitation facilities, DPR Korea, 2009

	Type of toilet facility used by household							
	Improved sanitation facility				Unimproved sanitation facility			
	Flush/pour flush to:							
	Piped sewer system	Septic tank	Ventilated improved pit latrine	Pit latrine with slab	Pit latrine without slab/ open pit	Total	Percentage of population using improved sanitation facilities[1]	Number of household members
Region								
Ryanggang	53.7	4.7	2.2	19.9	19.6	100.0	80.4	940
North Hamgyong	55.9	4.0	1.9	20.3	17.9	100.0	82.1	3 108
South Hamgyong	55.1	4.3	1.7	20.4	18.5	100.0	81.5	3 859
Kangwon	55.8	4.0	2.4	18.9	18.9	100.0	81.1	1 849
Jagang	55.2	3.2	1.8	20.5	19.3	100.0	80.7	1 649
North Phyongan	54.5	4.1	2.2	19.7	19.5	100.0	80.5	3 555
South Phyongan	57.5	4.9	2.0	19.2	16.5	100.0	83.5	5 088
North Hwanghae	53.6	3.9	2.4	21.2	18.9	100.0	81.1	2 647
South Hwanghae	55.9	3.6	1.6	20.7	18.3	100.0	81.7	2 898
Pyongyang	74.5	5.9	3.2	9.2	7.2	100.0	92.8	4 151
Residence								
Urban	69.4	3.3	1.2	16.1	9.9	100.0	90.1	17 813
Rural	41.4	5.9	3.5	22.2	27.0	100.0	73.0	11 930
Education of household head								
Primary	59.9	3.7	4.8	10.6	21.0	100.0	79.0	64
Secondary	57.1	4.2	2.2	19.3	17.2	100.0	82.8	21 695
Higher	61.1	5.0	1.9	16.5	15.5	100.0	84.5	7 985
Total	58.2	4.4	2.1	18.5	16.8	100.0	83.2	29 744

[1] **MICS indicator 4.3; MDG indicator 7.9**

Table WS.6 shows that 83 per cent of DPR Korea lives in households using improved sanitation facilities. This increases to 90 per cent in urban areas and drops to 73 per cent in rural areas. Except for Pyongyang, there was not much variation in the proportion of access to improved sanitary facilities by province. In urban areas, 73 per cent of households use flush toilets connected to a sewer system or septic tank, while in rural areas 53 per cent of households use pit latrines with or without slabs.

According to the survey, 41 per cent of rural households use a piped sewer system, while only 22 per cent use pit latrines with a slab. Latrines in rural apartments in DPR Korea are

mostly connected to a common septic tank, but they are still a pour flush latrine. Respondents may not have differentiated between a system with sewer connection and a system with a common septic tank. For future surveys, the definition of improved sanitation needs to be further clarified.

Access to safe drinking-water and to basic sanitation is measured by the proportion of population using an improved sanitation facility. MDGs and the WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation classify households as using an unimproved sanitation facility if they are using otherwise acceptable sanitation facilities but sharing a facility between two or more households or using a public toilet facility.

Table WS.7 shows that 83 per cent of households use improved sanitation facilities, with 78 per cent using not shared improved sanitation facilities. There is an urban-rural difference, with 27 per cent of rural household populations using unimproved sanitation facilities versus only 10 per cent in urban areas.

Table WS.7: Shared use of sanitation facilities

Percent distribution of household population by use of private and public sanitation facilities and use of shared facilities, by users of improved and unimproved sanitation facilities, DPR Korea, 2009

	Users of improved sanitation facilities			Users of unimproved sanitation facilities				
			Shared by			Shared by		
	Not shared	Public facility	5 households or less	Not shared	Public facility	5 households or less	Total	Number of household members
Region								
Ryanggang	73.3	6.3	0.9	14.4	4.4	0.7	100.0	940
North Hamgyong	76.1	5.4	0.5	15.0	2.4	0.5	100.0	3 108
South Hamgyong	75.8	4.9	0.8	12.8	5.7	0.0	100.0	3 859
Kangwon	74.9	6.2	0.0	14.3	4.6	0.0	100.0	1 849
Jagang	76.1	4.6	0.0	15.8	3.6	0.0	100.0	1 649
North Phyongan	75.9	3.7	0.9	17.3	2.0	0.2	100.0	3 555
South Phyongan	76.2	7.2	0.0	11.7	4.8	0.0	100.0	5 088
North Hwanghae	78.3	2.7	0.0	17.4	1.6	0.0	100.0	2 647
South Hwanghae	77.9	3.8	0.0	16.7	1.6	0.0	100.0	2 898
Pyongyang	91.3	0.5	0.9	7.1	0.0	0.2	100.0	4 151
Residence								
Urban	84.5	5.1	0.5	7.1	2.6	0.2	100.0	17 813
Rural	69.3	3.4	0.3	23.5	3.5	0.0	100.0	11 930
Education of household head								
Primary	79.0	0.0	0.0	21.0	0.0	0.0	100.0	64
Secondary	77.9	4.5	0.4	14.2	3.0	0.1	100.0	21 695
Higher	79.8	4.1	0.6	12.3	3.0	0.2	100.0	7 985
Total	78.4	4.4	0.4	13.7	3.0	0.1	100.0	29 744

Safe disposal of a child's faeces is disposing of the stool, by the child using a toilet or by rinsing the stool into a toilet or latrine. Disposal of faeces of children 0-2 years of age is presented in Table WS.8. The proportion of safe disposal of child faces is 67 per cent. The situation of safe disposal of faeces by province is highest in the North Phyongan province (73 per cent); there is not much difference among the other provinces. Safe disposal of a child's faeces in urban areas is 66 per cent and in rural areas is 68 per cent, this difference is small

and statistically the difference was not acknowledged. Looking at the data by educational status of mothers, there is a positive correlation between mother's education level and proportion of safe disposal of child faeces.

Table WS.8: Safe disposal of child's faeces

Percent distribution of children age 0-2 years according to place of disposal of child's faeces, and the percentage of children age 0-2 years whose stools were disposed of safely the last time the child passed stools, DPR Korea, 2009

	Place of disposal of child's faeces						Percentage of children whose stools were disposed of safely[1]	Number of children age 0-2 years
	Child used toilet/latrine	Put/rinsed into toilet or latrine	Put/rinsed into drain or ditch	Thrown into garbage	Buried	Total		
Type of sanitaton facility in dwelling								
Improved	30.4	36.8	17.7	2.9	12.2	100.0	67.1	1 075
Unimproved	28.4	36.9	18.1	3.5	13.1	100.0	65.3	210
Region								
Ryanggang	33.0	31.5	14.9	3.2	17.5	100.0	64.5	40
North Hamgyong	31.6	37.7	13.0	2.9	14.9	100.0	69.3	139
South Hamgyong	26.3	37.2	20.6	1.6	14.3	100.0	63.5	171
Kangwon	31.7	36.1	18.4	4.5	9.3	100.0	67.8	71
Jagang	24.8	38.5	17.4	4.5	14.7	100.0	63.3	70
North Phyongan	33.4	39.8	13.2	1.5	12.0	100.0	73.2	160
South Phyongan	24.6	40.1	19.9	2.0	13.5	100.0	64.7	215
North Hwanghae	28.4	36.6	20.5	4.9	9.6	100.0	65.0	124
South Hwanghae	32.4	34.4	19.4	2.6	11.3	100.0	66.8	113
Pyongyang	36.3	31.5	18.1	4.6	9.4	100.0	67.8	181
Residence								
Urban	30.3	35.6	17.8	3.2	13.2	100.0	65.9	755
Rural	29.7	38.5	17.8	2.8	11.2	100.0	68.2	530
Mother's education								
Secondary	29.2	36.5	18.9	2.5	12.9	100.0	65.7	1 063
Higher	34.0	38.5	12.4	5.2	10.0	100.0	72.4	222
Total	30.0	36.8	17.8	3.0	12.4	100.0	66.8	1 285

[1] **MICS indicator 4.4**

In its 2008 report[8], the JMP developed a new way of presenting the access figures, by disaggregating and refining the data on drinking-water and sanitation and reflecting them in "ladder" format. This ladder allows a disaggregated analysis of trends in a three-rung ladder for drinking-water and a four-rung ladder for sanitation. For sanitation, this gives an understanding of the proportion of population with no sanitation facilities at all, of those reliant on technologies defined by JMP as "unimproved," of those sharing sanitation facilities of otherwise acceptable technology, and those using "improved" sanitation facilities. Table WS.9 presents the percentages of household population by drinking water and sanitation ladders. The table also shows the percentage of household members using improved sources of drinking water and sanitary means of excreta disposal. The proportion using improved sources of drinking water and improved sanitation facilities is 83 per cent. There is very little provincial variation except for Pyongyang where 93 per cent use improved sources of drinking water and improved sanitation facilities. An urban-rural difference persists: 90 per cent of urban dwellers use improved sources of drinking water and sanitation compared to 73 per cent for rural residents.

[8] WHO/UNICEF JMP (2008), MDG assessment report - http://www.wssinfo.org/download?id_document=1279

Table WS.9: Use of improved water sources and improved sanitation facilities

Percentage of household population using both improved drinking water sources and improved sanitation facilities, DPR Korea, 2009

	Percentage of household population:			
	Using improved sources of drinking water[1]	Using improved sanitation facilities[2]	Using improved sources of drinking water and improved sanitation facilities	Number of household members
Region				
Ryanggang	99.8	80.4	80.4	940
North Hamgyong	100.0	82.1	82.1	3 108
South Hamgyong	100.0	81.5	81.5	3 859
Kangwon	99.8	81.1	81.1	1 849
Jagang	100.0	80.7	80.7	1 649
North Phyongan	99.8	80.5	80.3	3 555
South Phyongan	99.9	83.5	83.4	5 088
North Hwanghae	99.8	81.1	81.1	2 647
South Hwanghae	99.8	81.7	81.7	2 898
Pyongyang	100.0	92.8	92.8	4 151
Residence				
Urban	100.0	90.1	90.1	17 813
Rural	99.8	73.0	72.9	11 930
Education of household head				
Primary	100.0	79.0	79.0	64
Secondary	99.9	82.8	82.7	21 695
Higher	99.9	84.5	84.4	7 985
Total	99.9	83.2	83.2	29 744

[1] MICS indicator 4.1; MDG indicator 7.8

[2] MICS indicator 4.3; MDG indicator 7.9

VII. Reproductive health

Antenatal care

The antenatal period presents important opportunities to reach pregnant women with interventions that may be vital to their health and well-being and that of their infants. Better understanding of foetal growth and development and its relationship to the mother's health has resulted in increased attention to the potential of antenatal care as an intervention to improve both maternal and newborn health. For example, if women and their families are informed during the antenatal period about the danger signs, symptoms and risks of labour and delivery, it may ensure that pregnant women do deliver with the assistance of a skilled health care provider. The antenatal period also provides an opportunity to disseminate information on birth spacing, which is recognized as an important factor in improving infant survival. Tetanus immunization during pregnancy can be life-saving for both the mother and infant. The prevention and treatment of malaria among pregnant women, management of anaemia during pregnancy and treatment of STIs can significantly improve foetal outcomes and improve maternal health. Adverse outcomes such as low birthweight can be reduced by interventions to improve women's nutritional status and prevent infections such as malaria and sexually transmitted infections (STIs) during pregnancy. More recently, the potential of the antenatal period as an entry point for HIV prevention and care, in particular for the prevention of HIV transmission from mother to child, has led to renewed interest in access to and use of antenatal services.

Based on a review of the effectiveness of different models of antenatal care, WHO recommends a minimum of four antenatal visits. WHO guidelines are specific on the content on antenatal care visits, which include:

- Blood pressure measurement
- Urine testing for bateriuria and proteinuria
- Blood testing to detect syphilis and severe anaemia
- Weight/height measurement (optional)

The type of personnel providing antenatal care to women aged 15-49 years who gave birth in the two years preceding is presented in Table RH.1. Coverage of antenatal care (by a doctor, nurse, or midwife) is very high in DPR Korea with 100 per cent of women receiving antenatal care at least once during the pregnancy.

Table RH.1: Antenatal care coverage

Percent distribution of women aged 15-49 who gave birth in the two years preceding the survey by type of personnel providing antenatal care, DPR Korea, 2009

	Person providing antenatal care				
	Medical doctor	Nurse/ Midwife	Total	Any skilled personnel[1]	Number of women who gave birth in the preceding two years
Region					
Ryanggang	66.2	33.8	100.0	100.0	22
North Hamgyong	70.9	29.1	100.0	100.0	94
South Hamgyong	70.6	29.4	100.0	100.0	112
Kangwon	68.3	31.7	100.0	100.0	49
Jagang	67.5	32.5	100.0	100.0	50
North Phyongan	69.8	30.2	100.0	100.0	98
South Phyongan	69.5	30.5	100.0	100.0	155
North Hwanghae	69.0	31.0	100.0	100.0	89
South Hwanghae	70.7	29.3	100.0	100.0	72
Pyongyang	79.8	20.2	100.0	100.0	114
Residence					
Urban	75.1	24.9	100.0	100.0	518
Rural	64.7	35.3	100.0	100.0	336
Mother's age at birth					
Less than 20	(*)	(*)	100.0	(*)	6
20-34	70.6	29.4	100.0	100.0	751
35-49	73.9	26.1	100.0	100.0	97
Education					
Secondary	70.6	29.4	100.0	100.0	710
Higher	72.9	27.1	100.0	100.0	144
Total	71.0	29.0	100.0	100.0	854

[1] MICS indicator 5.5a; MDG indicator 5.5

Note: (*) An asterisk indicates that the percentage or proportion is calculated on fewer than 25 unweighted cases.

UNICEF and WHO recommend a minimum of at least four antenatal care visits during pregnancy. Table RH.2 shows the number of antenatal care visits during the last pregnancy during the two years preceding the survey, regardless of provider by selected characteristics. Almost all mothers (99.6 per cent) receive antenatal care more than once and almost all mothers received antenatal care at least four times (94 per cent), a very good result. There is significant difference between regions for the percentage of mothers receiving antenatal care at least four times; Pyongyang is the highest at 98 per cent, Ryanggang province is the lowest at 76 per cent. There was almost no difference by age and educational attainment of women.

Table RH.2: Number of antenatal care visits

Percent distribution of women who had a live birth during the two years preceding the survey by number of antenatal care visits by any provider, DPR Korea, 2009

	Percent distribution of women who had:					
	One visit	Two visits	Three visits	4 or more visits[1]	Total	Number of women who had a live birth in the preceding two years
Region						
Ryanggang	1.5	7.4	14.6	76.4	100.0	22
North Hamgyong	0.0	0.0	3.2	96.8	100.0	94
South Hamgyong	0.0	0.0	4.6	95.4	100.0	112
Kangwon	1.9	1.1	2.7	94.4	100.0	49
Jagang	1.1	5.2	1.0	92.7	100.0	50
North Phyongan	1.3	2.4	7.5	88.8	100.0	98
South Phyongan	0.0	2.0	2.4	95.6	100.0	155
North Hwanghae	0.0	3.2	9.8	87.0	100.0	89
South Hwanghae	0.0	1.8	4.0	94.3	100.0	72
Pyongyang	0.0	0.0	2.3	97.7	100.0	114
Residence						
Urban	0.1	1.6	2.7	95.6	100.0	518
Rural	0.7	1.9	7.3	90.2	100.0	336
Mother's age at birth						
Less than 20	(*)	(*)	(*)	(*)	100.0	6
20-34	0.4	1.8	4.2	93.7	100.0	751
35-49	0.0	1.2	7.1	91.7	100.0	97
Education						
Secondary	0.3	1.8	4.9	93.0	100.0	710
Higher	0.6	1.1	2.5	95.8	100.0	144
Total	0.4	1.7	4.5	93.5	100.0	854

[1] MICS indicator 5.5b; MDG indicator 5.5

Note: (*) An asterisk indicates that the percentage or proportion is calculated on fewer than 25 unweighted cases.

The types of services pregnant women received are shown in table RH.3. Among those women who gave birth to a child during the two years preceding the survey, 80 per cent reported that a blood sample was taken during antenatal care visits, 100 per cent reported that their blood pressure was checked, and 82 per cent reported that a urine specimen was taken. The proportion of mothers taking all three tests is 79 per cent, though women aged 20-24 are less likely to have all three tests than women aged 35-49 (79 per cent versus 87 per cent, respectively). No difference is observed by urban and rural or woman's education attainment. However, there was some variation by province and age. By province, Pyongyang and South Hwanghae provinces were highest and Ryanggang province was lowest.

Table RH.3: Content of antenatal care

Percentage of women aged 15-49 years who had their blood pressure measured, urine sample taken, and blood sample taken as part of antenatal care, DPR Korea, 2009

	Percentage of pregnant women who had:				Number of women who had a live birth in the preceding two years
	Blood pressure measured	Urine sample taken	Blood sample taken	Blood pressure measured, urine and blood sample taken[1]	
Region					
Ryanggang	100.0	74.5	73.3	72.0	22
North Hamgyong	100.0	87.4	81.6	81.6	94
South Hamgyong	100.0	80.6	79.5	79.5	112
Kangwon	100.0	80.5	80.5	80.5	49
Jagang	100.0	78.2	80.2	77.1	50
North Phyongan	100.0	82.9	78.4	78.4	98
South Phyongan	100.0	75.4	74.9	74.0	155
North Hwanghae	100.0	80.7	79.6	78.8	89
South Hwanghae	100.0	88.0	85.4	83.8	72
Pyongyang	100.0	85.2	85.0	82.6	114
Residence					
Urban	100.0	80.7	79.6	78.7	518
Rural	100.0	82.9	80.4	79.6	336
Mother's age at birth					
Less than 20	(*)	(*)	(*)	(*)	6
20-34	100.0	80.5	78.9	77.9	751
35-49	100.0	89.2	86.9	86.9	97
Education					
Secondary	100.0	81.4	79.9	79.0	710
Higher	100.0	82.4	80.0	79.1	144
Total	100.0	81.6	80.0	79.0	854

[1] **MICS indicator 5.6**

Note: (*) An asterisk indicates that the percentage or proportion is calculated on fewer than 25 unweighted cases.

Questions were added on micronutrient usage which are not questions included in standard MICS questionnaires. Table RH.4 shows micronutrient supplementation during pregnancy by women aged 15-49 who had delivered a live birth two years prior to survey. Almost all women (98 per cent) reported having taken micronutrient supplement during pregnancy. However, only 44 per cent took the full course for the required period of six months. There are provincial variations with South Hwanghae having the highest (53 per cent) figures and Jagang province the lowest (35 per cent).

Table RH.4: Mother's micronutrient supplementation during pregnancy

Percentage of women aged 15-49 years who received micronutrient tablets and distribution of months that women aged 15-49 received micronutrient tablets during pregnancy , DPR Korea, 2009

	Received Micronutrient supplement	Number of women aged 15-49 years	Months received micronutrient supplement						Total	Number of women aged 15-49 who received micronutrient
			1 month	2 months	3 months	4 months	5 months	6 months		
Region										
Ryanggang	100.0	22	0.0	7.1	14.9	15.9	24.8	37.3	100.0	22
North Hamgyong	98.8	94	1.2	4.1	8.0	16.1	28.9	41.8	100.0	93
South Hamgyong	97.9	112	2.2	8.2	6.8	13.0	25.0	44.9	100.0	109
Kangwon	95.9	49	3.7	2.8	11.3	16.9	25.0	40.3	100.0	47
Jagang	97.0	50	3.1	4.5	7.7	21.2	28.6	34.9	100.0	48
North Phyongan	98.9	98	1.3	4.9	7.0	23.0	20.8	43.0	100.0	97
South Phyongan	97.9	155	1.4	3.5	11.7	13.9	25.3	44.2	100.0	152
North Hwanghae	98.4	89	1.8	6.6	11.2	18.0	16.8	45.7	100.0	88
South Hwanghae	100.0	72	0.0	5.4	5.2	10.8	25.5	53.1	100.0	72
Pyongyang	98.7	114	1.4	10.1	6.2	14.5	23.1	44.6	100.0	112
Residence										
Urban	97.8	518	1.7	5.9	9.5	13.8	23.8	45.3	100.0	506
Rural	99.2	336	1.4	5.6	7.3	19.3	24.5	41.9	100.0	333
Education										
Secondary	98.4	710	1.4	5.9	8.9	16.0	25.0	42.8	100.0	698
Higher	98.2	144	2.6	5.3	7.1	15.6	19.9	49.5	100.0	142
Total	98.3	854	1.6	5.8	8.6	16.0	24.1	43.9	100.0	840

Assistance at delivery

Three quarters of all maternal deaths occur during delivery and the immediate post-partum period. The single most critical intervention for safe motherhood is to ensure that a competent health worker with midwifery skills is present at every birth, and that transport is available to a referral facility for obstetric care in case of emergency. A World Fit for Children goal is to ensure that women have ready and affordable access to skilled medical attendants at delivery. The indicators are the proportion of births with a skilled attendant and proportion of institutional deliveries. The skilled attendant at delivery indicator is also used to track progress toward the Millennium Development target of reducing the maternal mortality ratio by three quarters between 1990 and 2015.

The MICS included a number of questions to assess the proportion of births attended by a skilled attendant. *A* 'skilled attendant' includes a doctor, nurse or midwife.

According to the survey results, all births occurring in the two years preceding the MICS survey were delivered by skilled personnel (see table RH.5). A nurse/midwife assisted at 37 per cent of the births while doctors assisted with the delivery of the remaining 63 per cent of births. The type of personnel providing delivery assistance is noticeably different between areas; a higher proportion of deliveries in urban areas received assistance from a doctor compared to rural areas (70 percent versus 53 per cent, respectively). Assistance by a doctor is also higher in Pyongyang compared to other provinces.

Table RH.5: Assistance during delivery

Percent distribution of women age 15-49 who had a live birth in the two years preceding the survey by person assisting at delivery and percentage of births delivered by C-section, DPR Korea, 2009

	Person assisting at delivery			Delivery assisted by any skilled attendant[1]	Percent delivered by C-section[2]	Number of women who had a live birth in preceding two years
	Medical doctor	Nurse/ Midwife	Total			
Region						
Ryanggang	65.9	34.1	100.0	100.0	16.1	22
North Hamgyong	64.3	35.7	100.0	100.0	13.8	94
South Hamgyong	63.8	36.2	100.0	100.0	12.3	112
Kangwon	61.2	38.8	100.0	100.0	11.8	49
Jagang	60.9	39.1	100.0	100.0	11.4	50
North Phyongan	60.1	39.9	100.0	100.0	10.8	98
South Phyongan	61.9	38.1	100.0	100.0	11.3	155
North Hwanghae	61.0	39.0	100.0	100.0	8.2	89
South Hwanghae	62.0	38.0	100.0	100.0	10.6	72
Pyongyang	71.5	28.5	100.0	100.0	19.0	114
Residence						
Urban	70.4	29.6	100.0	100.0	14.8	518
Rural	52.7	47.3	100.0	100.0	8.8	336
Mother's age at birth						
Less than 20	(*)	(*)	100.0	(*)	(*)	6
20-34	63.5	36.5	100.0	100.0	12.3	751
35-49	64.5	35.5	100.0	100.0	14.0	97
Place of delivery						
Public sector health facility	64.5	35.5	100.0	100.0	13.1	809
Home	43.8	56.2	100.0	100.0	0.0	45
Education						
Secondary	62.6	37.4	100.0	100.0	11.8	710
Higher	67.6	32.4	100.0	100.0	15.7	144
Total	63.4	36.6	100.0	100.0	12.5	854

[1] MICS indicator 5.7; MDG indicator 5.2

[2] MICS indicator 5.9

Note: (*) An asterisk indicates that the percentage or proportion is calculated on fewer than 25 unweighted cases.

Place of delivery

Increasing the proportion of births that are delivered in health facilities is an important factor in reducing the health risks to both the mother and the baby. Proper medical attention and hygienic conditions during delivery can reduce the risks of complications and infection that can cause morbidity and mortality to either the mother or the baby. Table RH.6 presents the per cent distribution of women aged 15-49 who had a live birth in the two years preceding the survey by place of delivery.

In DPR Korea, 95 per cent of births are delivered in a health facility; the remaining five per cent occur at home. There is little difference by mother's age at birth. Women in urban areas are more likely to deliver in a health facility than their rural counterparts (99.8 per cent compared with 87 per cent). South Hamgyong and Pyongyang provinces have the highest proportion of institutional deliveries (98 per cent and 99 per cent, respectively), while Ryanggang has the lowest (90 per cent).

Table RH.6: Place of delivery

Percent distribution of women aged 15-49 who had a live birth in two years preceding the survey by place of delivery, DPR Korea, 2009

	Place of delivery			Delivered in health facility[1]	Number of women who had a live birth in preceding two years
	Public sector health facility	Home	Total		
Region					
Ryanggang	90.3	9.7	100.0	90.3	22
North Hamgyong	96.1	3.9	100.0	96.1	94
South Hamgyong	98.9	1.1	100.0	98.9	112
Kangwon	94.9	5.1	100.0	94.9	49
Jagang	99.0	1.0	100.0	99.0	50
North Phyongan	91.9	8.1	100.0	91.9	98
South Phyongan	94.1	5.9	100.0	94.1	155
North Hwanghae	90.3	9.7	100.0	90.3	89
South Hwanghae	90.6	9.4	100.0	90.6	72
Pyongyang	97.6	2.4	100.0	97.6	114
Residence					
Urban	99.8	0.2	100.0	99.8	518
Rural	86.9	13.1	100.0	86.9	336
Mother's age at birth					
Less than 20	(*)	(*)	100.0	(*)	6
20-34	94.8	5.2	100.0	94.8	751
35-49	95.5	4.5	100.0	95.5	97
Number of antenatal care visits					
None			100.0		
1-3 visits	84.2	15.8	100.0	84.2	56
4+ visits	95.4	4.6	100.0	95.4	798
Education					
Secondary	94.3	5.7	100.0	94.3	710
Higher	96.9	3.1	100.0	96.9	144
Total	94.7	5.3	100.0	94.7	854

[1] MICS indicator 5.8

Note: (*) An asterisk indicates that the percentage or proportion is calculated on fewer than 25 unweighted cases.

Post-partum mother's vitamin A supplementation

Table RH.7 shows the proportion of women aged 15-49 who had taken vitamin A within two months after delivery. Nearly all women (98 per cent) aged 15-49 who delivered a child 2 years prior to survey were provided vitamin A within 2 months after delivery. There is no difference by province, urban-rural areas.

Table RH.7: Post-partum mother's vitamin A supplementation

Percentage of women aged 15-49 years with a birth in the two years preceding the survey who received a high- dose vitamin A supplement before the infant was 8 weeks old, DPR Korea, 2009

	Received Vitamin A supplement	Number of women
Region		
Ryanggang	96.3	22
North Hamgyong	97.5	94
South Hamgyong	97.7	112
Kangwon	97.4	49
Jagang	97.8	50
North Phyongan	97.6	98
South Phyongan	98.1	155
North Hwanghae	97.4	89
South Hwanghae	96.4	72
Pyongyang	97.6	114
Residence		
Urban	98.2	518
Rural	96.6	336
Education		
Secondary	97.0	710
Higher	100.0	144
Total	97.5	854

Mid-upper arm circumference (MUAC) of women

The mid-upper arm circumference of women is an indicator used to evaluate the nutrition status of women. When the MUAC of a woman is less than 225 mm, she is considered under-nourished.

DPR Korea added a women's anthropometry module in the women's questionnaire and measured women's MUAC. All of the interviewed women were aged 15-49. The measuring device was a MUAC tape provided by UNICEF. The measurement method was to expose the woman's left arm and wind the tape in the mid part of the upper arm, and record the figure within 0.1cm of accuracy.

The MUAC data in table RH 8 shows that 26 per cent of women aged 15-49 are under-nourished, with a MUAC of less than 225 mm. There was no difference between urban and rural residents, and by educational attainment.

Table RH.8 : MUAC of women

Percentage of women aged 15-49 years with MUAC less than 225 mm, DPR Korea, 2009

	Percent of MUAC measured	Less than 225 mm	225 mm or over	Number of women
Residence				
Urban	100.0	25.1	74.9	5 033
Rural	100.0	26.4	73.6	3 216
Education				
Secondary	100.0	25.7	74.3	6 902
Higher	100.0	25.3	74.7	1 347
Total	100.0	25.6	74.4	8 249

VIII. Child development

Early childhood education and learning

Attendance to pre-school education in an organized learning or child education program is important for the readiness of children to school.

Table CD.1 shows that 98 per cent of children aged 36-59 months attend pre-school. Urban-rural and regional differentials are not significant. No gender differential exists. It is interesting to note that the proportion of children attending pre-school at ages 36-47 months and 48-59 months is nearly identical.

Table CD.1: Early childhood education

Percentage of children age 36-59 months who are attending an organized early childhood education programme, DPR Korea, 2009

	Percentage of children age 36-59 months currently attending early childhood education[1]	Number of children age 36-59 months
Sex		
Male	98.3	447
Female	97.4	440
Region		
Ryanggang	97.2	29
North Hamgyong	97.0	91
South Hamgyong	96.6	116
Kangwon	98.6	54
Jagang	99.1	48
North Phyongan	98.7	115
South Phyongan	98.8	166
North Hwanghae	97.6	78
South Hwanghae	95.0	79
Pyongyang	98.7	111
Residence		
Urban	98.7	512
Rural	96.6	375
Age of child		
36-47 months	97.1	459
48-59 months	98.6	428
Mother's education		
Secondary	97.3	717
Higher	100.0	170
Total	97.8	887

[1] **MICS indicator 6.7**

It is well recognized that a period of rapid brain development occurs in the first 3-4 years of life, and the quality of home care is the major determinant of the child's development during this period. In this context, adult activities with children, presence of books in the home for the child, and the conditions of care are important indicators of quality of home care. Children should be physically healthy, mentally alert, emotionally secure, socially competent and ready to learn.

Table CD.2: Support for learning

Percentage of children aged 36-59 months with whom an adult household member engaged in activities that promote learning and school readiness during the last three days, DPR Korea, 2009

	Percentage of children aged 36-59 months		Mean number of activities			
	With whom adult household members engaged in four or more activities[1]	With whom the father engaged in one or more activities[2]	Any adult household member engaged with the child	The father engaged with the child	Percentage of children not living with their natural father	Number of children age 36-59 months
Sex						
Male	88.4	73.4	5.0	2.5	4.0	447
Female	93.2	77.1	5.1	2.8	5.7	440
Region						
Ryanggang	85.4	75.8	4.8	2.6	10.9	29
North Hamgyong	88.0	83.8	5.0	2.9	2.0	91
South Hamgyong	92.9	75.1	5.1	2.5	1.3	116
Kangwon	87.9	61.0	5.0	2.2	10.8	54
Jagang	92.4	72.2	5.1	2.5	7.6	48
North Phyongan	90.5	67.4	5.1	2.4	3.7	115
South Phyongan	92.5	74.7	5.0	2.6	6.6	166
North Hwanghae	87.7	80.8	5.0	2.7	2.2	78
South Hwanghae	96.3	75.7	5.3	2.8	5.9	79
Pyongyang	88.8	81.1	5.0	3.0	5.1	111
Residence						
Urban	92.1	76.6	5.1	2.7	4.2	512
Rural	88.9	73.4	5.0	2.6	5.8	375
Age						
36-47 months	90.3	75.4	5.0	2.7	5.8	459
48-59 months	91.2	75.0	5.1	2.6	3.9	428
Mother's education						
Secondary	90.2	75.3	5.0	2.7	4.8	717
Higher	93.0	74.8	5.1	2.6	5.2	170
Father's education						
Secondary	92.2	78.9	5.1	2.8	na	641
Higher	91.0	78.5	5.1	2.8	na	203
Father not in household	68.0	na	4.3	na	na	43
Total	90.8	75.2	5.0	2.6	4.9	887

[1] MICS indicator 6.1

[2] MICS Indicator 6.2

na: not applicable

The survey collected information on a number of activities that support early child development. These included the involvement of adults with children in the following activities: reading books or looking at picture books, telling stories, singing songs, taking children outside the home, compound or yard, playing with children, and spending time with children naming, counting or drawing things.

For 91 per cent of under-five children, an adult household member engaged in more than four activities that promote learning and school readiness during the 3 days preceding the survey (see Table CD.2). The mean number of activities that adults engaged with children was five. The table also indicates that the father's involvement in such activities was somewhat limited.

The father's involvement with one or more activities was 75 per cent; in Kangwon province the father's involvement was particularly low at 61 per cent. Only five per cent of children were living in a household without their fathers.

There are some gender differentials in terms of adult activities with children: A larger proportion of adult household members engaged in activities with female children than with male children (93 per cent versus 88 per cent, respectively). No differentials by region and education of parents were observed.

Exposure to books in early years not only provides the child with greater understanding of the nature of print, but may also gives the child opportunities to see others reading or older siblings doing school work. The presence of books is important for later school performance and IQ scores. The mothers or caretakers of all children under 5 were asked about number of children's or picture books, household objects or outside objects, and homemade or store-bought toys that had available at home for the child.

Table CD.3: Learning materials

Percentage of children aged under 5 by numbers of children's books present in the household, and by playthings that child plays with, DPR Korea, 2009

	Household has for the child:		Child plays with:				
	3 or more children's books[1]	10 or more children's books	Homemade toys	Toys from a shop/manufactured toys	Household objects/objects found outside	Two or more types of playthings[2]	Number of children under age 5
Sex							
Male	77.9	1.5	30.7	65.4	49.5	45.4	1 106
Female	80.3	1.4	31.4	69.8	50.6	49.2	1 066
Region							
Ryanggang	81.0	1.0	26.5	66.1	49.8	44.9	68
North Hamgyong	82.2	1.3	25.1	54.7	47.1	37.5	230
South Hamgyong	83.8	1.3	30.5	71.4	44.6	45.4	287
Kangwon	78.2	1.9	36.7	61.7	35.3	41.9	125
Jagang	73.5	1.2	26.1	61.8	54.4	47.9	118
North Phyongan	72.9	1.8	33.8	71.2	63.3	58.2	275
South Phyongan	79.7	1.0	29.0	65.1	43.1	37.8	381
North Hwanghae	77.7	1.1	37.1	65.1	66.6	57.9	202
South Hwanghae	77.4	1.1	19.9	58.2	28.7	27.1	192
Pyongyang	81.4	2.6	40.2	86.7	61.4	67.2	293
Residence							
Urban	82.3	1.7	29.3	74.5	49.1	48.9	1 268
Rural	74.6	1.1	33.6	57.8	51.3	44.9	904
Age							
0-23 months	79.1	1.0	28.3	65.3	45.1	42.4	851
24-59 months	79.1	1.7	32.8	69.0	53.2	50.4	1 321
Mother's education							
Secondary	74.5	0.7	29.7	65.8	48.9	45.4	1 779
Higher	100.0	4.7	37.1	75.3	55.1	55.7	393
Total	79.1	1.5	31.1	67.6	50.0	47.3	2 172

[1] **MICS indicator 6.3**

[2] **MICS indicator 6.4**

In DPR Korea, 79 per cent of children aged 0-59 months live in households where at least three children's books are present but only 2 per cent of children live in households with 10 or

more books (see table CD.3). While no large gender differentials are observed, children living in urban households appear to have more access to children's books than those in rural households. The proportion of under-5 children who have three or more children's books is 82 per cent in urban areas, compared to 75 per cent in rural areas. The presence of children's books is not correlated with the child's age.

Table CD.3 also shows that 47 per cent of children aged 0-59 months had two or more playthings to play with in their homes. The playthings in MICS included homemade toys (such as dolls and cars, or other toys made at home), toys that came from a store, and household objects (such as pots and bowls) or objects and materials found outside the home (such as sticks, rocks, animal shells, or leaves). It is interesting to note that while 68 per cent of children play with toys that come from a store, other types of toys are at 50 per cent or below. Only slight gender or urban-rural differentials are observed in this respect; some differences are observed in terms of mother's education: 45 per cent of children whose mothers had at least secondary education have two or more playthings, while this rises to 56 per cent for children whose mothers had higher education.

Table CD.4: Inadequate care

Percentage of children under age 5 left alone or left in the care of another child younger than 10 years of age for more than one hour at least once during the past week, DPR Korea, 2009

	Percentage of children under age 5			
	Left alone in the past week	Left in the care of another child younger than 10 years of age in the past week	Left with inadequate care in the past week[1]	Number of children under age 5
Sex				
Male	6.5	12.3	16.8	1 106
Female	5.8	12.5	16.2	1 066
Region				
Ryanggang	9.2	12.1	18.4	68
North Hamgyong	5.4	11.8	15.4	230
South Hamgyong	9.9	12.2	18.7	287
Kangwon	7.1	11.0	17.6	125
Jagang	6.0	13.7	17.7	118
North Phyongan	4.5	13.0	15.5	275
South Phyongan	4.1	13.5	15.8	381
North Hwanghae	4.3	13.3	17.1	202
South Hwanghae	9.5	12.4	18.8	192
Pyongyang	5.2	10.4	13.7	293
Residence				
Urban	5.0	11.9	15.0	1 268
Rural	7.8	13.1	18.6	904
Age				
0-23 months	2.2	4.1	5.4	851
24-59 months	8.7	17.7	23.6	1 321
Mother's education				
Secondary	6.5	13.1	17.3	1 779
Higher	4.7	9.3	13.0	393
Total	6.1	12.4	16.5	2 172

[1] **MICS indicator 6.5**

Leaving children alone or in the presence of other young children is known to increase the risk of accidents. In DPR Korea MICS, two questions were asked to find out whether children

aged 0-59 months were left alone for more than an hour during the week preceding the interview, and whether children were left in the care of other children under 10 years of age for more than an hour.

Table CD.4 shows that 12 per cent of children aged 0-59 months were left in the care of other children under 10 years of age, while 6 per cent of children aged 0-59 months were left alone during the week preceding the interview. Combining the two care indicators, it is calculated that 17 per cent of children were left with inadequate care during the week preceding the survey, either by being left alone or in the care of another child. No differences were observed by the sex of the child or between urban and rural areas. Inadequate care was slightly more prevalent among children whose mothers had only secondary education (17 per cent), as opposed to children whose mothers had higher education (13 per cent). Children aged 24-59 months were left with inadequate care more (24 per cent) than those who were aged 0-23 months (5 per cent). There is also significant difference between provinces: 14 per cent in Pyongyang compared to 19 per cent in South Hamgyong and South Hwanghae.

Early childhood development

Early child development is defined as an orderly, predictable process along a continuous path, in which a child learns to handle more complicated levels of moving, thinking, speaking, feeling and relating to others. Physical growth, literacy and numeracy skills, socio-emotional development and readiness to learn are vital domains of a child's overall development, which is a basis for overall human development.

A 10-item module developed for the MICS programme was used to calculate the early child development index (ECDI). The indicator is based on some benchmarks that children would be expected to have if they are developing as the majority of children in that age group. The primary purpose of the ECDI is to inform public policy regarding the developmental status of children in DPR Korea.

Each of the 10 items is used in one of the four domains, to determine if children are developmentally on track in that domain. The domains are:

- Literacy-numeracy: Children are identified as being developmentally on track based on whether they can identify or name at least ten letters of the alphabet; read at least four simple, popular words; and whether they know the name and recognize the symbols of all numbers from 1 to 10. If at least two of these are true, then the child is considered developmentally on track.
- Physical: If the child can pick up a small object like a stick or a rock from the ground with two fingers, and the mother or caretaker does not indicate that the child is sometimes too sick to play, then the child is regarded as being developmentally on track in the physical domain.
- In the social-emotional domain, children are considered to be developmentally on track if two of the following are true: If the child gets along well with other children; if the child does not kick, bite, or hit other children; and if the child does not get distracted easily.
- Learning: If the child follows simple directions on how to do something correctly or when given something to do, is able to do it independently, then the child is considered to be developmentally on track in the learning domain.

ECDI is then calculated as the percentage of children who are developmentally on track in at least three of these four domains.

The results are presented in Table CD.5. In DPR Korea, 75 per cent of children aged 36-59 months are developmentally on track. ECDI is only very slightly higher among boys (76 per

cent) than girls (74 per cent). There is a certain urban-rural difference: ECDI is higher in urban children than rural ones (79 per cent versus 70 per cent, respectively). Regional variations show up, with Pyongyang (82 per cent) having the highest ECDI scores and Ryanggang and South Hamgyong (69 per cent) the lowest. Analysis of the four domains of child development shows that children are on track in the learning (97 percent) and in the physical (95 per cent) domains but much less so in literacy-numeracy (13 per cent).

Table CD.5: Early child development index

Percentage of children age 36-59 months who are developmentally on track in literacy-numeracy, physical, social-emotional, and learning domains, and the early child development index score, DPR Korea, 2009

	Percentage of children age 36-59 months who are developmentally on track for indicated domains				Early child development index score[1]	Number of children age 36-59 months
	Literacy-numeracy	Physical	Social-Emotional	Learning		
Sex						
Male	12.2	96.7	75.7	97.2	76.3	447
Female	13.4	93.0	76.2	96.5	74.3	440
Region						
Ryanggang	10.9	91.2	74.3	95.3	69.0	29
North Hamgyong	11.6	95.3	75.3	97.9	75.1	91
South Hamgyong	12.8	92.9	70.4	95.4	68.9	116
Kangwon	11.5	91.9	75.7	100.0	73.0	54
Jagang	10.0	97.8	72.5	96.7	72.0	48
North Phyongan	12.9	95.2	75.8	96.9	81.5	115
South Phyongan	12.1	96.8	79.8	98.8	79.0	166
North Hwanghae	10.6	92.9	65.9	95.9	69.6	78
South Hwanghae	8.5	94.0	79.4	93.7	70.7	79
Pyongyang	21.6	96.3	83.0	96.2	82.1	111
Residence						
Urban	14.0	95.8	78.7	97.8	79.3	512
Rural	11.2	93.6	72.2	95.5	69.9	375
Age						
36-47 months	7.8	94.5	80.0	95.7	76.6	459
48-59 months	18.2	95.3	71.5	98.0	73.9	428
Preschool attendance						
Attending preschool	12.9	95.0	75.9	97.2	75.7	868
Not attending preschool	(*)	(*)	(*)	(*)	(*)	19
Mother's education						
Secondary	10.7	95.6	75.6	96.7	75.1	717
Higher	21.5	91.9	77.3	97.5	76.4	170
Total	12.8	94.8	75.9	96.8	75.3	887

[1] **MICS indicator 6.6**

Note: (*) An asterisk indicates that the percentage or proportion is calculated on fewer than 25 unweighted cases.

It is important to note that the 10-item ECD module is being used for the first time in the MICS global programme. The learning from its application in DPR Korea will be used to refine the module in the future. Data obtained through this module will need to undergo further verifications and testing before they can be used with high level of confidence.

IX. Education

School readiness

Attendance to pre-school education in an organised learning or child education programme is important for the readiness of children to school. Table ED.1 shows the proportion of children in the first grade of primary school who attended pre-school the previous year. Overall, 99 per cent of children who currently attend the first grade of primary school attended pre-school the previous year. Urban-rural, provincial and gender differentials are not significant.

Table ED.1: School readiness

Percentage of children attending first grade of primary school who attended pre-school the previous year, DPR Korea, 2009

	Percentage of children attending first grade who attended preschool in previous year[1]	Number of children attending first grade of primary school
Sex		
Male	98.1	271
Female	99.7	280
Region		
Ryanggang	98.0	19
North Hamgyong	98.4	68
South Hamgyong	(100.0)	56
Kangwon	95.0	38
Jagang	98.0	30
North Phyongan	98.1	70
South Phyongan	100.0	128
North Hwanghae	(96.7)	30
South Hwanghae	(100.0)	40
Pyongyang	100.0	70
Residence		
Urban	98.9	334
Rural	98.8	218
Mother's education		
Secondary	99.0	435
Higher	98.2	106
Mother not in household	(*)	11
Total	98.9	551

[1] MICS indicator 7.2

Note: (%.%) Figures in parenthesis indicate that the percentage or proportion is based on just 25 to 49 unweighted cases.
(*) An asterisk indicates that the percentage or proportion is calculated on fewer than 25 unweighted cases.

Primary and secondary school participation

Universal access to basic education and the achievement of primary education by the world's children is one of the most important goals of the Millennium Development Goals and A World Fit for Children. Education is a vital prerequisite for combating poverty, empowering women, protecting children from hazardous and exploitative labour and sexual exploitation, promoting human rights, protecting the environment, and influencing population growth.

The indicators for primary and secondary school attendance include:

- Net intake rate in primary education
- Primary school net attendance ratio (adjusted)
- Secondary school net attendance ratio (adjusted)
- Female to male education ratio (or gender parity index - GPI) in primary and secondary school

The indicators of school progression include:

- Children reaching last grade of primary
- Primary completion rate
- Transition rate to secondary school

According to the education system of DPR Korea, children are expected to enter into the first grade by age 7. Of children who were of primary school entry age (age 7), 96 per cent attended the first grade of primary school (see table ED.2). Sex differentials do not exist, though some differentials exist between urban-rural areas. Children's participation in primary school is timelier in urban areas than in rural areas (99 per cent compared to 93 per cent, respectively). No correlation with mother's education is observed.

Table ED.2: Primary school entry

Percentage of children of primary school entry age entering grade 1 (net intake rate), DPR Korea, 2009

	Percentage of children of primary school entry age entering grade 1[1]	Number of children of primary school entry age
Sex		
Male	96.6	216
Female	96.2	235
Residence		
Urban	98.5	267
Rural	93.3	184
Mother's education		
Secondary	96.5	367
Higher	97.2	76
Mother not in household	(*)	8
Total	96.4	451

[1] **MICS indicator 7.3**

Note: (*) An asterisk indicates that the percentage or proportion is calculated on fewer than 25 unweighted cases.
By region (provinces) not shown because the number of unweighted observations is lower than 25 or 50

Table ED.3 provides the percentage of children of primary school age 7 to 10 years who are attend primary or secondary school[9]. Almost all children of primary school age attend school (99 per cent). There are no significant differentials by gender, urban-rural areas, education and age.

[9] Ratios presented in this table are adjusted since they include not only primary school attendance, but also secondary school attendance in the numerator.

Table ED.3: Primary school attendance

Percentage of children of primary school age attending primary or secondary school (adjusted net attendance ratio), DPR Korea, 2009

	Male		Female		Total	
	Net attendance ratio (adjusted)	Number of children	Net attendance ratio (adjusted)	Number of children	Net attendance ratio (adjusted)[1]	Number of children
Region						
Ryanggang	99.1	33	97.2	25	98.2	58
North Hamgyong	97.7	100	98.0	104	97.8	203
South Hamgyong	98.7	113	100.0	125	99.4	238
Kangwon	100.0	58	99.2	58	99.6	116
Jagang	100.0	46	97.9	50	98.9	96
North Phyongan	99.0	112	98.1	107	98.6	219
South Phyongan	100.0	145	99.1	185	99.5	330
North Hwanghae	100.0	81	98.8	81	99.4	162
South Hwanghae	98.2	111	100.0	77	98.9	187
Pyongyang	100.0	137	100.0	133	100.0	270
Residence						
Urban	99.3	520	99.9	556	99.6	1 076
Rural	99.1	416	97.8	388	98.5	803
Age at beginning of school year						
7	96.6	216	96.2	235	96.4	451
8	100.0	233	100.0	232	100.0	465
9	100.0	244	100.0	263	100.0	507
10	100.0	242	100.0	215	100.0	457
Mother's education						
Secondary	99.3	762	99.1	792	99.2	1 554
Higher	99.1	156	99.5	144	99.3	301
Mother in not household	(*)	18	(*)	8	(95.0)	25
Total	99.2	936	99.1	944	99.1	1 880

[1] MICS indicator 7.4; MDG indicator 2.1

Note: (%.%) Figures in parenthesis indicate that the percentage or proportion is based on just 25 to 49 unweighted cases.
(*) An asterisk indicates that the percentage or proportion is calculated on fewer than 25 unweighted cases.

The secondary school net attendance ratio is presented in Table ED.4[10]. Almost all children (98 per cent) of secondary school age (11-16 years of age) attend school or higher. Two per cent of children of secondary school age have either graduated school or are attending primary school when they should be in secondary school. There is no difference by sex, regions, urban-rural areas and mother's education.

[10] Ratios presented in this table are adjusted since they include not only secondary school attendance, but also attendance to higher levels in the numerator.

Table ED.4: Secondary school attendance

Percentage of children of secondary school age attending secondary school or higher (adjusted net attendance ratio) and percentage of children attending primary school, DPR Korea, 2009

	Male			Female			Total		
	Net attendance ratio (adjusted)	Percent attending primary school	Number of children	Net attendance ratio (adjusted)	Percent attending primary school	Number of children	Net attendance ratio (adjusted)[1]	Percent attending primary school	Number of children
Region									
Ryanggang	94.1	4.2	56	97.3	1.9	50	95.6	3.1	106
North Hamgyong	98.6	1.4	158	98.0	2.0	140	98.4	1.6	298
South Hamgyong	97.1	2.4	196	95.2	3.9	181	96.2	3.1	376
Kangwon	98.2	1.8	103	100.0	0.0	103	99.1	0.9	206
Jagang	98.6	1.4	80	98.6	1.4	81	98.6	1.4	161
North Phyongan	97.2	1.1	203	97.7	0.7	165	97.4	0.9	368
South Phyongan	97.2	2.1	250	98.0	2.0	263	97.6	2.0	513
North Hwanghae	95.4	4.0	142	98.3	1.0	120	96.7	2.6	261
South Hwanghae	96.4	3.6	138	98.9	1.1	155	97.7	2.3	293
Pyongyang	100.0	0.0	191	98.4	1.6	213	99.1	0.9	404
Residence									
Urban	98.3	1.2	889	98.2	1.6	878	98.3	1.4	1 767
Rural	96.3	3.0	628	97.5	1.8	592	96.9	2.4	1 220
Age at beginning of school year									
11	87.8	12.2	248	90.2	9.8	254	89.0	11.0	502
12	99.0	0.0	242	100.0	0.0	219	99.5	0.0	461
13	100.0	0.0	256	100.0	0.0	231	100.0	0.0	487
14	99.3	0.0	262	100.0	0.0	277	99.7	0.0	539
15	99.3	0.0	242	98.9	0.0	239	99.1	0.0	481
16	99.3	0.0	267	99.0	0.0	250	99.1	0.0	517
Mother's education									
Secondary	97.1	2.2	1246	97.8	1.7	1179	97.5	2.0	2 426
Higher	99.1	.9	244	98.2	1.8	250	98.7	1.3	494
Mother not in household	(100.0)	(0.0)	27	(100.0)	(0.0)	41	100.0	0.0	68
Total	97.5	2.0	1 517	97.9	1.7	1470	97.7	1.8	2 987

[1] **MICS indicator 7.5**

Note: (%.%) Figures in parenthesis indicate that the percentage or proportion is based on just 25 to 49 unweighted cases.

Although the table was not included, the DPR Korea MICS data showed that all children starting grade one (100 per cent) eventually reach the last grade (grade 4). Note that this number includes children that repeat grades and that eventually move up to reach last grade.

The primary completion rate is the ratio of the total number of students, regardless of age, entering the last grade of primary school for the first time, to the number of children of the primary graduation age at the beginning of the current (or most recent) school year. In DPR Korea, the last grade of primary school is grade 4. The primary school completion rate is 104 per cent. This is because there are more children of graduation age than children in last grade of primary school. This may be perhaps due to disease or low scores or that children who attended secondary school dropped out and returned to primary school to repeat the last year primary school grade. There is no difference by sex, urban-rural areas and mother's education.

All children that successfully completed the last grade of primary school were found by the survey to be attending the first grade of secondary school (see table ED.5).

Table ED.5: Primary school completion and transition to secondary school

Primary school completion rates and transition rate to secondary school, DPR Korea, 2009

	Primary school completion rate[1]	Number of children of primary school completion age	Transition rate to secondary school[2]	Number of children who were in the last grade of primary school the previous year
Sex				
Male	105.0	242	100.0	274
Female	103.5	215	100.0	270
Residence				
Urban	104.5	233	100.0	341
Rural	104.0	224	100.0	202
Mother's education				
Secondary	104.3	390	100.0	448
Higher	104.5	65	100.0	86
Mother not in household	(*)	2	(*)	9
Total	104.3[11]	457	100.0	543

[1] MICS indicator 7.7

[2] MICS indicator 7.8

Note: (*) An asterisk indicates that the percentage or proportion is calculated on fewer than 25 unweighted cases.
By provinces is not shown because the number of unweighted observations is lower than 25 or 50

The ratio of girls to boys attending primary and secondary education is provided in Table ED.6. These ratios are better known as the Gender Parity Index (GPI). Notice that the ratios included here are obtained from net attendance ratios rather than gross attendance ratios. The table shows that gender parity for primary school is 1.00, indicating no difference in the attendance of girls and boys to primary school. The indicator remains 1.00 for secondary education also. No remarkable difference is found between urban-rural areas or provinces.

[11] This figure is more than 100 percent since the denominator is based on children of the official primary school completion age only while the numerator includes children of any age that have completed primary school

Table ED.6: Education gender parity

Ratio of adjusted net attendance ratios of girls to boys, in primary and secondary school, DPR Korea, 2009

	Primary school adjusted net attendance ratio (NAR), girls	Primary school adjusted net attendance ratio (NAR), boys	Gender parity index (GPI) for primary school adjusted NAR[1]	Secondary school adjusted net attendance ratio (NAR), girls	Secondary school adjusted net attendance ratio (NAR), boys	Gender parity index (GPI) for secondary school adjusted NAR[2]
Region						
Ryanggang	97.2	99.1	0.98	97.3	94.1	1.03
North Hamgyong	98.0	97.7	1.00	98.0	98.6	0.99
South Hamgyong	100.0	98.7	1.01	95.2	97.1	0.98
Kangwon	99.2	100.0	0.99	100.0	98.2	1.02
Jagang	97.9	100.0	0.98	98.6	98.6	1.00
North Phyongan	98.1	99.0	0.99	97.7	97.2	1.00
South Phyongan	99.1	100.0	0.99	98.0	97.2	1.01
North Hwanghae	98.8	100.0	0.99	98.3	95.4	1.03
South Hwanghae	100.0	98.2	1.02	98.9	96.4	1.03
Pyongyang	100.0	100.0	1.00	98.4	100.0	0.98
Residence						
Urban	99.9	99.3	1.01	98.2	98.3	1.00
Rural	97.8	99.1	.99	97.5	96.3	1.01
Mother's education						
Secondary	99.1	99.3	1.00	97.8	97.1	1.01
Higher	99.5	99.1	1.00	98.2	99.1	0.99
Mother not in household	87.4	98.2	0.89	100.0	100.0	1.00
Total	99.1	99.2	1.00	97.9	97.5	1.00

[1] MICS indicator 7.9; MDG indicator 3.1

[2] MICS indicator 7.10; MDG indicator 3.1

X. Birth registration

Birth registration

The International Convention on the Rights of the Child states that every child has the right to a name and a nationality and the right to protection from being deprived of his or her identity.

Table CP.1: Birth registration

Percentage of children under age 5 by whether birth is registered and percentage of children not registered whose mothers/caretakers know how to register birth, DPR Korea, 2009

	Children under age 5 whose birth is registered with civil authorities			
	Has birth certificate			
	Seen	No birth certificate	Total registered[1]	Number of children
Sex				
Male	98.8	1.2	100.0	1 106
Female	99.0	1.0	100.0	1 066
Region				
Ryanggang	99.6	.4	100.0	68
North Hamgyong	99.5	.5	100.0	230
South Hamgyong	98.3	1.7	100.0	287
Kangwon	97.8	2.2	100.0	125
Jagang	99.0	1.0	100.0	118
North Phyongan	99.4	.6	100.0	275
South Phyongan	98.6	1.4	100.0	381
North Hwanghae	98.3	1.7	100.0	202
South Hwanghae	99.1	.9	100.0	192
Pyongyang	99.1	.9	100.0	293
Residence				
Urban	98.8	1.2	100.0	1 268
Rural	99.0	1.0	100.0	904
Age				
0-11 months	93.8	6.2	100.0	402
12-23 months	100.0	.0	100.0	450
24-35 months	100.0	.0	100.0	433
36-47 months	100.0	.0	100.0	459
48-59 months	100.0	.0	100.0	428
Mother's education				
Secondary	99.0	1.0	100.0	1 779
Higher	98.2	1.8	100.0	393
Total	98.9	1.1	100.0	2 172

[1] MICS indicator 8.1

Birth registration is a fundamental means of securing these rights for children. A World Fit for Children states the goal to develop systems to ensure the registration of every child at or shortly after birth, and fulfil his or her right to acquire a name and a nationality, in accordance with national laws and relevant international instruments. The indicator is the percentage of children under 5 years of age whose birth is registered.

The births of all children under five years in DPR Korea have been registered (see table CP.1). There are no significant variations in having a birth certificate across sex or education categories. The proportion of children who have a registered birth but do not have birth certificate is just 1 per cent; this is likely to be the case for newborn babies.

XI. HIV/AIDS

Knowledge about HIV transmission and misconceptions about HIV/AIDS

One of the most important prerequisites for reducing the rate of HIV infection is accurate knowledge of how HIV is transmitted and strategies to prevent transmission. Correct information is the first step toward raising awareness and giving young people the tools to protect themselves from infection. Misconceptions about HIV are common and can confuse young people and hinder prevention efforts. Different regions are likely to have variations in misconceptions although some appear to be universal — for example, that sharing food can transmit HIV or mosquito bites can transmit HIV. The UN General Assembly Special Session on HIV/AIDS (UNGASS) called on governments to improve the knowledge and skills of young people to protect themselves from HIV. The indicators to measure this goal as well as the MDG of reducing HIV infections by half include improving the level of knowledge of HIV and its prevention, and changing behaviours to prevent further spread of the disease. The HIV module was administered to women 15-49 years of age.

One indicator which is both an MDG and an UNGASS indicator is the percentage of young women who have comprehensive and correct knowledge of HIV prevention and transmission. In DPR Korea MICS all women aged 15-49 who heard of AIDS were asked whether they knew of the two main ways of preventing HIV transmission – having only one faithful uninfected partner and using a condom every time. The results are presented in Table HA.1. In DPR Korea, more than two thirds of the interviewed women (69 per cent) had heard of AIDS. However, the percentage of women who know of both main ways of preventing HIV transmission is only 37 per cent. Only 9 per cent of women have a comprehensive knowledge about HIV transmission, although this increase to 24 per cent in Pyongyang. Fifty per cent of women know of having one faithful uninfected sex partner and also 50 per cent know of using a condom every time as main ways of preventing HIV transmission.

The provincial differences in knowledge of prevention are quite significant. Women in Pyongyang have very high knowledge compared to any other province, especially Ryanggang province (70 per cent versus 21 per cent respectively). Urban-rural difference is also significant with 58 per cent of women living in urban areas knowing about the two main ways of prevention compared to just 26 per cent of their rural counterparts. The percentage of women who know of both main ways of preventing HIV transmission increases with the woman's education level.

The results for women age 15-24 are separately presented in Table HA.2, however the results are quite similar as for all women. In DPR Korea, more than half of the interviewed women age 15-24 (67 per cent) have heard of AIDS. The results are slightly lower compared with that of women age 15-49. The percentage of women who know of both main ways of preventing HIV transmission is only 35 per cent. Forty eight per cent of women know of having one faithful uninfected sex partner and 49 per cent know of using a condom every time as main ways of preventing HIV transmission.

Table HA.1: Knowledge about HIV transmission, misconceptions about HIV/AIDS, and comprehensive knowledge about HIV transmission

Percentage of women aged 15-49 years who know the main ways of preventing HIV transmission, percentage who know that a healthy looking person can have the AIDS virus, percentage who reject common misconceptions, and percentage who have comprehensive knowledge about HIV transmission, DPR Korea, 2009

	Percentage who have heard of AIDS	Percentage who know transmission can be prevented by		Percentage of women who know both ways	Percentage who know that a healthy looking person can have the AIDS virus	Percentage who know that HIV cannot be transmitted by			Percentage who reject the two most common misconceptions and know that a healthy looking person can have the AIDS virus	Percentage with comprehensive knowledge[1]	Number of women
		Having only one faithful uninfected sex partner	Using a condom every time			Mosquito bites	Supernatural means	Sharing food with someone with AIDS			
Region											
Ryanggang	45.0	28.1	32.8	21.0	28.5	24.2	45.0	20.2	13.6	5.0	257
North Hamgyong	66.8	31.8	59.2	27.9	22.5	20.8	66.8	18.7	10.6	6.2	856
South Hamgyong	65.3	47.5	54.6	39.8	24.0	25.6	65.3	21.6	8.8	4.6	1 083
Kangwon	73.7	45.7	45.8	30.1	38.1	43.9	73.7	42.1	22.2	9.5	534
Jagang	63.4	44.0	40.5	28.9	32.8	33.0	63.4	29.2	14.4	4.1	459
North Phyongan	58.5	48.4	35.9	29.2	32.8	38.3	58.5	37.2	21.0	6.7	964
South Phyongan	70.0	53.8	47.2	36.5	44.2	41.8	70.0	40.8	25.6	8.8	1 403
North Hwanghae	62.3	39.2	41.3	25.5	31.6	30.5	62.3	29.0	15.5	5.5	735
South Hwanghae	61.6	42.9	40.8	27.6	38.3	30.7	61.6	26.9	16.9	3.9	779
Pyongyang	94.9	85.5	78.0	70.1	64.0	54.8	94.9	63.2	39.5	24.0	1 179
Residence											
Urban	74.5	57.0	57.6	43.8	42.7	40.8	74.5	39.9	24.6	11.8	5 033
Rural	60.0	40.1	39.3	26.0	29.7	28.4	60.0	27.9	13.8	4.1	3 216
Age											
15-24	67.2	48.4	48.9	35.3	36.2	36.1	67.2	34.5	19.6	7.9	2 344
25-29	69.0	50.8	49.9	36.7	36.3	35.9	69.0	35.7	20.8	9.1	1 124
30-39	70.3	51.1	50.2	36.8	39.7	37.3	70.3	36.2	22.1	9.4	2 431
40-49	69.1	51.4	52.5	38.6	37.5	34.6	69.1	34.6	19.1	8.9	2 350
Women's education											
Secondary	68.2	48.9	49.0	34.9	33.7	31.8	68.2	30.8	15.3	5.0	6 902
Higher	72.5	58.2	58.1	46.9	57.8	57.6	72.5	57.6	46.3	28.3	1 347
Total	68.9	50.4	50.4	36.9	37.6	36.0	68.9	35.2	20.4	8.8	8 249

[1]**MICS indicator 9.1**

The provincial differences are quite significant. Women aged 15-24 in Pyongyang have a very high comprehension and knowledge about HIV transmission compared to any other province, especially North Hwanghae, Ryanggang, South Hamgyong and Jagang provinces (25 per cent versus 4 per cent for each). The urban-rural difference is also significant. The per cent of women age 15-24 who know of both main ways to prevent HIV transmission increases with the woman's education level.

Table HA.2: Knowledge about HIV transmission, misconceptions about HIV/AIDS, and comprehensive knowledge about HIV transmission among young people

Percentage of young women aged 15-24 years who know the main ways of preventing HIV transmission, percentage who know that a healthy looking person can have the AIDS virus, percentage who reject common misconceptions, and percentage who have comprehensive knowledge about HIV transmission, DPR Korea, 2009

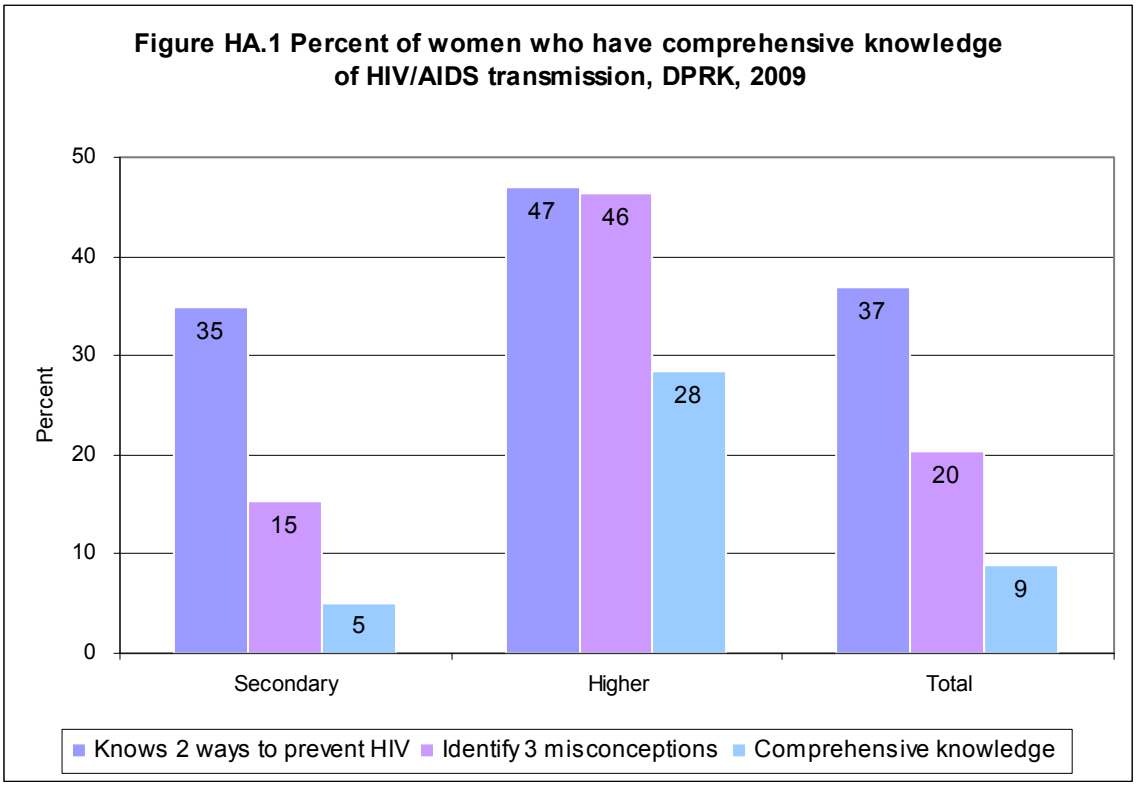
	Percentage who have heard of AIDS	Percentage who know transmission can be prevented by		Percentage of women who know both ways	Percentage who know that a healthy looking person can have the AIDS virus	Percentage who know that HIV cannot be transmitted by			Percentage who reject the two most common misconceptions and know that a healthy looking person can have the AIDS virus	Percentage with comprehensive knowledge[1]	Number of women age 15-24
		Having only one faithful uninfected sex partner	Using a condom every time			Mosquito bites	Supernatural means	Sharing food with someone with AIDS			
Region											
Ryanggang	43.5	24.2	32.3	17.8	26.5	22.1	43.5	17.4	10.3	3.7	70
North Hamgyong	62.3	30.9	57.5	29.0	17.7	17.8	62.3	15.2	9.7	7.1	242
South Hamgyong	55.5	40.3	45.1	32.5	21.2	23.7	55.5	20.2	9.1	3.7	324
Kangwon	64.3	36.8	41.5	24.2	28.8	33.2	64.3	30.3	14.2	5.5	164
Jagang	66.1	40.9	42.7	27.3	34.7	34.1	66.1	28.4	14.2	4.0	128
North Phyongan	60.1	48.1	35.0	27.6	30.1	41.5	60.1	38.9	19.9	3.9	272
South Phyongan	71.8	52.4	50.4	38.0	45.4	41.6	71.8	41.0	25.1	8.9	369
North Hwanghae	64.6	37.8	37.7	22.3	27.7	34.0	64.6	29.5	14.1	2.6	199
South Hwanghae	61.9	46.0	40.3	28.2	41.6	34.9	61.9	29.1	19.2	4.1	243
Pyongyang	95.4	87.0	78.5	71.0	66.3	58.1	95.4	66.9	41.0	24.6	332
Residence											
Urban	73.6	56.5	57.2	43.8	40.3	40.1	73.6	39.0	23.1	10.8	1 391
Rural	57.9	36.6	36.7	22.8	30.1	30.1	57.9	28.0	14.5	3.8	952
Age											
15-19	68.2	48.3	49.9	35.1	34.7	35.1	68.2	33.8	17.9	7.3	1 192
20-24	66.2	48.5	47.8	35.5	37.7	37.1	66.2	35.2	21.3	8.6	1 151
Women's education											
Secondary	66.3	46.6	47.1	33.0	33.4	33.2	66.3	31.4	16.2	5.1	2 070
Higher	74.0	62.3	62.2	52.2	57.3	58.1	74.0	58.1	45.6	29.4	274
Total	67.2	48.4	48.9	35.3	36.2	36.1	67.2	34.5	19.6	7.9	2 344

[1]MICS indicator 9.2; MDG indicator 6.3

Table HA.1 and table HA.2 also present the percentage of women who can correctly identify misconceptions concerning HIV. The indicator is based on the two most common and relevant misconceptions in DPR Korea, that HIV can be transmitted by mosquito bites and by sharing food. The tables also provide information on whether women know that HIV cannot be transmitted by mosquito bites and sharing food. Of the interviewed women, 20 per cent reject the two most common misconceptions and know that a healthy-looking person can be infected. Thirty six per cent of women know that HIV cannot be transmitted by mosquito bites, and 35 per cent of women know that HIV cannot be transmitted by sharing food, while 36 per cent of women aged 15-24 know that a healthy-looking person can be infected (see table HA.2). The provincial differences are quite significant for both young women aged15-24 years and women aged 15-49. Women in Pyongyang have very high knowledge compared to any other province. Women in Ryanggang Province have the lowest knowledge. The urban-rural difference is also significant.

Women who have comprehensive knowledge about HIV prevention include women who know of the two ways of HIV prevention (having only one faithful uninfected partner and using a condom every time, who know that a healthy looking person can have the AIDS virus, and who reject the two most common misconceptions. Tables HA.1 and HA.2 also present the percentage of women with comprehensive knowledge. Comprehensive knowledge of HIV prevention methods and transmission is still fairly low although there are differences by residence. Overall, table HA.2 shows that just nine per cent of women aged 15-49 were found to have comprehensive knowledge, which was higher in urban areas than in rural ones (12 per cent versus 4 per cent, respectively). As expected, the percentage of women with comprehensive knowledge increases with the woman's education level (Figure HA.1). The provincial differences are quite significant for both young women (15-24 years) and women age 15-49. Women in Pyongyang have very high knowledge compared to any other province.

Figure HA.1 Percent of women who have comprehensive knowledge of HIV/AIDS transmission, DPRK, 2009



Knowledge of mother-to-child transmission of HIV is also an important first step for women to seek HIV testing when they are pregnant to avoid infecting their baby. Women should know then that HIV can be transmitted during pregnancy, delivery, and through breastfeeding. The level of knowledge among women aged 15-49 years concerning mother-to-child transmission is presented in Table HA.3. Overall, 57 per cent of women know that HIV can be transmitted from mother to child. The percentage of women who know all three ways of mother-to-child transmission is 21 per cent, while 12 per cent of women did not know of any specific way. The provincial differences are quite significant. Women in Pyongyang have very high knowledge of mother-to-child HIV transmission compared to any other province; Ryanggang is the lowest. Urban-rural difference is also significant. The per cent of women with knowledge of mother-to-child transmission of HIV increases with the woman's education level.

Table HA.3: Knowledge of mother-to-child HIV transmission

Percentage of women aged 15-49 years who correctly identify means of HIV transmission from mother to child, DPR Korea, 2009

	Percentage who know HIV can be transmitted from mother to child	Percent who know HIV can be transmitted:				Does not know any of the specific means	Number of women
		During pregnancy	During delivery	By breastfeeding	All three means[1]		
Region							
Ryanggang	27.6	19.2	20.4	21.4	13.0	17.4	257
North Hamgyong	55.1	33.2	37.3	36.1	19.3	11.7	856
South Hamgyong	55.2	25.7	36.3	32.1	15.3	10.1	1 083
Kangwon	57.1	38.9	32.5	33.5	12.9	16.7	534
Jagang	48.1	28.6	30.1	34.2	15.6	15.3	459
North Phyongan	47.4	27.2	35.5	33.5	17.0	11.1	964
South Phyongan	58.5	42.2	43.5	39.4	23.5	11.5	1 403
North Hwanghae	47.0	35.2	27.0	23.3	15.9	15.3	735
South Hwanghae	47.8	31.1	32.7	35.5	19.3	13.8	779
Pyongyang	90.0	54.4	73.9	70.3	39.7	5.0	1 179
Residence							
Urban	66.0	42.1	47.2	45.6	25.5	8.5	5 033
Rural	43.5	25.8	30.4	28.1	13.9	16.5	3 216
Age group							
15-24	54.9	33.2	39.2	36.7	19.3	12.3	2 344
25+	58.2	36.7	41.2	39.6	21.7	11.4	5 905
Age group							
15-19	54.7	33.3	39.1	35.0	18.3	13.5	1 192
20-24	55.2	33.2	39.3	38.4	20.3	11.1	1 151
25-29	57.3	34.7	40.9	38.5	20.6	11.7	1 124
30-39	59.2	36.2	42.2	39.8	21.7	11.0	2 431
40-49	57.5	38.2	40.4	40.0	22.3	11.6	2 350
Education							
Secondary	55.0	31.7	37.7	35.4	16.6	13.2	6 902
Higher	68.9	56.2	55.7	56.3	43.6	3.7	1 347
Total	57.3	35.7	40.7	38.8	21.0	11.6	8 249

[1] **MICS indicator 9.3**

Accepting attitudes toward people living with HIV/AIDS

The indicators on attitudes toward people living with HIV measure stigma and discrimination in the community. Stigma and discrimination are low if respondents report an accepting attitude on the following four questions: 1) would care for family member sick with AIDS; 2) would buy fresh vegetables from a vendor who is HIV positive; 3) thinks that a female teacher who is HIV positive should be allowed to teach in school; and 4) would not want to keep HIV status of a family member a secret. Table HA.4 presents the attitudes of women towards people living with HIV/AIDS. In DPR Korea 80 per cent of women who have heard of AIDS agree with at least one accepting statement. The most common accepting attitude is the rejection of keeping secret that a family member is infected with the AIDS virus (66 per cent). However the least common accepting attitude is the willingness to care for a family member with the AIDS virus in the home (22 per cent). The provincial, urban-rural and educational differences are not significant.

Table HA.4: Accepting attitudes towards people living with HIV/AIDS

Percentage of women aged 15-49 years who have heard of AIDS who express an accepting attitude towards people living with HIV/AIDS, DPR Korea, 2009

	Percentage of women who:						
	Are willing to care for a family member with the AIDS virus in own home	Would buy fresh vegetables from a shopkeeper or vendor who has the AIDS virus	Believe that a female teacher with the AIDS virus and is not sick should be allowed to continue teaching	Would not want to keep secret that a family member got infected with the AIDS virus	Agree with at least one accepting attitude	Express accepting attitudes on all four indicators[1]	Number of women who have heard of AIDS
Region							
Ryanggang	21.6	52.6	48.5	61.7	74.3	9.0	116
North Hamgyong	22.4	57.1	51.3	66.3	80.7	7.9	572
South Hamgyong	22.5	56.0	51.3	65.2	78.5	9.2	708
Kangwon	20.7	52.2	46.8	68.1	80.3	8.4	394
Jagang	18.9	53.7	47.6	65.0	77.5	6.5	291
North Phyongan	20.7	55.9	51.2	67.8	81.2	7.3	564
South Phyongan	22.9	54.2	49.0	65.6	78.3	10.2	982
North Hwanghae	21.8	56.7	51.8	67.9	81.6	8.1	458
South Hwanghae	23.3	58.4	53.4	64.9	79.9	8.4	480
Pyongyang	21.7	56.4	51.1	66.5	79.5	8.7	1 119
Residence							
Urban	21.9	55.3	50.4	65.4	78.6	8.7	3 752
Rural	22.0	56.4	50.6	67.8	81.3	8.5	1 931
Age							
15-24	21.5	57.3	52.4	67.9	80.2	9.3	1 576
25+	22.1	55.0	49.8	65.5	79.2	8.4	4 107
Age							
15-19	21.9	56.0	51.8	67.4	79.5	9.7	813
20-24	21.1	58.7	52.9	68.5	80.9	8.8	763
25-29	22.5	55.3	48.4	63.7	78.7	7.5	776
30-39	21.7	55.5	50.2	64.8	78.1	8.3	1 708
40-49	22.3	54.4	50.0	67.2	80.7	8.8	1 623
Education							
Secondary	21.6	55.3	50.0	65.7	78.8	8.6	4 706
Higher	23.2	57.6	53.2	68.4	82.8	8.9	977
Total	21.9	55.7	50.5	66.2	79.5	8.6	5 683

[1] **MICS indicator 9.4**

Appendix A. Sample design

The major features of the sample design are described in this appendix. Sample design features include target sample size, sample allocation, sampling frame and listing, choice of domains, sampling stages, stratification, and the calculation of sample weights.

The primary objective of the sample design for the DPR Korea MICS 2009 was to produce statistically reliable estimates of most indicators, at the national level, for urban and rural areas, and for all 10 provinces of DPR Korea, namely Ryanggang, North Hamgyong, South Hamgyong, Kangwon, Jagang, North Phyongan, South Phyongan, North Hwanghae, South Hwanghae, and Pyongyang. Urban and rural areas in each of the ten provinces were defined as the sampling strata.

A multi-stage, stratified cluster sampling approach was used for the selection of the survey sample.

Sample size and sample allocation

The target sample size for the DPR Korea MICS was calculated as 7 500 households. For the calculation of the sample size, the key indicator used was the Exclusive breast feeding among children less than 6 months old. The following formula was used to estimate the required sample size for this indicator:

$$n = \frac{[4(r)(1-r)(f)(1.1)]}{[(0.12r)^2(p)(\bar{n})]}$$

where

- *n* is the required sample size, expressed as number of households
- *4* is a factor to achieve the 95 per cent level of confidence
- *r* is the predicted or anticipated value of the indicator, expressed in the form of a proportion
- *1.1* is the factor necessary to raise the sample size by 10 per cent for the expected non-response [the actual factor will be based on the non-response level experienced in previous surveys in the country]
- *f* is the shortened symbol for *deff* (design effect)
- *0.12r* is the margin of error to be tolerated at the 95 per cent level of confidence, defined as 12 per cent of *r* (relative margin of error of *r*)
- *p* is the proportion of the total population upon which the indicator, *r*, is based
- $\bar{n}$ is the average household size (number of persons per household).

For the calculation, *r* (exclusive breastfeeding prevalence) was assumed to be 65 per cent. The value of *deff* (design effect) was taken as 1.5 based on estimates from previous surveys, *p* (percentage of children aged 0-5 months in the total population) was taken as 1 per cent, $\bar{n}$ (average household size) was taken as 4 persons, and the response rate is assumed to be 90 per cent.

The resulting number of households from this exercise was about 7 000 households which is the sample size needed for whole country - thus yielding about 700 in each province. It was then rounded up to 750 for each province, to account for the intended number of 30 clusters of 25 households each. The average cluster size in the DPR Korea MICS was determined as 25 households, based on a number of considerations, including the budget available, and the time that would be needed per team to complete one cluster. Dividing the total number of households by the number of sample households per cluster, it was calculated that 30 sample clusters would need to be selected in each province.

Equal allocation of the total sample size to the ten provinces was used. Therefore, 30 clusters were allocated to each province, with the final sample size calculated at 7 500 households (30 clusters * 10 provinces * 25 sample households per cluster). In each province, the clusters (primary sampling units) were distributed to urban and rural domains, proportional to the size of urban and rural populations in that province. The table below shows the allocation of clusters to the sampling strata.

Table SD.1: Allocation of sample clusters (primary sampling units) to sampling strata

Province	Number of households (2008)			Number of clusters		
	Total	Urban	Rural	Urban	Rural	Total
Ryanggang	183 200	119 353	63 847	20	10	30
North Hamgyong	587 844	414 149	173 695	21	9	30
South Hamgyong	777 207	460 814	316 393	18	12	30
Kangwon	367 938	180 910	187 028	15	5	20
Jagang	327 412	211 022	116 390	19	11	30
North Phyongan	688 583	364 868	323 715	16	14	30
South Phyongan	1 027 727	669 890	357 837	19	11	30
North Hwanghae	535 511	247 715	287 796	14	16	30
South Hwanghae	578 280	206 995	371 285	10	20	30
Pyongyang	813 769	703 910	109 859	26	4	30
Total	5 887 471	3 579 626	2 307 845	178	122	300

Sampling frame and selection of clusters

The 2008 population census frame was used for the selection of clusters. Census enumeration areas were defined as primary sampling units (PSUs), and were selected from each of the sampling strata by using systematic pps (probability proportional to size) sampling procedures, based on the estimated sizes of the enumeration areas from the 2008 census. The first stage of sampling was thus completed by selecting the required number of enumeration areas from each of the 10 provinces, separately by urban and rural strata.

Listing activities

Since the sampling frame (the 2008 population census) was quite up-to-date, household lists in all selected enumeration areas from the census were used for the selection of households.

Selection of households

Lists of households were collected from the 2008 population census for each enumeration area. The households were then sequentially numbered from 1 to n (the total number of households in each enumeration area) at the CBS, where the selection of 25 households in each enumeration area was carried out using random systematic selection procedures.

Calculation of sample weights

The DPR Korea MICS 2009 sample is not self-weighting. Essentially, by allocating equal numbers of households to each of the provinces, different sampling fractions were used in each province since the size of the provinces varied. For this reason, sample weights were calculated and these were used in the subsequent analyses of the survey data.

The major component of the weight is the reciprocal of the sampling fraction employed in selecting the number of sample households in that particular sampling stratum (h) and PSU (i):

$$W_{hi} = \frac{1}{f_{hi}}$$

The term f_{hi}, the sampling fraction for the *i-th* sample PSU in the *h-th* stratum, is the product of probabilities of selection at every stage in each sampling stratum:

$$f_{hi} = p_{1hi} \times p_{2hi} \times p_{3hi}$$

where p_{shi} is the probability of selection of the sampling unit at stage *s* for the *i-th* sample PSU in the *h-th* sampling stratum.

Since the estimated number of households in each enumeration area (PSU) in the sampling frame used for the first stage selection and the updated number of households in the enumeration area from the listing were different, individual sampling fractions for households in each sample enumeration area (cluster) were calculated. The sampling fractions for households in each enumeration area (cluster) therefore included the first stage probability of selection of the enumeration area in that particular sampling stratum and the second stage probability of selection of a household in the sample enumeration area (cluster).

A second component in the calculation of sample weights takes into account the level of non-response for the household and individual interviews. The adjustment for household non-response is equal to the inverse value of:

RR_h = *Number of interviewed households in stratum h/ Number of occupied households listed in stratum h*

After the completion of fieldwork, response rates were calculated for each sampling stratum. These were used to adjust the sample weights calculated for each cluster. Response rates in the DPR Korea MICS 2009 are shown in Table HH.1 in this report.

Similarly, the adjustment for non-response at the individual level (women and under-5 children) for each stratum is equal to the inverse value of:

RR_h = Completed women's (or under-5's) questionnaires in stratum h / Eligible women (or under-5s) in stratum h

The non-response adjustment factors for women's and under-5's questionnaires are applied to the adjusted household weights. Numbers of eligible women and under-5 children were obtained from the roster of household members in the Household Questionnaire for households where interviews were completed.

The design weights for the households were calculated by multiplying the above factors for each enumeration area. These weights were then standardized (or normalized), one purpose of which is to make the weighted sum of the interviewed sample units equal the total sample size at the national level. Normalization is performed by dividing the aforementioned design weights by the average design weight at the national level. The average design weight is calculated as the sum of the design weights divided by the unweighted total). A similar standardization procedure was followed in obtaining standardized weights for the women's and under-5's questionnaires. Adjusted (normalized) weights varied between 0.212291 and 2.454879 in the 300 sample enumeration areas (clusters).

A table showing sample weights is not included here since sample weight calculation was performed separately for each cluster.

Sample weights were appended to all data sets and analyses were performed by weighting each household, woman or under-5 with these sample weights.

Appendix B. List of personnel involved in the survey

Steering committee

CBS, MoPH, EC, MoCM, SPC, NCC

Project Director

Pak Yong Suk – Deputy Director General, CBS

Field Coordinator

Kim Kon Do – Director, CBS
Jang Myong Son – Director, CBS
Paek Ki Chon – Director, CBS

Technical Coordinator

Won Hyok – Officer, CBS

Sample design

Won Hyok – Officer, CBS

Data processing/Programming

Won Hyok – Officer, CBS
Myong Pok Nam – Officer, CBS
Kim Song Jun – Officer, CBS

Questionnaire Design

Won Hyok – Officer, CBS
Song Kum Sun - Officer, CBS
Ri Yong Mu - Officer, CBS

Administrative/Logistics Support

Song Kum Sun – Officer, CBS
Ri Yong Mu – Senior Officer, CBS
Paek Yong Nam – Officer, CBS
Kim Sol Rim – Officer, CBS
Hong Ryong Gyu – Officer, CBS
Chae Kyong Il – Section Chief, CBS
O Hye Ran – Officer, AMS
Hyon Tu Chil – Senior Officer, CBS
Kim Chol Su – Officer, CBS
Paek Son Hyang – Officer, CBS
Wu Chol Song – Researcher, ICN
Jo Phil Ho – Officer, Jagang PSO
Kim Ryong Min – Officer, Ryanggang PSO
Kim Ok Hui – Officer, North Hamgyong PSO
Jo Son Hua – Officer, South Hamgyong PSO
Ri Kil Sun – Officer, North Phyongan PSO
Paek Nam Yong – Officer, South Phyongan PSO
Kim Sun Kum – Officer, Kangwon PSO
Ri Hye Ran – Officer, North Hwanghae PSO
Ryom Hye Ok – Officer South Hwanghae PSO
Doko Myong Hui – Officer, Pyongyang PSO

Field Supervisor

Ryanggang Province – Kim Kyong Su, Kim Hyong Nam
North Hamgyong Province – Ryu Chol Hwan, Kim Ryong Sun
South Hamgyong Province – Ri Un Sun, Kim Yong Suk
Kangwon Province – Choe Ho Chol, Won Hyok
Jagang Province – Paek Chun Hung, Kang Song Ryol, Kim Yong Ok
North Phyongan Province – Hong Ryong Gyu, Kim Jin Sam
South Phyongan Province – Pak Su Yong, Yun Yong Sik
North Hwanghae Province – Pak Song Hun, Pak In Bang
South Hwanghae Province – Kim Yun Ku, Jong Kang Il
Pyongyang City – Won Chang Bok, Wu Hong Sop

Measurer/Editor (2 from each Province)

Ryanggang Province – Kim Sun Yong, Kim Ho Chol
North Hamgyong Province – Ri Chol, Ko Yong Hwa
South Hamgyong Province – Ri Pyong Hak, Kim Yong Sok
Kangwon Province – Kim Su Hwan, Kim Jong Sun
Jagang Province – Yu Chung Sang, Yun Nam Suk, Kim Myong Ju
North Phyongan Province – Song Ki Jom, Yang Mun Hui
South Phyongan Province – Kim Ho Yong, Ri Song Hyok
North Hwanghae Province – Sim Un Yong, Kim Rak Chol
South Hwanghae Province – Han Myong Chol, Hwang Jun Hung
Pyongyang City – Kang Hye Yong, Sim Pyong Chol

Field interviewer (6 from each province)

Ryanggang Province – Kim Hyon Il, Ri Kang Uk, Jang Myong Hui, Jang Tong Guk, Choe Un Yong, Ro Kyong Mi
North Hamgyong Province – Choe Kang Hyok, Ko Myong Hui, Jo Hang Sim, Pak Pyong Jin, Choe Yong Su, Kim Chang Chol
South Hamgyong Province – Kim Ryu Gyong, Kim Chol Jun, Wu Yong Hui, Choe Wun Hui, Pak Chol Nam, Myong Pok Nam
Kangwon Province – Kong Myong Guk, Kim Hui Suk, Pak Ryong Hwan, Ri Chol Nam, Yu Chun Ae, Choe Yong Ae
Jagang Province – Choe Sung Ho, Jang Ja Song, Yang Myong Suk, Han Yong Chol, Song Chol Jun, Kim Yang Ku, Kim Song Hye, Yang Chun Yong, So Yon Ok
North Phyongan Province – Mun Sang Hyon, Kim Hak Chol, Jon Sun Hui, Jo Ok Bun, Kim Chol Ho, Jo Kwang Hun
South Phyongan Province – Kwak Wun Ju, O Jong Chol, Jong Yong Gum, Choe Song, Chae Jung Ryo, Yu Chun Mi
North Hwanghae Province – Ra Hui Suk, Kim Nam Hui, Ri Yong Nam, Ho Chol Yong, Kim Song Hui, Yun Su Jong
South Hwanghae Province – Kang Ok Ju, Ri Song Guk, Choe Ok Son, Choe Yong Muk, Kim Ki Nam, Song Kum Sun
Pyongyang City – Kim Chang Bom, Jang Hye Ran, Pak Hyang Mi, Ro Song Guk, Kim Kyong Sun, Kim Song Jun

Data Entry Persons (2 from each province)

Ryanggang Province – Paek Ho Sun, Kim Wol Suk
North Hamgyong Province – Choe Chang Su, Hong Yong Ae
South Hamgyong Province – Ri Jin Wu, Ryu Ho Son
Kangwon Province – Kim Chon Gi, Ryu Kum Hui
Jagang Province – Kim Kap Jo, Song Nam Sun
North Phyongan Province – Jang Son Hui, Ri Chung Gun
South Phyongan Province – Ri Mu Yong, Kim To Gon

North Hwanghae Province – Hyon Tu Pal, Kim Kyong Won
South Hwanghae Province – Han Kuk Tae, Kim Ho Sung
Pyongyang City – Sonu Yong Suk, Ju Wun Hui

Fieldwork Drivers (2 from each province)

Ryanggang Province – Choe Chol Han, Kim Il Su
North Hamgyong Province – Kim Nam Hyok, An Chol Min
South Hamgyong Province – Kim Yong Nam, Kim So Hyok
Kangwon Province –Kim Chon Nam, Yun Pok Chol
Jagang Province – Kim Hak Chol, Kim Kyong Sik
North Phyongan Province – Ri Wun Song, Han Ryong Su
South Phyongan Province – Yun Tae Sik, Son Myong Guk
North Hwanghae Province – Ri Su Nam, Kim Rak chon
South Hwanghae Province – Ri Tong Gu, Pak Yong Su
Pyongyang City – Kim Myong Sik, Choe Kang Su

UNICEF

Gopalan Balagopal – Representative, UNICEF, DPR Korea
Zeba Bukhari – Deputy Representative, UNICEF, DPR Korea
Muhammad Shuaib – Professor, Dhaka University, Bangladesh
Rhiannon James – MICS Specialist, Asia Pacific Shared Service Center, UNICEF
Ivana Bjelic – Statistics Specialist, UNICEF New York
Uranchimeg Budragchaa – MICS Coordinator, UNICEF, DPR Korea
Kim Nam Suk – National officer, UNICEF
Jong Chol – National Officer, UNICEF

Appendix C. Estimates of sampling errors

The sample of respondents selected in the DPR Korea Multiple Indicator Cluster Survey is only one of the samples that could have been selected from the same population, using the same design and size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between the estimates from all possible samples. The extent of variability is not known exactly, but can be estimated statistically from the survey data.

The following sampling error measures are presented in this appendix for each of the selected indicators:

- Standard error (*se*): Sampling errors are usually measured in terms of standard errors for particular indicators (means, proportions etc). Standard error is the square root of the variance of the estimate. The Taylor linearization method is used for the estimation of standard errors.
- Coefficient of variation (*se*/*r*) is the ratio of the standard error to the value of the indicator, and is a measure of the relative sampling error.
- Design effect (*deff*) is the ratio of the actual variance of an indicator, under the sampling method used in the survey, to the variance calculated under the assumption of simple random sampling. The square root of the design effect (*deff*) is used to show the efficiency of the sample design in relation to the precision. A *deff* value of 1.0 indicates that the sample design is as efficient as a simple random sample, while a *deff* value above 1.0 indicates the increase in the standard error due to the use of a more complex sample design.
- Confidence limits are calculated to show the interval within which the true value for the population can be reasonably assumed to fall, with a specified level of confidence. For any given statistic calculated from the survey, the value of that statistic will fall within a range of plus or minus two times the standard error ($r + 2.se$ or $r - 2.se$) of the statistic in 95 per cent of all possible samples of identical size and design.

For the calculation of sampling errors from MICS data, SPSS Version 18 Complex Samples module has been used. The results are shown in the tables that follow. In addition to the sampling error measures described above, the tables also include weighted and unweighted counts of denominators for each indicator.

Sampling errors are calculated for indicators of primary interest, for the national level, for the regions, and for urban and rural areas.One of the selected indicators are based on households, 6 are based on household members, 8 are based on women, and 15 are based on children under 5. All indicators presented here are in the form of proportions. Table SE.1 shows the list of indicators for which sampling errors are calculated, including the base population (denominator) for each indicator. Tables SE.2 to SE.14 show the calculated sampling errors for selected domains.

Table SE.1: Indicators selected for sampling error calculations

List of indicators selected for sampling error calculations, and base populations (denominators) for each indicator, DPR Korea, 2009

MICS4 Indicator		Base Population
	Households	
2.16	Iodized salt consumption	All households
	Household members	
4.1	Use of improved drinking water sources	All household members
4.3	Use of improved sanitation facilities	All household members
7.4	Primary school net attendance ratio (adjusted)	Children of primary school age
7.5	Secondary school net attendance ratio (adjusted)	Children of secondary school age
7.7	Primary completion rate	Children of primary school completion age (age appropriate to final grade of primary school)
9.18	Prevalence of children with at least one parent dead	Children age 0-17 years
	Women	
5.5a	Antenatal care coverage - at least once by skilled personnel	Women age 15-49 years with a live birth in the 2 years preceding the survey
5.5b	Antenatal care coverage – at least four times by any provider	Women age 15-49 years with a live birth in the 2 years preceding the survey
5.7	Skilled attendant at delivery	Women age 15-49 years with a live birth in the 2 years preceding the survey
5.8	Institutional deliveries	Women age 15-49 years with a live birth in the 2 years preceding the survey
5.9	Caesarean section	Youngest children born 2 years prior to survey
9.2	Comprehensive knowledge about HIV prevention among young people	Women age 15-24 years
9.3	Knowledge of mother-to-child transmission of HIV	Women age 15-49 years
9.4	Accepting attitudes towards people living with HIV	Women age 15-49 years
	Under-5s	
2.1a	Underweight prevalence	Children under age 5
2.2a	Stunting prevalence	Children under age 5
2.3a	Wasting prevalence	Children under age 5
2.6	Exclusive breastfeeding under 6 months	Total number of infants under 6 months of age
2.9	Predominant breastfeeding under 6 months	Children under age 6 month
2.7	Continued breastfeeding at 1 year	Children age 12-15 months
2.8	Continued breastfeeding at 2 years	Children age 20-23 months
2.14	Age-appropriate breastfeeding	Children age 0-23 months
-	Diarrhoea in the previous 2 two weeks	Children under age 5
3.8	Oral rehydration therapy with continued feeding	Children under age 5 with diarrhoea in the previous 2 weeks
-	Acute respiratory infection in last two weeks	Children under age 5
3.10	Antibiotic treatment of suspected pneumonia	Children under age 5 with suspected pneumonia in the previous 2 weeks
3.9	Care-seeking for suspected pneumonia	Children who were suspected with pneumonia within last 2 weeks
6.1	Support for learning	Children age 36-59 months
6.7	Attendance to early childhood education	Children age 36-59 months

Table SE.2: Sampling errors: Total sample

Standard errors, coefficients of variation, design effects (*deff*), square root of design effects (*deft*) and confidence intervals for selected indicators, DPR Korea, 2009

	Table	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits	
									r - 2se	*r + 2se*
Households										
Iodized salt consumption	NU.9	.2446	.00673	.028	1.837	1.355	7496	7496	0.231	0.258
Household members										
Use of improved drinking water sources	WS.1	.9992	.00037	.000	1.200	1.095	29744	7496	0.998	1.000
Use of improved sanitation facilities	WS.6	.8322	.00666	.008	2.381	1.543	29744	7496	0.819	0.846
Primary school net attendance ratio (adjusted)	ED.3	.9914	.00232	.002	1.178	1.086	1880	1867	0.987	0.996
Secondary school net attendance ratio (adjusted)	ED.4	.9772	.00331	.003	1.482	1.217	2987	3026	0.971	0.984
Primary completion rate	ED.6	1.0000	.00000	.000	NA	NA	457	454	1.000	1.000
Prevalence of children with at least one parent dead	HH.6	.0503	.00361	.072	2.316	1.522	8409	8460	0.043	0.057
Women										
Antenatal care coverage - at least once by skilled personnel	RH.1	1.0000	.00000	.000	NA	NA	854	841	1.000	1.000
Antenatal care coverage – at least four times by any provider	RH.2	.9348	.01168	.012	1.879	1.371	854	841	0.911	0.958
Skilled attendant at delivery	RH.5	1.0000	.00000	.000	NA	NA	854	841	1.000	1.000
Institutional deliveries	RH.6	.9471	.00846	.009	1.202	1.096	854	841	0.930	0.964
Caesarean section	RH.5	.1245	.01334	.107	1.372	1.171	854	841	0.098	0.151
Comprehensive knowledge about HIV prevention among young people	HA.2	.0793	.00615	.077	1.217	1.103	2344	2352	0.067	0.092
Knowledge of mother-to-child transmission of HIV	HA.3	.2102	.00587	.028	1.713	1.309	8249	8249	0.198	0.222
Accepting attitudes towards people living with HIV	HA.4	.0861	.00460	.053	1.473	1.214	5683	5485	0.077	0.095
Under-5s										
Underweight prevalence	NU.1	.1881	.00993	.053	1.402	1.184	2172	2172	0.168	0.208
Stunting prevalence	NU.1	.3239	.01126	.035	1.258	1.122	2172	2172	0.301	0.346
Wasting prevalence	NU.1	.0517	.00586	.113	1.519	1.232	2172	2172	0.040	0.063
Exclusive breastfeeding under 6 months	NU.3	.8864	.01971	.022	.606	.778	164	158	0.847	0.926
Predominant breastfeeding under 6 months	NU.3	.9183	.01774	.019	.659	.812	164	158	0.883	0.954
Continued breastfeeding at 1 year	NU.3	.8635	.02513	.029	.825	.908	162	155	0.813	0.914
Continued breastfeeding at 2 years	NU.3	.3599	.03215	.089	.709	.842	152	159	0.296	0.424
Age-appropriate breastfeeding	NU.5	.5058	.01820	.036	1.120	1.058	851	846	0.469	0.542
Diarrhoea in the previous 2 weeks	CH.1	.1380	.00917	.066	1.536	1.239	2172	2172	0.120	0.156
Oral rehydration therapy with continued feeding	CH.3	.6712	.01977	.029	.532	.729	300	301	0.632	0.711
Acute respiratory infection in last two weeks	CH.4	.0592	.00522	.088	1.060	1.030	2172	2172	0.049	0.070
Antibiotic treatment of suspected pneumonia	CH.4	.8759	.02294	.026	.634	.796	129	132	0.830	0.922
Care-seeking for suspected pneumonia	CH.4	.7980	.02495	.031	.506	.711	129	132	0.748	0.848
Support for learning	CD.2	.9076	.01033	.011	1.131	1.064	887	890	0.887	0.928
Attendance to early childhood education	CD.1	.9782	.00530	.005	1.170	1.082	887	890	0.968	0.989

Table SE.3: Sampling errors: Urban areas

Standard errors, coefficients of variation, design effects (*deff*), square root of design effects (*deft*) and confidence intervals for selected indicators, DPR Korea, 2009

	Table	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits	
									r - 2se	*r + 2se*
Households										
Iodized salt consumption	NU.9	.2904	.00990	.034	2.117	1.455	4514	4448	0.271	0.310
Household members										
Use of improved drinking water sources	WS.1	1.0000	.00003	.000	.127	.357	17813	4448	1.000	1.000
Use of improved sanitation facilities	WS.6	.9007	.00696	.008	2.409	1.552	17813	4448	0.887	0.915
Primary school net attendance ratio (adjusted)	ED.3	.9964	.00174	.002	.881	.938	1076	1049	0.993	1.000
Secondary school net attendance ratio (adjusted)	ED.4	.9829	.00440	.004	2.022	1.422	1767	1764	0.974	0.992
Primary completion rate	ED.6	1.0000	.00000	.000	NA	NA	233	230	1.000	1.000
Prevalence of children with at least one parent dead	HH.6	.0498	.00459	.092	2.157	1.469	4883	4839	0.041	0.059
Women										
Antenatal care coverage - at least once by skilled personnel	RH.1	1.0000	.00000	.000	NA	NA	518	499	1.000	1.000
Antenatal care coverage – at least four times by any provider	RH.2	.9563	.00967	.010	1.116	1.056	518	499	0.937	0.976
Skilled attendant at delivery	RH.5	1.0000	.00000	.000	NA	NA	518	499	1.000	1.000
Institutional deliveries	RH.6	.9977	.00099	.001	.218	.467	518	499	0.996	1.000
Caesarean section	RH.5	.1483	.01806	.122	1.286	1.134	518	499	0.112	0.184
Comprehensive knowledge about HIV prevention among young people	HA.2	.1079	.00882	.082	1.102	1.050	1391	1365	0.090	0.126
Knowledge of mother-to-child transmission of HIV	HA.3	.2554	.00780	.031	1.580	1.257	5033	4940	0.240	0.271
Accepting attitudes towards people living with HIV	HA.4	.0866	.00577	.067	1.493	1.222	3752	3551	0.075	0.098
Under-5s										
Underweight prevalence	NU.1	.1320	.00959	.073	1.000	1.000	1268	1246	0.113	0.151
Stunting prevalence	NU.1	.2344	.01286	.055	1.147	1.071	1268	1246	0.209	0.260
Wasting prevalence	NU.1	.0410	.00697	.170	1.538	1.240	1268	1246	0.027	0.055
Exclusive breastfeeding under 6 months	NU.3	.8413	.02918	.035	.593	.770	97	94	0.783	0.900
Predominant breastfeeding under 6 months	NU.3	.8896	.02618	.029	.649	.806	97	94	0.837	0.942
Continued breastfeeding at 1 year	NU.3	.7875	.04352	.055	.939	.969	91	84	0.700	0.875
Continued breastfeeding at 2 years	NU.3	.2548	.02505	.098	.321	.566	95	98	0.205	0.305
Age-appropriate breastfeeding	NU.5	.4577	.02281	.050	1.046	1.023	515	500	0.412	0.503
Diarrhoea in the previous 2 weeks	CH.1	.1337	.01169	.087	1.468	1.212	1268	1246	0.110	0.157
Oral rehydration therapy with continued feeding	CH.3	.7054	.02595	.037	.551	.742	170	171	0.653	0.757
Acute respiratory infection in last two weeks	CH.4	.0563	.00702	.125	1.154	1.074	1268	1246	0.042	0.070
Antibiotic treatment of suspected pneumonia	CH.4	.9339	.00203	.002	.005	.070	71	75	0.930	0.938
Care-seeking for suspected pneumonia	CH.4	.8452	.02907	.034	.478	.691	71	75	0.787	0.903
Support for learning	CD.2	.9212	.01055	.011	.782	.885	512	511	0.900	0.942
Attendance to early childhood education	CD.1	.9871	.00451	.005	.816	.904	512	511	0.978	0.996

Table SE.4: Sampling errors: Rural areas

Standard errors, coefficients of variation, design effects (*deff*), square root of design effects (*deft*) and confidence intervals for selected indicators, DPR Korea, 2009

	Table	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits	
									r - 2se	*r + 2se*
Households										
Iodized salt consumption	NU.9	.1752	.00749	.043	1.183	1.088	2982	3048	0.160	0.190
Household members										
Use of improved drinking water sources	WS.1	.9979	.00092	.001	1.234	1.111	11930	3048	0.996	1.000
Use of improved sanitation facilities	WS.6	.7300	.01311	.018	2.657	1.630	11930	3048	0.704	0.756
Primary school net attendance ratio (adjusted)	ED.3	.9848	.00488	.005	1.295	1.138	803	818	0.975	0.995
Secondary school net attendance ratio (adjusted)	ED.4	.9689	.00504	.005	1.062	1.030	1220	1262	0.959	0.979
Primary completion rate	ED.6	1.0000	.00000	.000	NA	NA	224	224	1.000	1.000
Prevalence of children with at least one parent dead	HH.6	.0509	.00582	.114	2.537	1.593	3526	3621	0.039	0.063
Women										
Antenatal care coverage - at least once by skilled personnel	RH.1	1.0000	.00000	.000	NA	NA	336	342	1.000	1.000
Antenatal care coverage – at least four times by any provider	RH.2	.9016	.02556	.028	2.511	1.584	336	342	0.851	0.953
Skilled attendant at delivery	RH.5	1.0000	.00000	.000	NA	NA	336	342	1.000	1.000
Institutional deliveries	RH.6	.8692	.02038	.023	1.246	1.116	336	342	0.828	0.910
Caesarean section	RH.5	.0878	.01984	.226	1.676	1.295	336	342	0.048	0.127
Comprehensive knowledge about HIV prevention among young people	HA.2	.0376	.00781	.208	1.665	1.290	952	987	0.022	0.053
Knowledge of mother-to-child transmission of HIV	HA.3	.1394	.00890	.064	2.184	1.478	3216	3309	0.122	0.157
Accepting attitudes towards people living with HIV	HA.4	.0851	.00759	.089	1.430	1.196	1931	1934	0.070	0.100
Under-5s										
Underweight prevalence	NU.1	.2666	.01872	.070	1.658	1.288	904	926	0.229	0.304
Stunting prevalence	NU.1	.4495	.02083	.046	1.622	1.274	904	926	0.408	0.491
Wasting prevalence	NU.1	.0667	.01016	.152	1.534	1.239	904	926	0.046	0.087
Exclusive breastfeeding under 6 months	NU.3	.9526	.02308	.024	.743	.862	66	64	0.906	0.999
Predominant breastfeeding under 6 months	NU.3	.9605	.02169	.023	.781	.884	66	64	0.917	1.000
Continued breastfeeding at 1 year	NU.3	.9603	.01879	.020	.648	.805	71	71	0.923	0.998
Continued breastfeeding at 2 years	NU.3	.5348	.06699	.125	1.082	1.040	57	61	0.401	0.669
Age-appropriate breastfeeding	NU.5	.5795	.02991	.052	1.266	1.125	336	346	0.520	0.639
Diarrhoea in the previous 2 weeks	CH.1	.1439	.01462	.102	1.604	1.267	904	926	0.115	0.173
Oral rehydration therapy with continued feeding	CH.3	.6268	.03153	.050	.548	.740	130	130	0.564	0.690
Acute respiratory infection in last two weeks	CH.4	.0633	.00773	.122	.932	.965	904	926	0.048	0.079
Antibiotic treatment of suspected pneumonia	CH.4	.8035	.05501	.068	1.073	1.036	57	57	0.693	0.913
Care-seeking for suspected pneumonia	CH.4	.7391	.04369	.059	.554	.745	57	57	0.652	0.826
Support for learning	CD.2	.8890	.01965	.022	1.480	1.216	375	379	0.850	0.928
Attendance to early childhood education	CD.1	.9660	.01107	.011	1.409	1.187	375	379	0.944	0.988

Table SE.5: Sampling errors: Region 1 - Ryanggang

Standard errors, coefficients of variation, design effects (*deff*), square root of design effects (*deft*) and confidence intervals for selected indicators, DPR Korea, 2009

	Table	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits	
									r - 2se	*r + 2se*
Households										
Iodized salt consumption	NU.9	.2069	.02190	.106	2.183	1.478	237	748	0.163	0.251
Household members										
Use of improved drinking water sources	WS.1	.9984	.00118	.001	.663	.815	940	748	0.996	1.000
Use of improved sanitation facilities	WS.6	.8042	.01135	.014	.612	.782	940	748	0.782	0.827
Primary school net attendance ratio (adjusted)	ED.3	.9824	.01030	.010	1.119	1.058	58	183	0.962	1.000
Secondary school net attendance ratio (adjusted)	ED.4	.9561	.01427	.015	1.625	1.275	106	336	0.928	0.985
Primary completion rate	ED.6	(*)	(*)	(*)	(*)	(*)	14	44	(*)	(*)
Prevalence of children with at least one parent dead	HH.6	.0458	.00857	.187	1.522	1.234	286	906	0.029	0.063
Women										
Antenatal care coverage - at least once by skilled personnel	RH.1	1.0000	.00000	.000	NA	NA	22	72	1.000	1.000
Antenatal care coverage – at least four times by any provider	RH.2	.7640	.06600	.086	1.715	1.310	22	72	0.632	0.896
Skilled attendant at delivery	RH.5	1.0000	.00000	.000	NA	NA	22	72	1.000	1.000
Institutional deliveries	RH.6	.9030	.03465	.038	.973	.986	22	72	0.834	0.972
Caesarean section	RH.5	.1607	.05408	.337	1.539	1.241	22	72	0.053	0.269
Comprehensive knowledge about HIV prevention among young people	HA.2	.0370	.01204	.325	.887	.942	70	219	0.013	0.061
Knowledge of mother-to-child transmission of HIV	HA.3	.1304	.01492	.114	1.584	1.259	257	808	0.101	0.160
Accepting attitudes towards people living with HIV	HA.4	.0904	.01550	.171	1.072	1.036	116	368	0.059	0.121
UNDER-5s										
Underweight prevalence	NU.1	.2536	.03366	.133	1.311	1.145	68	220	0.186	0.321
Stunting prevalence	NU.1	.4493	.03608	.080	1.152	1.074	68	220	0.377	0.522
Wasting prevalence	NU.1	.0795	.01553	.195	.722	.849	68	220	0.048	0.111
Exclusive breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	2	7	(*)	(*)
Predominant breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	2	7	(*)	(*)
Continued breastfeeding at 1 year	NU.3	(*)	(*)	(*)	(*)	(*)	3	11	(*)	(*)
Continued breastfeeding at 2 years	NU.3	(*)	(*)	(*)	(*)	(*)	5	17	(*)	(*)
Age-appropriate breastfeeding	NU.5	.4946	.05188	.105	.775	.881	22	73	0.391	0.598
Diarrhoea in the previous 2 weeks	CH.1	.1458	.02416	.166	1.027	1.013	68	220	0.097	0.194
Oral rehydration therapy with continued feeding	CH.3	(*)	(*)	(*)	(*)	(*)	10	32	(*)	(*)
Acute respiratory infection in last two weeks	CH.4	.0693	.01371	.198	.638	.799	68	220	0.042	0.097
Antibiotic treatment of suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	5	16	(*)	(*)
Care-seeking for suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	5	16	(*)	(*)
Support for learning	CD.2	.8535	.04768	.056	1.655	1.286	29	92	0.758	0.949
Attendance to early childhood education	CD.1	.9722	.02030	.021	1.389	1.179	29	92	0.932	1.000

Table SE.6: Sampling errors: Region 2 - North Hamgyong

Standard errors, coefficients of variation, design effects (*deff*), square root of design effects (*deft*) and confidence intervals for selected indicators, DPR Korea, 2009

	Table	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits *r - 2se*	Confidence limits *r + 2se*
Households										
Iodized salt consumption	NU.9	.2400	.02030	.085	1.690	1.300	776	749	0.199	0.281
Household members										
Use of improved drinking water sources	WS.1	1.0000	.00000	.000	NA	NA	3108	749	1.000	1.000
Use of improved sanitation facilities	WS.6	.8206	.01909	.023	1.851	1.361	3108	749	0.782	0.859
Primary school net attendance ratio (adjusted)	ED.3	.9781	.01171	.012	1.255	1.120	203	197	0.955	1.000
Secondary school net attendance ratio (adjusted)	ED.4	.9836	.00810	.008	1.164	1.079	298	288	0.967	1.000
Primary completion rate	ED.6	(*)	(*)	(*)	(*)	(*)	48	46	(*)	(*)
Prevalence of children with at least one parent dead	HH.6	.0344	.00953	.277	2.276	1.509	867	833	0.015	0.053
Women										
Antenatal care coverage - at least once by skilled personnel	RH.1	1.0000	.00000	.000	NA	NA	94	90	1.000	1.000
Antenatal care coverage – at least four times by any provider	RH.2	.9684	.01888	.019	1.037	1.018	94	90	0.931	1.000
Skilled attendant at delivery	RH.5	1.0000	.00000	.000	NA	NA	94	90	1.000	1.000
Institutional deliveries	RH.6	.9610	.02239	.023	1.192	1.092	94	90	0.916	1.000
Caesarean section	RH.5	.1383	.02691	.195	.541	.735	94	90	0.085	0.192
Comprehensive knowledge about HIV prevention among young people	HA.2	.0708	.01983	.280	1.392	1.180	242	234	0.031	0.110
Knowledge of mother-to-child transmission of HIV	HA.3	.1930	.01298	.067	.889	.943	856	823	0.167	0.219
Accepting attitudes towards people living with HIV	HA.4	.0795	.01302	.164	1.272	1.128	572	550	0.053	0.106
Under-5s										
Underweight prevalence	NU.1	.2185	.04907	.225	3.116	1.765	230	222	0.120	0.317
Stunting prevalence	NU.1	.3797	.05336	.141	2.671	1.634	230	222	0.273	0.486
Wasting prevalence	NU.1	.0723	.02850	.394	2.677	1.636	230	222	0.015	0.129
Exclusive breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	12	12	(*)	(*)
Predominant breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	12	12	(*)	(*)
Continued breastfeeding at 1 year	NU.3	(*)	(*)	(*)	(*)	(*)	10	9	(*)	(*)
Continued breastfeeding at 2 years	NU.3	(*)	(*)	(*)	(*)	(*)	28	27	(*)	(*)
Age-appropriate breastfeeding	NU.5	.4288	.05671	.132	1.156	1.075	92	89	0.315	0.542
Diarrhoea in the previous weeks	CH.1	.1137	.02117	.186	.983	.991	230	222	0.071	0.156
Oral rehydration therapy with continued feeding	CH.3	(*)	(*)	(*)	(*)	(*)	26	25	(*)	(*)
Acute respiratory infection in last two weeks	CH.4	.0675	.01403	.208	.691	.831	230	222	0.039	0.096
Antibiotic treatment of suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	16	15	(*)	(*)
Care-seeking for suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	16	15	(*)	(*)
Support for learning	CD.2	.8802	.03272	.037	.873	.935	91	87	0.815	0.946
Attendance to early childhood education	CD.1	.9696	.01770	.018	.913	.956	91	87	0.934	1.000

Table SE.7: Sampling errors: Region 3 - South Hamgyong

Standard errors, coefficients of variation, design effects (*deff*), square root of design effects (*deft*) and confidence intervals for selected indicators, DPR Korea, 2009

	Table	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits	
									r - 2se	*r + 2se*
Households										
Iodized salt consumption	NU.9	.2301	.01879	.082	1.492	1.222	964	750	0.193	0.268
Household members										
Use of improved drinking water sources	WS.1	1.0000	.00000	.000	NA	NA	3859	750	1.000	1.000
Use of improved sanitation facilities	WS.6	.8148	.02219	.027	2.443	1.563	3859	750	0.770	0.859
Primary school net attendance ratio (adjusted)	ED.3	.9936	.00617	.006	1.089	1.043	238	183	0.981	1.000
Secondary school net attendance ratio (adjusted)	ED.4	.9618	.00837	.009	.554	.744	376	292	0.945	0.978
Primary completion rate	ED.6	1.0000	.00000	.000	NA	NA	68	53	1.000	1.000
Prevalence of children with at least one parent dead	HH.6	.0299	.00766	.256	1.720	1.311	1103	851	0.015	0.045
Women										
Antenatal care coverage - at least once by skilled personnel	RH.1	1.0000	.00000	.000	NA	NA	112	85	1.000	1.000
Antenatal care coverage – at least four times by any provider	RH.2	.9538	.02316	.024	1.023	1.011	112	85	0.908	1.000
Skilled attendant at delivery	RH.5	1.0000	.00000	.000	NA	NA	112	85	1.000	1.000
Institutional deliveries	RH.6	.9889	.01086	.011	.898	.948	112	85	0.967	1.000
Caesarean section	RH.5	.1232	.04328	.351	1.456	1.207	112	85	0.037	0.210
Comprehensive knowledge about HIV prevention among young people	HA.2	.0375	.01426	.381	1.438	1.199	324	256	0.009	0.066
Knowledge of mother-to-child transmission of HIV	HA.3	.1533	.02189	.143	3.119	1.766	1083	846	0.110	0.197
Accepting attitudes towards people living with HIV	HA.4	.0923	.01624	.176	1.723	1.313	708	548	0.060	0.125
Under-5s										
Underweight prevalence	NU.1	.2154	.03347	.155	1.458	1.208	287	221	0.148	0.282
Stunting prevalence	NU.1	.3848	.03408	.089	1.080	1.039	287	221	0.317	0.453
Wasting prevalence	NU.1	.0726	.01795	.247	1.053	1.026	287	221	0.037	0.108
Exclusive breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	38	28	(*)	(*)
Predominant breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	38	28	(*)	(*)
Continued breastfeeding at 1 year	NU.3	(*)	(*)	(*)	(*)	(*)	26	20	(*)	(*)
Continued breastfeeding at 2 years	NU.3	(*)	(*)	(*)	(*)	(*)	14	11	(*)	(*)
Age-appropriate breastfeeding	NU.5	.5785	.03824	.066	.510	.714	112	86	0.502	0.655
Diarrhoea in the previous 2 weeks	CH.1	.1639	.03382	.206	1.836	1.355	287	221	0.096	0.232
Oral rehydration therapy with continued feeding	CH.3	(*)	(*)	(*)	(*)	(*)	47	37	(*)	(*)
Acute respiratory infection in last two weeks	CH.4	.0682	.01932	.283	1.291	1.136	287	221	0.030	0.107
Antibiotic treatment of suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	20	15	(*)	(*)
Care-seeking for suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	20	15	(*)	(*)
Support for learning	CD.2	.9292	.01833	.020	.459	.678	116	91	0.893	0.966
Attendance to early childhood education	CD.1	.9658	.01722	.018	.807	.898	116	91	0.931	1.000

Table SE.8: Sampling errors: Region 4 - Kangwon

Standard errors, coefficients of variation, design effects (*deff*), square root of design effects (*deft*) and confidence intervals for selected indicators, DPR Korea, 2009

	Table	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits	
									r - 2se	*r + 2se*
Households										
Iodized salt consumption	NU.9	.2480	.01556	.063	.973	.986	463	750	0.217	0.279
Household members										
Use of improved drinking water sources	WS.1	.9984	.00156	.002	1.166	1.080	1849	750	0.995	1.000
Use of improved sanitation facilities	WS.6	.8108	.01698	.021	1.408	1.187	1849	750	0.777	0.845
Primary school net attendance ratio (adjusted)	ED.3	.9959	.00405	.004	.763	.873	116	190	0.988	1.000
Secondary school net attendance ratio (adjusted)	ED.4	.9912	.00510	.005	.999	1.000	206	335	0.981	1.000
Primary completion rate	ED.6	(*)	(*)	(*)	(*)	(*)	28	45	(*)	(*)
Prevalence of children with at least one parent dead	HH.6	.0727	.01091	.150	1.529	1.237	532	867	0.051	0.095
Women										
Antenatal care coverage - at least once by skilled personnel	RH.1	1.0000	.00000	.000	NA	NA	49	81	1.000	1.000
Antenatal care coverage – at least four times by any provider	RH.2	.9438	.02485	.026	.931	.965	49	81	0.894	0.993
Skilled attendant at delivery	RH.5	1.0000	.00000	.000	NA	NA	49	81	1.000	1.000
Institutional deliveries	RH.6	.9488	.01825	.019	.549	.741	49	81	0.912	0.985
Caesarean section	RH.5	.1176	.03119	.265	.750	.866	49	81	0.055	0.180
Comprehensive knowledge about HIV prevention among young people	HA.2	.0554	.01548	.280	1.214	1.102	164	266	0.024	0.086
Knowledge of mother-to-child transmission of HIV	HA.3	.1290	.01244	.096	1.192	1.092	534	867	0.104	0.154
Accepting attitudes towards people living with HIV	HA.4	.0841	.01125	.134	1.063	1.031	394	648	0.062	0.107
Under-5s										
Underweight prevalence	NU.1	.1938	.02662	.137	.930	.964	125	206	0.141	0.247
Stunting prevalence	NU.1	.3424	.03874	.113	1.366	1.169	125	206	0.265	0.420
Wasting prevalence	NU.1	.0573	.01831	.320	1.272	1.128	125	206	0.021	0.094
Exclusive breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	11	20	(*)	(*)
Predominant breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	11	20	(*)	(*)
Continued breastfeeding at 1 year	NU.3	(*)	(*)	(*)	(*)	(*)	8	13	(*)	(*)
Continued breastfeeding at 2 years	NU.3	(*)	(*)	(*)	(*)	(*)	9	15	(*)	(*)
Age-appropriate breastfeeding	NU.5	.4661	.06877	.148	1.539	1.241	49	82	0.329	0.604
Diarrhoea in the previous 2 weeks	CH.1	.1745	.02903	.166	1.200	1.095	125	206	0.116	0.233
Oral rehydration therapy with continued feeding	CH.3	(*)	(*)	(*)	(*)	(*)	22	36	(*)	(*)
Acute respiratory infection in last two weeks	CH.4	.0567	.01852	.327	1.315	1.147	125	206	0.020	0.094
Antibiotic treatment of suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	7	12	(*)	(*)
Care-seeking for suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	7	12	(*)	(*)
Support for learning	CD.2	.8788	.04878	.056	1.943	1.394	54	88	0.781	0.976
Attendance to early childhood education	CD.1	.9858	.01381	.014	1.190	1.091	54	88	0.958	1.000

Table SE.9: Sampling errors: Region 5 - Jagang

Standard errors, coefficients of variation, design effects (*deff*), square root of design effects (*deft*) and confidence intervals for selected indicators, DPR Korea, 2009

	Table	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits *r - 2se*	Confidence limits *r + 2se*
Households										
Iodized salt consumption	NU.9	.2244	.02337	.104	2.350	1.533	416	750	0.178	0.271
Household members										
Use of improved drinking water sources	WS.1	1.0000	.00000	.000	NA	NA	1649	750	1.000	1.000
Use of improved sanitation facilities	WS.6	.8067	.01692	.021	1.374	1.172	1649	750	0.773	0.840
Primary school net attendance ratio (adjusted)	ED.3	.9892	.00752	.008	.919	.958	96	174	0.974	1.000
Secondary school net attendance ratio (adjusted)	ED.4	.9858	.00688	.007	.988	.994	161	293	0.972	1.000
Primary completion rate	ED.6	(*)	(*)	(*)	(*)	(*)	23	41	(*)	(*)
Prevalence of children with at least one parent dead	HH.6	.0571	.01238	.217	2.330	1.526	452	819	0.032	0.082
Women										
Antenatal care coverage - at least once by skilled personnel	RH.1	1.0000	.00000	.000	NA	NA	50	90	1.000	1.000
Antenatal care coverage – at least four times by any provider	RH.2	.9271	.02464	.027	.800	.894	50	90	0.878	0.976
Skilled attendant at delivery	RH.5	1.0000	.00000	.000	NA	NA	50	90	1.000	1.000
Institutional deliveries	RH.6	.9896	.01009	.010	.884	.940	50	90	0.969	1.000
Caesarean section	RH.5	.1144	.02858	.250	.717	.847	50	90	0.057	0.172
Comprehensive knowledge about HIV prevention among young people	HA.2	.0397	.01388	.350	1.178	1.085	128	234	0.012	0.067
Knowledge of mother-to-child transmission of HIV	HA.3	.1559	.01213	.078	.926	.962	459	829	0.132	0.180
Accepting attitudes towards people living with HIV	HA.4	.0645	.01179	.183	1.205	1.098	291	524	0.041	0.088
Under-5s										
Underweight prevalence	NU.1	.2202	.02897	.132	1.051	1.025	118	216	0.162	0.278
Stunting prevalence	NU.1	.4087	.03236	.079	.931	.965	118	216	0.344	0.473
Wasting prevalence	NU.1	.0689	.01753	.255	1.031	1.015	118	216	0.034	0.104
Exclusive breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	10	18	(*)	(*)
Predominant breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	10	18	(*)	(*)
Continued breastfeeding at 1 year	NU.3	(*)	(*)	(*)	(*)	(*)	10	18	(*)	(*)
Continued breastfeeding at 2 years	NU.3	(*)	(*)	(*)	(*)	(*)	8	15	(*)	(*)
Age-appropriate breastfeeding	NU.5	.3757	.05071	.135	.998	.999	51	92	0.274	0.477
Diarrhoea in the previous 2 weeks	CH.1	.1618	.01427	.088	.323	.568	118	216	0.133	0.190
Oral rehydration therapy with continued feeding	CH.3	(*)	(*)	(*)	(*)	(*)	19	35	(*)	(*)
Acute respiratory infection in last two weeks	CH.4	.0665	.01769	.266	1.084	1.041	118	216	0.031	0.102
Antibiotic treatment of suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	8	14	(*)	(*)
Care-seeking for suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	8	14	(*)	(*)
Support for learning	CD.2	.9244	.01970	.021	.495	.703	48	90	0.885	0.964
Attendance to early childhood education	CD.1	.9906	.00954	.010	.868	.932	48	90	0.972	1.000

Table SE.10: Sampling errors: Region 6 - North Phyongan

Standard errors, coefficients of variation, design effects (*deff*), square root of design effects (*deft*) and confidence intervals for selected indicators, DPR Korea, 2009

	Table	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits	
									r - 2se	*r + 2se*
Households										
Iodized salt consumption	NU.9	.2508	.02349	.094	2.199	1.483	889	750	0.204	0.298
Household members										
Use of improved drinking water sources	WS.1	.9983	.00173	.002	1.289	1.136	3555	750	0.995	1.000
Use of improved sanitation facilities	WS.6	.8049	.01831	.023	1.598	1.264	3555	750	0.768	0.841
Primary school net attendance ratio (adjusted)	ED.3	.9859	.01020	.010	1.409	1.187	219	189	0.965	1.000
Secondary school net attendance ratio (adjusted)	ED.4	.9745	.01157	.012	1.689	1.300	368	315	0.951	0.998
Primary completion rate	ED.6	(*)	(*)	(*)	(*)	(*)	48	41	(*)	(*)
Prevalence of children with at least one parent dead	HH.6	.0704	.01191	.169	1.905	1.380	1037	881	0.047	0.094
Women										
Antenatal care coverage - at least once by skilled personnel	RH.1	1.0000	.00000	.000	NA	NA	98	82	1.000	1.000
Antenatal care coverage – at least four times by any provider	RH.2	.8884	.05012	.056	2.053	1.433	98	82	0.788	0.989
Skilled attendant at delivery	RH.5	1.0000	.00000	.000	NA	NA	98	82	1.000	1.000
Institutional deliveries	RH.6	.9192	.02333	.025	.593	.770	98	82	0.873	0.966
Caesarean section	RH.5	.1080	.02593	.240	.565	.752	98	82	0.056	0.160
Comprehensive knowledge about HIV prevention among young people	HA.2	.0390	.01302	.334	1.017	1.009	272	226	0.013	0.065
Knowledge of mother-to-child transmission of HIV	HA.3	.1696	.01155	.068	.766	.875	964	810	0.146	0.193
Accepting attitudes towards people living with HIV	HA.4	.0734	.01131	.154	.889	.943	564	474	0.051	0.096
Under-5s										
Underweight prevalence	NU.1	.1796	.02824	.157	1.250	1.118	275	232	0.123	0.236
Stunting prevalence	NU.1	.3037	.03602	.119	1.417	1.191	275	232	0.232	0.376
Wasting prevalence	NU.1	.0491	.01475	.300	1.076	1.037	275	232	0.020	0.079
Exclusive breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	24	20	(*)	(*)
Predominant breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	24	20	(*)	(*)
Continued breastfeeding at 1 year	NU.3	(*)	(*)	(*)	(*)	(*)	18	15	(*)	(*)
Continued breastfeeding at 2 years	NU.3	(*)	(*)	(*)	(*)	(*)	17	14	(*)	(*)
Age-appropriate breastfeeding	NU.5	.6155	.04225	.069	.611	.782	97	82	0.531	0.700
Diarrhoea in the previous 2 weeks	CH.1	.1542	.03715	.241	2.443	1.563	275	232	0.080	0.229
Oral rehydration therapy with continued feeding	CH.3	(*)	(*)	(*)	(*)	(*)	42	35	(*)	(*)
Acute respiratory infection in last two weeks	CH.4	.0644	.01607	.250	.990	.995	275	232	0.032	0.097
Antibiotic treatment of suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	18	15	(*)	(*)
Care-seeking for suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	18	15	(*)	(*)
Support for learning	CD.2	.9047	.02124	.023	.502	.709	115	97	0.862	0.947
Attendance to early childhood education	CD.1	.9871	.01246	.013	1.172	1.082	115	97	0.962	1.000

Table SE.11: Sampling errors: Region 7 - South Phyongan

Standard errors, coefficients of variation, design effects (*deff*), square root of design effects (*deft*) and confidence intervals for selected indicators, DPR Korea, 2009

	Table	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits *r - 2se*	Confidence limits *r + 2se*
Households										
Iodized salt consumption	NU.9	.2532	.02090	.083	1.730	1.315	1311	750	0.211	0.295
Household members										
Use of improved drinking water sources	WS.1	.9989	.00110	.001	.829	.911	5088	750	0.997	1.000
Use of improved sanitation facilities	WS.5	.8348	.02083	.025	2.357	1.535	5088	750	0.793	0.876
Primary school net attendance ratio (adjusted)	ED.3	.9952	.00475	.005	.870	.933	330	186	0.986	1.000
Secondary school net attendance ratio (adjusted)	ED.4	.9764	.01234	.013	1.908	1.381	513	289	0.952	1.000
Primary completion rate	ED.6	(*)	(*)	(*)	(*)	(*)	72	40	(*)	(*)
Prevalence of children with at least one parent dead	HH.6	.0441	.00945	.215	1.717	1.310	1426	810	0.025	0.063
Women										
Antenatal care coverage - at least once by skilled personnel	RH.1	1.0000	.00000	.000	NA	NA	155	87	1.000	1.000
Antenatal care coverage – at least four times by any provider	RH.2	.9564	.02525	.026	1.315	1.147	155	87	0.906	1.000
Skilled attendant at delivery	RH.5	1.0000	.00000	.000	NA	NA	155	87	1.000	1.000
Institutional deliveries	RH.6	.9411	.01824	.019	.516	.718	155	87	0.905	0.978
Caesarean section	RH.5	.1130	.04309	.381	1.593	1.262	155	87	0.027	0.199
Comprehensive knowledge about HIV prevention among young people	HA.2	.0887	.01555	.175	.628	.793	369	211	0.058	0.120
Knowledge of mother-to-child transmission of HIV	HA.3	.2348	.01201	.051	.642	.801	1403	801	0.211	0.259
Accepting attitudes towards people living with HIV	HA.4	.1022	.01609	.157	1.574	1.255	982	559	0.070	0.134
Under-5s										
Underweight prevalence	NU.1	.1767	.02476	.140	.919	.959	381	219	0.127	0.226
Stunting prevalence	NU.1	.3045	.02125	.070	.465	.682	381	219	0.262	0.347
Wasting prevalence	NU.1	.0441	.01365	.310	.965	.982	381	219	0.017	0.071
Exclusive breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	27	16	(*)	(*)
Predominant breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	27	16	(*)	(*)
Continued breastfeeding at 1 year	NU.3	(*)	(*)	(*)	(*)	(*)	28	15	(*)	(*)
Continued breastfeeding at 2 years	NU.3	(*)	(*)	(*)	(*)	(*)	18	10	(*)	(*)
Age-appropriate breastfeeding	NU.5	.5350	.05623	.105	1.093	1.045	154	87	0.423	0.647
Diarrhoea in the previous 2 weeks	CH.1	.1664	.02351	.141	.869	.932	381	219	0.119	0.213
Oral rehydration therapy with continued feeding	CH.3	(*)	(*)	(*)	(*)	(*)	63	36	(*)	(*)
Acute respiratory infection in last two weeks	CH.4	.0544	.01258	.231	.670	.819	381	219	0.029	0.080
Antibiotic treatment of suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	21	12	(*)	(*)
Care-seeking for suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	21	12	(*)	(*)
Support for learning	CD.2	.9251	.03392	.037	1.561	1.250	166	95	0.857	0.993
Attendance to early childhood education	CD.1	.9885	.01245	.013	1.279	1.131	166	95	0.964	1.000

Table SE.12: Sampling errors: Region 8 - North Hwanghae

Standard errors, coefficients of variation, design effects (*deff*), square root of design effects (*deft*) and confidence intervals for selected indicators, DPR Korea, 2009

	Table	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits	
									r - 2se	*r + 2se*
Households										
Iodized salt consumption	NU.9	.2143	.01533	.072	1.044	1.022	670	749	0.184	0.245
Household members										
Use of improved drinking water sources	WS.1	.9983	.00169	.002	1.246	1.116	2647	749	0.995	1.000
Use of improved sanitation facilities	WS.6	.8108	.01071	.013	.559	.748	2647	749	0.789	0.832
Primary school net attendance ratio (adjusted)	ED.3	.9941	.00562	.006	.962	.981	162	178	0.983	1.000
Secondary school net attendance ratio (adjusted)	ED.4	.9674	.01085	.011	1.071	1.035	261	288	0.946	0.989
Primary completion rate	ED.6	(*)	(*)	(*)	(*)	(*)	45	49	(*)	(*)
Prevalence of children with at least one parent dead	HH.6	.0464	.00672	.145	.860	.927	761	843	0.033	0.060
Women										
Antenatal care coverage - at least once by skilled personnel	RH.1	1.0000	.00000	.000	NA	NA	89	100	1.000	1.000
Antenatal care coverage – at least four times by any provider	RH.2	.8700	.06216	.071	3.382	1.839	89	100	0.746	0.994
Skilled attendant at delivery	RH.5	1.0000	.00000	.000	NA	NA	89	100	1.000	1.000
Institutional deliveries	RH.6	.9033	.03985	.044	1.799	1.341	89	100	0.824	0.983
Caesarean section	RH.5	.0822	.02125	.258	.592	.769	89	100	0.040	0.125
Comprehensive knowledge about HIV prevention among young people	HA.2	.0259	.00959	.371	.796	.892	199	219	0.007	0.045
Knowledge of mother-to-child transmission of HIV	HA.3	.1591	.01017	.064	.634	.796	735	821	0.139	0.179
Accepting attitudes towards people living with HIV	HA.4	.0806	.01103	.137	.845	.919	458	515	0.058	0.103
Under-5s										
Underweight prevalence	NU.1	.1799	.02380	.132	.868	.932	202	227	0.132	0.227
Stunting prevalence	NU.1	.3076	.03734	.121	1.480	1.216	202	227	0.233	0.382
Wasting prevalence	NU.1	.0453	.02427	.536	3.080	1.755	202	227	0.000	0.094
Exclusive breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	12	13	(*)	(*)
Predominant breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	12	13	(*)	(*)
Continued breastfeeding at 1 year	NU.3	(*)	(*)	(*)	(*)	(*)	21	22	(*)	(*)
Continued breastfeeding at 2 years	NU.3	(*)	(*)	(*)	(*)	(*)	15	17	(*)	(*)
Age-appropriate breastfeeding	NU.5	.4301	.04722	.110	.901	.949	89	100	0.336	0.525
Diarrhoea in the previous 2 weeks	CH.1	.1105	.02021	.183	.939	.969	202	227	0.070	0.151
Oral rehydration therapy with continued feeding	CH.3	(*)	(*)	(*)	(*)	(*)	22	24	(*)	(*)
Acute respiratory infection in last two weeks	CH.4	.0558	.01425	.255	.870	.933	202	227	0.027	0.084
Antibiotic treatment of suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	11	12	(*)	(*)
Care-seeking for suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	11	12	(*)	(*)
Support for learning	CD.2	.8766	.02850	.033	.661	.813	78	89	0.820	0.934
Attendance to early childhood education	CD.1	.9763	.01656	.017	1.042	1.021	78	89	0.943	1.000

Table SE.13: Sampling errors: Region 9 - South Hwanghae

Standard errors, coefficients of variation, design effects (*deff*), square root of design effects (*deft*) and confidence intervals for selected indicators, DPR Korea, 2009

	Table	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits *r - 2se*	Confidence limits *r + 2se*
Households										
Iodized salt consumption	NU.9	.2528	.01763	.070	1.232	1.110	744	750	0.218	0.288
Household members										
Use of improved drinking water sources	WS.1	.9984	.00158	.002	1.185	1.088	2898	750	0.995	1.000
Use of improved sanitation facilities	WS.6	.8171	.01546	.019	1.198	1.094	2898	750	0.786	0.848
Primary school net attendance ratio (adjusted)	ED.3	.9893	.00783	.008	1.105	1.051	187	191	0.974	1.000
Secondary school net attendance ratio (adjusted)	ED.4	.9773	.00839	.009	.928	.963	293	294	0.960	0.994
Primary completion rate	ED.6	(*)	(*)	(*)	(*)	(*)	47	49	(*)	(*)
Prevalence of children with at least one parent dead	HH.6	.0437	.01293	.296	3.306	1.818	817	827	0.018	0.070
Women										
Antenatal care coverage - at least once by skilled personnel	RH.1	1.0000	.00000	.000	NA	NA	72	72	1.000	1.000
Antenatal care coverage – at least four times by any provider	RH.2	.9428	.03103	.033	1.268	1.126	72	72	0.881	1.000
Skilled attendant at delivery	RH.5	1.0000	.00000	.000	NA	NA	72	72	1.000	1.000
Institutional deliveries	RH.6	.9064	.04727	.052	1.869	1.367	72	72	0.812	1.000
Caesarean section	RH.5	.1060	.03937	.372	1.162	1.078	72	72	0.027	0.185
Comprehensive knowledge about HIV prevention among young people	HA.2	.0407	.01189	.292	.881	.939	243	244	0.017	0.064
Knowledge of mother-to-child transmission of HIV	HA.3	.1929	.01891	.098	1.801	1.342	779	785	0.155	0.231
Accepting attitudes towards people living with HIV	HA.4	.0835	.01425	.171	1.279	1.131	480	483	0.055	0.112
Under-5s										
Underweight prevalence	NU.1	.1737	.02938	.169	1.179	1.086	192	197	0.115	0.232
Stunting prevalence	NU.1	.2921	.03378	.116	1.081	1.040	192	197	0.225	0.360
Wasting prevalence	NU.1	.0404	.01401	.347	.994	.997	192	197	0.012	0.068
Exclusive breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	13	13	(*)	(*)
Predominant breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	13	13	(*)	(*)
Continued breastfeeding at 1 year	NU.3	(*)	(*)	(*)	(*)	(*)	14	15	(*)	(*)
Continued breastfeeding at 2 years	NU.3	(*)	(*)	(*)	(*)	(*)	17	17	(*)	(*)
Age-appropriate breastfeeding	NU.5	.4592	.04617	.101	.609	.781	71	72	0.367	0.552
Diarrhoea in the previous 2 weeks	CH.1	.1155	.02542	.220	1.240	1.113	192	197	0.065	0.166
Oral rehydration therapy with continued feeding	CH.3	(*)	(*)	(*)	(*)	(*)	22	23	(*)	(*)
Acute respiratory infection in last two weeks	CH.4	.0591	.01548	.262	.845	.919	192	197	0.028	0.090
Antibiotic treatment of suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	11	12	(*)	(*)
Care-seeking for suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	11	12	(*)	(*)
Support for learning	CD.2	.9626	.01696	.018	.639	.799	79	81	0.929	0.996
Attendance to early childhood education	CD.1	.9502	.02406	.025	.979	.990	79	81	0.902	0.998

Table SE.14: Sampling errors: Region 10 - Pyongyang

Standard errors, coefficients of variation, design effects (*deff*), square root of design effects (*deft*) and confidence intervals for selected indicators, DPR Korea, 2009

	Table	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits *r - 2se*	Confidence limits *r + 2se*
Households										
Iodized salt consumption	NU.9	.2743	.01778	.065	1.190	1.091	1028	750	0.239	0.310
Household members										
Use of improved drinking water sources	WS.1	1.0000	.00000	.000	NA	NA	4151	750	1.000	1.000
Use of improved sanitation facilities	WS.6	.9279	.02214	.024	5.484	2.342	4151	750	0.884	0.972
Primary school net attendance ratio (adjusted)	ED.3	1.0000	.00000	.000	NA	NA	270	196	1.000	1.000
Secondary school net attendance ratio (adjusted)	ED.4	.9914	.00502	.005	.866	.931	404	296	0.981	1.000
Primary completion rate	ED.6	(*)	(*)	(*)	(*)	(*)	62	46	(*)	(*)
Prevalence of children with at least one parent dead	HH.6	.0667	.01344	.201	2.382	1.543	1130	823	0.040	0.094
Women										
Antenatal care coverage - at least once by skilled personnel	RH.1	1.0000	.00000	.000	NA	NA	114	82	1.000	1.000
Antenatal care coverage – at least four times by any provider	RH.2	.9773	.01651	.017	.994	.997	114	82	0.944	1.000
Skilled attendant at delivery	RH.5	1.0000	.00000	.000	NA	NA	114	82	1.000	1.000
Institutional deliveries	RH.6	.9764	.02367	.024	1.969	1.403	114	82	0.929	1.000
Caesarean section	RH.5	.1897	.04916	.259	1.273	1.128	114	82	0.091	0.288
Comprehensive knowledge about HIV prevention among young people	HA.2	.2456	.02539	.103	.842	.918	332	243	0.195	0.296
Knowledge of mother-to-child transmission of HIV	HA.3	.3974	.02354	.059	1.985	1.409	1179	859	0.350	0.444
Accepting attitudes towards people living with HIV	HA.4	.0870	.00915	.105	.859	.927	1119	816	0.069	0.105
Under-5s										
Underweight prevalence	NU.1	.1444	.01668	.116	.475	.689	293	212	0.111	0.178
Stunting prevalence	NU.1	.2252	.02516	.112	.765	.875	293	212	0.175	0.276
Wasting prevalence	NU.1	.0233	.00996	.427	.919	.959	293	212	0.003	0.043
Exclusive breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	14	11	(*)	(*)
Predominant breastfeeding under 6 months	NU.3	(*)	(*)	(*)	(*)	(*)	14	11	(*)	(*)
Continued breastfeeding at 1 year	NU.3	(*)	(*)	(*)	(*)	(*)	24	17	(*)	(*)
Continued breastfeeding at 2 years	NU.3	(*)	(*)	(*)	(*)	(*)	22	16	(*)	(*)
Age-appropriate breastfeeding	NU.5	.5288	.06129	.116	1.236	1.112	115	83	0.406	0.651
Diarrhoea in the previous 2 weeks	CH.1	.0858	.01934	.225	1.006	1.003	293	212	0.047	0.125
Oral rehydration therapy with continued feeding	CH.3	(*)	(*)	(*)	(*)	(*)	25	18	(*)	(*)
Acute respiratory infection in last two weeks	CH.4	.0435	.01527	.351	1.183	1.088	293	212	0.013	0.074
Antibiotic treatment of suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	13	9	(*)	(*)
Care-seeking for suspected pneumonia	CH.4	(*)	(*)	(*)	(*)	(*)	13	9	(*)	(*)
Support for learning	CD.2	.8879	.03523	.040	.985	.992	111	80	0.817	0.958
Attendance to early childhood education	CD.1	.9873	.01332	.013	1.117	1.057	111	80	0.961	1.000

Appendix D. Data quality tables

Table DQ.1: Age distribution of household population

Single-year age distribution of household population by sex, DPR Korea, 2009

	Males		Females			Males		Females	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
0	210	1.5	195	1.2	45	220	1.6	215	1.4
1	229	1.6	224	1.4	46	223	1.6	237	1.5
2	225	1.6	212	1.3	47	180	1.3	231	1.5
3	229	1.6	236	1.5	48	187	1.3	175	1.1
4	220	1.6	211	1.3	49	209	1.5	210	1.3
5	240	1.7	231	1.5	50	185	1.3	207	1.3
6	229	1.6	211	1.3	51	209	1.5	227	1.4
7	217	1.5	219	1.4	52	211	1.5	236	1.5
8	240	1.7	255	1.6	53	138	1.0	133	0.8
9	233	1.7	227	1.4	54	144	1.0	157	1.0
10	252	1.8	235	1.5	55	105	0.7	137	0.9
11	251	1.8	238	1.5	56	106	0.8	107	0.7
12	248	1.8	229	1.5	57	86	0.6	93	0.6
13	262	1.9	239	1.5	58	90	0.6	113	0.7
14	260	1.9	280	1.8	59	165	1.2	182	1.2
15	229	1.6	235	1.5	60	155	1.1	173	1.1
16	269	1.9	251	1.6	61	162	1.2	162	1.0
17	194	1.4	245	1.6	62	118	0.8	166	1.1
18	192	1.4	235	1.5	63	132	0.9	155	1.0
19	174	1.2	225	1.4	64	154	1.1	145	0.9
20	180	1.3	262	1.7	65	91	0.6	142	0.9
21	114	.8	211	1.3	66	101	0.7	112	0.7
22	135	1.0	225	1.4	67	107	0.8	156	1.0
23	124	.9	235	1.5	68	75	0.5	118	0.7
24	157	1.1	219	1.4	69	79	0.6	118	0.8
25	167	1.2	238	1.5	70	74	0.5	107	0.7
26	206	1.5	192	1.2	71	61	0.4	110	0.7
27	202	1.4	238	1.5	72	50	0.4	93	0.6
28	195	1.4	240	1.5	73	36	0.3	73	0.5
29	196	1.4	216	1.4	74	22	0.2	89	0.6
30	225	1.6	222	1.4	75	21	0.2	65	0.4
31	218	1.6	205	1.3	76	20	0.1	76	0.5
32	173	1.2	207	1.3	77	18	0.1	90	0.6
33	196	1.4	203	1.3	78	9	0.1	62	0.4
34	262	1.9	235	1.5	79	13	0.1	46	0.3
35	264	1.9	249	1.6	80+	19	0.1	200	1.3
36	263	1.9	260	1.7					
37	325	2.3	323	2.1					
38	275	2.0	252	1.6					
39	256	1.8	273	1.7					
40	264	1.9	257	1.6					
41	305	2.2	270	1.7					
42	290	2.1	307	1.9	DK/Missing	0	0.0	0	0.0
43	212	1.5	226	1.4					
44	227	1.6	221	1.4	Total		100.0		100.0

Table DQ.2: Age distribution of eligible and interviewed women

Household population of women aged 10-54, interviewed women aged 15-49, and percentage of eligible women who were interviewed, by five-year age groups, DPR Korea, 2009

	Household population of women aged 10-54 years	Interviewed women aged 15-49 years		Percentage of eligible women interviewed (Completion rate)
	Number	Number	Percent	
Age				
10-14	1 220	na	na	Na
15-19	1 191	1 191	14.5	100.0
20-24	1 151	1 150	14.0	99.9
25-29	1 123	1 123	13.6	100.0
30-34	1 073	1 073	13.0	100.0
35-39	1 357	1 356	16.5	99.9
40-44	1 281	1 280	15.5	99.9
45-49	1 068	1 068	13.0	100.0
50-54	959	na	na	Na
Total (15-49)	8 245	8241	100.0	100.0
Ratio of 50-54 to 45-49				.90

na : Not applicable

Table DQ.3: Age distribution of under-5s in household and under-5 questionnaires

Household population of children aged 0-7, children aged 0-4 whose mothers/caretakers were interviewed, and percentage of children under-5 whose mothers/caretakers were interviewed, by single ages, DPR Korea, 2009

	Household population of children aged 0-7 years	Interviewed children under-5		Percentage of eligible under-5s interviewed (Completion rate)
	Number	Number	Percent	
Age				
0	404	404	18.5	100.0
1	452	452	20.7	100.0
2	436	436	20.0	100.0
3	465	462	21.1	99.4
4	431	431	19.7	99.8
5	471	na	na	Na
6	440	na	na	Na
7	436	na	na	Na
Total (0-4)	2 190	2 186	100.0	99.8
Ratio of 5 to 4				1.09

na : Not Applicable

Table DQ.4: Women's completion rates by socio-economic characteristics of households

Household population of women aged 15-49, interviewed women aged 15-49, and percentage of eligible women who were interviewed, by selected social and economic characteristics of the household, DPR Korea, 2009

	Household population of women aged 15-49 years		Interviewed women aged 15-49 years		Percent of eligible women interviewed (Completion rates)
	Number	Percent	Number	Percent	
Region					
Ryanggang	257	3.1	257	3.1	99.9
North Hamgyong	856	10.4	854	10.4	99.8
South Hamgyong	1 083	13.1	1 083	13.1	100.0
Kangwon	534	6.5	534	6.5	100.0
Jagang	458	5.6	458	5.6	100.0
North Phyongan	963	11.7	963	11.7	100.0
South Phyongan	1 402	17.0	1 402	17.0	100.0
North Hwanghae	734	8.9	734	8.9	100.0
South Hwanghae	779	9.4	779	9.5	100.0
Pyongyang	1 178	14.3	1 177	14.3	99.9
Area					
Urban	5 031	61.0	5 029	61.0	100.0
Rural	3 214	39.0	3 212	39.0	99.9
Household size					
1-3	1 556	18.9	1 555	18.9	99.9
4-6	6 374	77.3	6 371	77.3	100.0
7+	316	3.8	316	3.8	100.0
Education of household head					
Secondary/Vocationary	6 027	73.1	6 025	73.1	100.0
Higher	2 218	26.9	2 217	26.9	100.0
Total	8 245	100.0	8 241	100.0	100.0

Table DQ.5: Completion rates for under-5 questionnaires by socio-economic characteristics of households

Household population of children under-5, under-5 questionnaires completed, and percentage of children under-5 for whom interviews were completed, by selected socio-economic characteristics of the household, DPR Korea, 2009

	Household population of children under-5		Interviewed children under-5		Percent of eligible under-5s with completed under-5 questionnaires (Completion rates)
	Number	Percent	Number	Percent	
Region					
Ryanggang	69	3.1	69	3.2	100.0
North Hamgyong	232	10.6	232	10.6	100.0
South Hamgyong	290	13.2	290	13.3	100.0
Kangwon	126	5.8	126	5.8	100.0
Jagang	119	5.4	119	5.5	100.0
North Phyongan	277	12.7	277	12.7	100.0
South Phyongan	384	17.5	384	17.6	100.0
North Hwanghae	204	9.3	203	9.3	99.6
South Hwanghae	193	8.8	193	8.8	100.0
Pyongyang	295	13.5	292	13.4	99.0
Area					
Urban	1 278	58.4	1 274	58.3	99.7
Rural	912	41.6	912	41.7	100.0
Household size					
1-3	295	13.5	294	13.4	99.5
4-6	1 753	80.1	1 751	80.1	99.9
7+	142	6.5	142	6.5	100.0
Education of household head					
Secondary/Vocationary	1 675	76.5	1 672	76.5	99.8
Higher	515	23.5	514	23.5	99.9
Total	2 190	100.0	2 186	100.0	99.8

Table DQ.6: Completeness of reporting

Percentage of observations that are missing information for selected questions and indicators, DPR Korea, 2009

Questionnaire and type of missing information	Reference group	Percent with missing/incomplete information*	Number of cases
Household			
Age	All household members	0	29 762
Salt test result	All households interviewed that have salt	0	7 496
Women			
Woman's date of birth	All women age 15-49		
Only month		0	8 249
Both month and year		0	8 249
Under-5			
Date of birth	All under-5 children		
Only month		0	2 172
Both month and year		0	2 172
Anthropometric measurements	All under-5 children		
Weight		0	2 172
Height		0	2 172
Both weight and height		0	2 172

Table DQ.7: Completeness of information for anthropometric indicators

Distribution of children under 5 by completeness of information for anthropometric indicators, DPR Korea, 2009

		Reason for exclusion from analysis						
	Valid weight and date of birth	Weight not measured	Incomplete date of birth	Weight not measured, incomplete date of birth	Flagged cases (outliers)	Total	Percent of children excluded from analysis	Number of children under 5
Weight by age								
<6 months	100	0	0	0	0	100.0	0	158
6-11 months	100	0	0	0	0	100.0	0	234
12-23 months	100	0	0	0	0	100.0	0	454
24-35 months	100	0	0	0	0	100.0	0	436
36-47 months	100	0	0	0	0	100.0	0	461
48-59 months	100	0	0	0	0	100.0	0	429
Total	100	0	0	0	0	100.0	0	2 172

		Reason for exclusion from analysis						
	Valid height and date of birth	Height not measured	Incomplete date of birth	Height not measured, incomplete date of birth	Flagged cases (outliers)	Total	Percent of children excluded from analysis	Number of children under 5
Height by age								
<6 months	100	0	0	0	0	100.0	0	158
6-11 months	100	0	0	0	0	100.0	0	234
12-23 months	100	0	0	0	0	100.0	0	454
24-35 months	100	0	0	0	0	100.0	0	436
36-47 months	100	0	0	0	0	100.0	0	461
48-59 months	100	0	0	0	0	100.0	0	429
Total	100	0	0	0	0	100.0	0	2 172

		Reason for exclusion from analysis						
	Valid weight and height	Weight not measured	Height not measured	Weight not measured, incomplete date of birth	Flagged cases (outliers)	Total	Percent of children excluded from analysis	Number of children under 5
Weight by height								
<6 months	100	0	0	0	0	100.0	0	158
6-11 months	100	0	0	0	0	100.0	0	234
12-23 months	100	0	0	0	0	100.0	0	454
24-35 months	100	0	0	0	0	100.0	0	436
36-47 months	100	0	0	0	0	100.0	0	461
48-59 months	100	0	0	0	0	100.0	0	429
Total	100	0	0	0	0	100.0	0	2 172

Table DQ.8: Heaping in anthropometric measurements

Distribution of weight and height or length measurements by digits reported for decimals, DPR Korea, 2009

	Weight		Height or length	
Digits	Number	Percent	Number	Percent
0	221	10.2	324	14.9
1	167	7.7	145	6.7
2	190	8.7	183	8.4
3	218	10.0	221	10.2
4	210	9.7	220	10.1
5	241	11.1	302	13.9
6	188	8.7	210	9.7
7	229	10.5	201	9.3
8	268	12.3	217	10.0
9	240	11.0	149	6.9
0 or 5	462	21.3	626	28.8
Total	2 172	100.0	2 172	100.0

Table DQ.9: Observation of places for handwashing

Percentage of places for handwashing observed by the interviewer in all interviewed households, DPR Korea, 2009

	Place for handwashing				
		Not observed			
	Observed	Not in the dwelling, plot or yard	No permission to see	Total	Number of households interviewed
Region					
Ryanggang	100.0	0.0	0.0	100.0	748
North Hamgyong	100.0	0.0	0.0	100.0	749
South Hamgyong	100.0	0.0	0.0	100.0	750
Kangwon	100.0	0.0	0.0	100.0	750
Jagang	100.0	0.0	0.0	100.0	750
North Phyongan	100.0	0.0	0.0	100.0	750
South Phyongan	100.0	0.0	0.0	100.0	750
North Hwanghae	100.0	0.0	0.0	100.0	749
South Hwanghae	100.0	0.0	0.0	100.0	750
Pyongyang	100.0	0.0	0.0	100.0	750
Area					
Urban	100.0	0.0	0.0	100.0	4 448
Rural	100.0	0.0	0.0	100.0	3 048
Total	100.0	0.0	0.0	100.0	7 496

Table DQ.10: Observation of under-5s' birth certificates

Percent distribution of children under 5 by presence of birth certificates, and percentage of birth calendar seen, DPR Korea, 2009

	Child has birth certificate				
	Child does not have birth certificate	Seen by the interviewer (1)	Total	Percent of birth certificates seen by the interviewer (1)/(1+2)*100	Number of children under age 5
Region					
Ryanggang	0.5	99.5	100.0	100.0	220
North Hamgyong	0.5	99.5	100.0	100.0	222
South Hamgyong	1.8	98.2	100.0	100.0	221
Kangwon	2.9	97.1	100.0	100.0	206
Jagang	0.9	99.1	100.0	100.0	216
North Phyongan	0.4	99.6	100.0	100.0	232
South Phyongan	1.4	98.6	100.0	100.0	219
North Hwanghae	1.8	98.2	100.0	100.0	227
South Hwanghae	1.0	99.0	100.0	100.0	197
Pyongyang	0.9	99.1	100.0	100.0	212
Area					
Urban	1.4	98.6	100.0	100.0	1 246
Rural	1.0	99.0	100.0	100.0	926
Child's age					
0	6.6	93.4	100.0	100.0	392
1	0.0	100.0	100.0	100.0	454
2	0.0	100.0	100.0	100.0	436
3	0.0	100.0	100.0	100.0	461
4	0.0	100.0	100.0	100.0	429
Total	1.2	98.8	100.0	100.0	2 172

Table DQ.11: Presence of mother in the household and the person interviewed for the under-5 questionnaire

Distribution of children under five by whether the mother lives in the same household, and the person interviewed for the under-5 questionnaire, DPR Korea, 2009

	Mother in the household					
	Mother interviewed	Father interviewed	Other adult female interviewed	Other adult male interviewed	Total	Number of children under 5
Age						
0	99.4	0.1	0.5	0.0	100.0	404
1	100.0	0.0	0.0	0.0	100.0	452
2	99.1	0.7	0.2	0.0	100.0	436
3	99.4	0.1	0.5	0.0	100.0	465
4	99.5	0.0	0.5	0.0	100.0	431
Total	99.5	0.2	0.3	0.0	100.0	2 190

Table DQ.12: School attendance by single age

Distribution of household population age 5-24 by educational level and educational level and grade attended in the current (or most recent) school year, DPR Korea, 2009

		Currently attending												
			Primary school Grade				Secondary school Grade							
	Not attending school	Preschool	1	2	3	4	1	2	3	4	5	6	Higher than secondary	Total	Number of household members
Age at beginning of school year															
5	37.1	62.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	100.0	455
6	11.6	77.1	11.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	100.0	438
7	0.3	3.2	94.1	2.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	100.0	451
8	0.0	.0	15.9	80.7	3.4	.0	.0	.0	.0	.0	.0	.0	.0	100.0	465
9	0.0	.0	.8	17.6	79.3	2.3	.0	.0	.0	.0	.0	.0	.0	100.0	507
10	0.0	.0	.0	.1	7.7	89.8	2.4	.0	.0	.0	.0	.0	.0	100.0	457
11	0.0	.0	.0	.1	.0	10.9	85.4	3.6	.0	.0	.0	.0	.0	100.0	502
12	0.5	.0	.0	.0	.0	.0	21.3	76.2	2.0	.0	.0	.0	.0	100.0	461
13	0.0	.0	.0	.0	.0	.0	1.2	17.7	78.9	2.2	.0	.0	.0	100.0	487
14	0.3	.0	.0	.0	.0	.0	.0	.0	19.4	77.5	2.8	.0	.0	100.0	539
15	0.9	.0	.0	.0	.0	.0	.0	.0	.3	21.4	76.1	1.2	.0	100.0	481
16	3.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	20.8	76.2	.0	100.0	517
17	55.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	30.6	12.9	100.0	440
18	78.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	4.6	16.6	100.0	441
19	81.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	18.4	100.0	386
20	87.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	12.8	100.0	457
21	89.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	10.9	100.0	346
22	91.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	8.4	100.0	340
23	94.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	5.2	100.0	368
24	93.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	6.7	100.0	349

Appendix E. MICS4 Indicators: Numerators and denominators

MICS4 indicator		Module[12]	Numerator	Denominator	MDG[13]
2. Nutrition					
2.1a 2.1b	Underweight prevalence	AN	Number of children under age 5 who: (a) fall below minus two standard deviations (moderate and severe) (b) fall below minus three standard deviations (severe) from the median weight for age of the WHO standard	Total number of children under age 5	MDG 1.8
2.2a 2.2b	Stunting prevalence	AN	Number of children under age 5 who: (a) fall below minus two standard deviations (moderate and severe) (b) fall below minus three standard deviations (severe) from the median height for age of the WHO standard	Total number of children under age 5	
2.3a 2.3b	Wasting prevalence	AN	Number of children under age 5 who: (a) fall below minus two standard deviations (moderate and severe) (b) fall below minus three standard deviations (severe) from the median weight for height of the WHO standard	Total number of children under age 5	
2.4	Children ever breastfed	MN	Number of women with a live birth in the 2 years preceding the survey who breastfed the child at any time	Total number of women with a live birth in the 2 years preceding the survey	
2.5	Early initiation of breastfeeding	MN	Number of women with a live birth in the 2 years preceding the survey who put the newborn infant to the breast within 1 hour of birth	Total number of women with a live birth in the 2 years preceding the survey	
2.6	Exclusive breastfeeding under 6 months	BF	Number of infants under 6 months of age who are exclusively breastfed[14]	Total number of infants under 6 months of age	
2.7	Continued breastfeeding at 1 year	BF	Number of children age 12-15 months who are currently breastfeeding	Total number of children age 12-15 months	
2.8	Continued breastfeeding at 2 years	BF	Number of children age 20-23 months who are currently breastfeeding	Total number of children age 20-23 months	
2.9	Predominant breastfeeding under 6 months	BF	Number of infants under 6 months of age who received breast milk as the predominant source of nourishment[15] during the previous day	Total number of infants under 6 months of age	
2.10	Duration of breastfeeding	BF	The age in months when 50 per cent of children age 0-35 months did not receive breast milk during the previous day		
2.11	Bottle feeding	BF	Number of children age 0-23 months who were fed with a bottle during the previous day	Total number of children age 0-23 months	

[12] Some indicators are constructed by using questions in several modules. In such cases, only the module which contains most of the necessary information is indicated.

[13] MDG indicators as of February 2010

[14] Infants receiving breast milk, and not receiving any other fluids or foods, with the exception of oral rehydration solution, vitamins, mineral supplements and medicines

[15] Infants who receive breast milk and certain fluids (water and water-based drinks, fruit juice, ritual fluids, oral rehydration solution, drops, vitamins, minerals, and medicines), but DO NOT receive anything else (in particular, non-human milk and food-based fluids)

MICS4 indicator		Module[12]	Numerator	Denominator	MDG[13]
2.12	Introduction of solid, semi-solid or soft foods	BF	Number of infants age 6-8 months who received solid, semi-solid or soft foods during the previous day	Total number of infants age 6-8 months	
2.13	Minimum meal frequency	BF	Number of children age 6-23 months receiving solid, semi-solid and soft foods (plus milk feeds for non-breastfed children) the minimum times[16] or more, according to the breastfeeding status, during the previous day	Total number of children age 6-23 months	
2.14	Age-appropriate breastfeeding	BF	Number of children age 0-23 months appropriately fed[17] during the previous day	Total number of children age 0-23 months	
2.15	Milk feeding frequency for non-breastfed children	BF	Number of non-breastfed children age 6-23 months who received at least 2 milk feedings during the previous day	Total number of non-breastfed children age 6-23 months	
2.16	Iodized salt consumption	SI	Number of households with salt testing 15 parts per million or more of iodate	Total number of households in which salt was tested or with no salt	
2.17	Vitamin A supplementation (children under age 5)	IM	Number of children age 6-59 months who received at least one high-dose vitamin A supplement in the 6 months preceding the survey	Total number of children age 6-59 months	
2.18	Low-birthweight infants	MN	Number of last live births in the 2 years preceding the survey weighing below 2,500 grams at birth	Total number of last live births in the 2 years preceding the survey	
2.19	Infants weighed at birth	MN	Number of last live births in the 2 years preceding the survey who were weighed at birth	Total number of last live births in the 2 years preceding the survey	
3. Child health					
3.8	Oral rehydration therapy with continued feeding	CA	Number of children under age 5 with diarrhoea in the previous 2 weeks who received ORT (ORS packet or recommended homemade fluid or increased fluids) and continued feeding during the episode of diarrhoea	Total number of children under age 5 with diarrhoea in the previous 2 weeks	
3.9	Care-seeking for suspected pneumonia	CA	Number of children under age 5 with suspected pneumonia in the previous 2 weeks who were taken to an appropriate health provider	Total number of children under age 5 with suspected pneumonia in the previous 2 weeks	
3.10	Antibiotic treatment of suspected pneumonia	CA	Number of children under age 5 with suspected pneumonia in the previous 2 weeks who received antibiotics	Total number of children under age 5 with suspected pneumonia in the previous 2 weeks	
3.21	Place for handwashing	HW	Number of households with a designated place for hand washing where water and soap are present	Total number of households	
3.22	Availability of soap	HW	Number of households with soap anywhere in the dwelling	Total number of households	
4. Environment					
4.1	Use of improved drinking water sources	WS	Number of household members using improved sources of drinking water	Total number of household members	MDG 7.8

[16] Breastfeeding children: Solid, semi-solid, or soft foods, two times for infants age 6-8 months, 3 times for children 9-23 months; Non-breastfeeding children: Solid, semi-solid, or soft foods, or milk feeds, four times for children age 6-23 months

[17] Infants age 0-5 who are exclusively breastfed, and children age 6-23 months who are breastfed and ate solid, semi-solid or soft foods

MICS4 indicator		Module[12]	Numerator	Denominator	MDG[13]
4.3	Use of improved sanitation facilities	WS	Number of household members using improved sanitation facilities	Total number of household members	MDG 7.9
4.4	Safedisposal of child's faeces	CA	Number of children age 0-2 years whose (last) stools were disposed of safely	Total number of children age 0-2 years	
5. Reproductive health					
5.5a 5.5b	Antenatal care coverage	MN	Number of women aged 15-49 years who were attended during pregnancy in the 2 years preceding the survey (a) at least once by skilled personnel (b) at least four times by any provider	Total number of women aged 15-49 years with a live birth in the 2 years preceding the survey	MDG 5.5
5.6	Content of antenatal care	MN	Number of women aged 15-49 years with a live birth in the 2 years preceding the survey who had their blood pressure measured and gave urine and blood samples during the last pregnancy	Total number of women aged 15-49 years with a live birth in the 2 years preceding the survey	
5.7	Skilled attendant at delivery	MN	Number of women aged 15-49 years with a live birth in the 2 years preceding the survey who were attended during childbirth by skilled health personnel	Total number of women aged 15-49 years with a live birth in the 2 years preceding the survey	MDG MDG 5.2
5.8	Institutional deliveries	MN	Number of women aged 15-49 years with a live birth in the 2 years preceding the survey who delivered in a health facility	Total number of women aged 15-49 years with a live birth in the 2 years preceding the survey	
5.9	Caesarean section	MN	Number of last live births in the 2 years preceding the survey who were delivered by caesarean section	Total number of last live births in the 2 years preceding the survey	
6. Child development					
6.1	Support for learning	EC	Number of children under age 36-59 months with whom an adult has engaged in four or more activities to promote learning and school readiness in the past 3 days	Total number of children under age 36-59 months	
6.2	Father's support for learning	EC	Number of children under age 36-59 months whose father has engaged in one or more activities to promote learning and school readiness in the past 3 days	Total number of children under age 36-59 months	
6.3	Support for learning: children's books	EC	Number of children under age 5 who have three or more children's books	Total number of children under age 5	
6.4	Support for learning: playthings	EC	Number of children under age 5 with two or more playthings	Total number of children under age 5	
6.5	Inadequate care	EC	Number of children under age 5 left alone or in the care of another child younger than 10 years of age for more than one hour at least once in the past week	Total number of children under age 5	
6.6	Early child development index	EC	Number of children age 36-59 months who are developmentally on track in literacy-numeracy, physical, social-emotional, and learning domains	Total number of children age 36-59 months	
6.7	Pre-school attendance	EC	Number of children age 36-59 months who are attending pre-school	Total number of children age 36-59 months	
7. Education					
7.2	School readiness	ED	Number of children in first grade of primary school who attended pre-school during the previous school year	Total number of children attending the first grade of primary school	

MICS4 indicator		Module[12]	Numerator	Denominator	MDG[13]
7.3	Net intake rate in primary education	ED	Number of children of school-entry age who enter first grade of primary school	Total number of children of school-entry age	
7.4	Primary school net attendance ratio (adjusted)	ED	Number of children of primary school age currently attending primary or secondary school	Total number of children of primary school age	MDG 2.1
7.5	Secondary school net attendance ratio (adjusted)	ED	Number of children of secondary school age currently attending secondary school or higher	Total number of children of secondary-school age	
7.6	Children reaching last grade of primary	ED	Proportion of children entering the first grade of primary school who eventually reach last grade		MDG 2.2
7.7	Primary completion rate	ED	Number of children (of any age) attending the last grade of primary school (excluding repeaters)	Total number of children of primary school completion age (age appropriate to final grade of primary school)	
7.8	Transition rate to secondary school	ED	Number of children attending the last grade of primary school during ther previous school year who are in the first grade of secondary school during the current school year	Total number of children who are attending the first grade of secondary school	
7.9	Gender parity index (primary school)	ED	Primary school net attendance ratio (adjusted) for girls	Primary school net attendance ratio (adjusted) for boys	MDG 3.1
7.10	Gender parity index (secondary school)	ED	Secondary school net attendance ratio (adjusted) for girls	Secondary school net attendance ratio (adjusted) for boys	MDG 3.1
8. Child protection					
8.1	Birth registration	BR	Number of children under age 5 whose births are reported registered	Total number of children under age 5	
9. HIV/AIDS, sexual behaviour and orphans					
9.1	Comprehensive knowledge about HIV prevention	HA	Number of women aged 15-49 years who correctly identify two ways of preventing HIV infection[18], know that a healthy looking person can have HIV, and reject the two most common mis-conceptions about HIV transmission	Total number of women aged 15-49 years	
9.2	Comprehensive knowledge about HIV prevention among young people	HA	Number of women age 15-24 years who correctly identify two ways of preventing HIV infection[18], know that a healthy looking person can have HIV, and reject the two most common misconceptions about HIV transmission	Total number of women age 15-24 years	MDG 6.3
9.3	Knowledge of mother-to-child transmission of HIV	HA	Number of women aged 15-49 years who correctly identify all three means[16] of mother-to-child transmission of HIV	Total number of women aged 15-49 years	
9.4	Accepting attitudes towards people living with HIV	HA	Number of women aged 15-49 years expressing accepting attitudes on all four questions toward people living with HIV	Total number of women aged 15-49 years who have heard of HIV	
9.17	Children's living arrangements	HL	Number of children aged 0-17 years not living with a biological parent	Total number of children aged 0-17 years	
9.18	Prevalence of children with at least one parent dead	HL	Number of children aged 0-17 years with at least one dead parent	Total number of children aged 0-17 years	

[18] Using condoms and limiting sex to one faithful, uninfected partner

Appendix F. Questionnaires

2009 MICS SURVEY IN DPR KOREA

MICS

HOUSEHOLD QUESTIONNAIRE

HOUSEHOLD INFORMATION PANEL	HH
HH1. Cluster number: ___ ___ ___	HH2. Household number: ___ ___
HH3. Interviewer name and number: Name_____ ___ ___	HH4. Supervisor name and number: Name_____ ___ ___
HH5. Year / Month / Day of interview: ___ ___ ___ ___ / ___ ___ / ___ ___	
HH6. Area: Urban .....1 Rural 2	HH7.Region: Province: Ryanggang ……01 North Phyongan…. 06 North Hamgyong…..02 South Phyongan …07 South Hamgyong….03 North Hwanghae…..08 Gangwon……...04 South Hwanghae …09 Jagang……..….05 Pyongyang……10

WE ARE FROM CENTRAL BUREAU OF STATISTICS. I WOULD LIKE TO TALK TO YOU ABOUT THE SUBJECTS CONCERNED WITH FAMILY HEALTH AND EDUCATION. ALL THE INFORMATION WE OBTAIN WILL REMAIN STRICTLY CONFIDENTIAL. INTERVIEW WILL TAKE ABOUT 1 HOUR.

MAY I START NOW?

- ☐ *If permission is given, begin the interview.*
- ☐ *If permission is not given, complete HH9. Discuss this result with your supervisor.*

After all questionnaires for the household have been completed, fill in the following information:	
HH8. Name of head of household: _____	
HH9.Result of household interview: Completed ..... 1 Not at home..... 2 Refused ..... 3 Household not found / destroyed ..... 4 Other (*specify*) _____ 6	HH10. Respondent to household questionnaire: Name:_____ Line Number: ___ ___ HH11. Total number of household members: ___ ___
HH12. Number of women aged 15-49 years: ___ ___	HH13. Number of woman's questionnaires completed: ___ ___
HH14. Number of children under age 5: ___ ___	HH15. Number of under-5 questionnaires completed: ___ ___
HH16. Field edited by (Name and number): Name_____ No. ___ ___	HH17. Data entry clerk (Name and number): Name_____ No. ___ ___

HOUSEHOLD LISTING FORM — HL

FIRST, 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 (HL2), their relationship to the household head (HL3), and their sex (HL4)

Then ask: ARE THERE ANY OTHERS WHO LIVE HERE, EVEN IF THEY ARE NOT AT HOME NOW?

If yes, complete listing for questions HL2-HL4. Then, ask questions starting with HL5 for each person at a time.

Use an additional questionnaire if all rows in the household listing form have been used.

		For Women Age 15-49	*For children under age 5:*	*For children age* **0-17** *years*

HL1. *Line number*	HL2. *Name*	HL3. WHAT IS THE RELATION-SHIP OF (*name*) TO THE HEAD OF HOUSE-HOLD? *Use the codes for Relationship to head of household on next page*	HL4. IS (*name*) MALE OR FEMALE? 1 Male 2 Female	HL5. WHAT IS (*name*)'S DATE OF BIRTH? 9998 DK		98 DK	98 DK	HL6. HOW OLD IS (*name*)? *Probe:* HOW OLD WAS (*name*) ON HIS/HER LAST BIRTHDAY? *Record in completed years. If age is 95 or above, record '95'*	HL7. *Circle line number if woman is age* **15-49**	HL9. WHO IS THE MOTHER OR PRIMARY CARETAKER OF THIS CHILD? *Record line number of mother/ caretaker*	HL11. IS (*name*)'S NATURAL MOTHER ALIVE? 1 Yes 2 No↘ HL13 8 DK↘ HL13			HL12. DOES (*name*)'S NATURAL MOTHER LIVE IN THIS HOUSEHOLD? *Record line number of mother or 00 for "No"*	HL13. IS (*name*)'S NATURAL FATHER ALIVE? 1 Yes 2 No↘ Next Line 8 DK↘ Next Line			HL14. DOES (*name*)'S NATURAL FATHER LIVE IN THIS HOUSEHOLD? *Record line number of father or 00 for "No"*
Line	Name	Relation*	M	F	Year		Month	Day	Age	15-49	Mother	Y	N	DK	Mother	Y	N	DK	Father
01		0 1	1	2	__ __ __ __		__ __	__ __	__ __	01	__ __	1	2	8	__ __	1	2	8	__ __
02		__ __	1	2	__ __ __ __		__ __	__ __	__ __	02	__ __	1	2	8	__ __	1	2	8	__ __
03		__ __	1	2	__ __ __ __		__ __	__ __	__ __	03	__ __	1	2	8	__ __	1	2	8	__ __
04		__ __	1	2	__ __ __ __		__ __	__ __	__ __	04	__ __	1	2	8	__ __	1	2	8	__ __
05		__ __	1	2	__ __ __ __		__ __	__ __	__ __	05	__ __	1	2	8	__ __	1	2	8	__ __
06		__ __	1	2	__ __ __ __		__ __	__ __	__ __	06	__ __	1	2	8	__ __	1	2	8	__ __
07		__ __	1	2	__ __ __ __		__ __	__ __	__ __	07	__ __	1	2	8	__ __	1	2	8	__ __
08		__ __	1	2	__ __ __ __		__ __	__ __	__ __	08	__ __	1	2	8	__ __	1	2	8	__ __
09		__ __	1	2	__ __ __ __		__ __	__ __	__ __	09	__ __	1	2	8	__ __	1	2	8	__ __
10		__ __	1	2	__ __ __ __		__ __	__ __	__ __	10	__ __	1	2	8	__ __	1	2	8	__ __

HL1. *Line number*	HL2. *Name*	HL3. WHAT IS THE RELATION-SHIP OF (*name*) TO THE HEAD OF HOUSE-HOLD? *Use the codes for Relationship to head of household on next page*	HL4. IS (*name*) MALE OR FEMALE? 1 Male 2 Female	HL5. WHAT IS (*name*)'S DATE OF BIRTH? 9998 DK		98 DK	98 DK	HL6. HOW OLD IS (*name*)? *Probe:* HOW OLD WAS (*name*) ON HIS/HER LAST BIRTHDAY? *Record in completed years. If age is 95 or above, record '95'*	HL7. *Circle line number if woman is age* **15-49**	HL9. WHO IS THE MOTHER OR PRIMARY CARETAKER OF THIS CHILD? *Record line number of mother/ caretaker*	HL11. IS (*name*)'S NATURAL MOTHER ALIVE? 1 Yes 2 No⇘ HL13 8 DK⇘ HL13			HL12. DOES (*name*)'S NATURAL MOTHER LIVE IN THIS HOUSEHOLD? *Record line number of mother or 00 for "No"*	HL13. IS (*name*)'S NATURAL FATHER ALIVE? 1 Yes 2 No⇘ Next Line 8 DK⇘ Next Line			HL14. DOES (*name*)'S NATURAL FATHER LIVE IN THIS HOUSEHOLD? *Record line number of father or 00 for "No"*
Line	Name	Relation*	M F	Year		Month	Day	Age	15-49	Mother	Y	N	DK	Mother	Y	N	DK	Father
11		__ __	1 2	__ __ __ __		__ __	__ __	__ __	11	__ __	1	2	8	__ __	1	2	8	__ __
12		__ __	1 2	__ __ __ __		__ __	__ __	__ __	12	__ __	1	2	8	__ __	1	2	8	__ __
13		__ __	1 2	__ __ __ __		__ __	__ __	__ __	13	__ __	1	2	8	__ __	1	2	8	__ __
14		__ __	1 2	__ __ __ __		__ __	__ __	__ __	14	__ __	1	2	8	__ __	1	2	8	__ __
15		__ __	1 2	__ __ __ __		__ __	__ __	__ __	15	__ __	1	2	8	__ __	1	2	8	__ __

Tick here if additional questionnaire used ☐

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.

Now for each woman aged 15-49 years, write her name and line number and other identifying information in the information panel of a separate Individual Women's Questionnaire.
For each child under age 5, write his/her name and line number AND the line number of his/her mother or caretaker in the information panel of a separate Under-5 Questionnaire.
You should now have a separate questionnaire for each eligible woman and each child under five in the household.

Codes for HL3: Relationship to head of household:

01 Head	06 Parent	11 Niece / Nephew
02 Wife / Husband	07 Parent-In-Law	12 Other relative
03 Son / Daughter	08 Brother / Sister	13 Adopted / Foster / Stepchild
04 Son-In-Law / Daughter-In-Law	09 Brother-In-Law / Sister-In-Law	14 Not related
05 Grandchild	10 Uncle / Aunt	98 Don't know

EDUCATION — ED

For household members age **5 and above**

For household members age **5-24** *years*

ED1. *Line number*	ED2. *Name and age* — *Copy from Household Listing Form, HL2 and HL6*		ED3. HAS (*name*) EVER ATTENDED SCHOOL OR PRE-SCHOOL? — 1 Yes; 2 NO ⇘ Next Line	ED4. WHAT IS THE HIGHEST LEVEL OF SCHOOL (*name*) ATTENDED? / WHAT IS THE HIGHEST GRADE (*name*) COMPLETED AT THIS LEVEL? — Level: 0 Preschool; 1 Primary; 2 Secondary; 3 Post secondary<3 years; 4 Post secondary≧3 years; 5 University; 6 Post Graduate; 8 DK. *If level=0, skip to ED5*		ED5. DURING THE (***2009-2010***) SCHOOL YEAR, DID (*name*) ATTEND SCHOOL OR PRESCHOOL AT ANY TIME? — 1 Yes; 2 No ⇩ ED7		ED6. DURING THIS/THAT SCHOOL YEAR, WHICH LEVEL AND GRADE IS/WAS (*name*) ATTENDING? — Level: 0 Preschool; 1 Primary; 2 Secondary; 3. Post secondary<3 years; 4. Post secondary≧3 years; 5. University; 6. Post Graduate; 8 DK. *If level=0, skip to ED7*		ED7. DURING THE PREVIOUS SCHOOL YEAR, THAT IS (***2008-2009***), DID (*name*) ATTEND SCHOOL OR PRESCHOOL AT ANY TIME? — 1 Yes; 2 No ⇘ Next Line; 8 DK ⇘ Next Line			ED8. DURING THAT PREVIOUS SCHOOL YEAR, WHICH LEVEL AND GRADE DID (*name*) ATTEND? — Level: 0.Preschool; 1. Primary; 2. Secondary; 3. Post secondary<3 years; 4. Post secondary≧3 years; 5. University; 6 Post Graduate; 8 DK. *If level=0, go to next person*	
				Level:	Grade: 98 DK. *If less than 1 grade, enter 00.*			Level:	Grade: 98 DK. *If less than 1 grade, enter 00.*							Level:	Grade: 98 DK. *If less than 1 grade, enter 00.*
Line	Name	Age	Yes No	Level	Grade	Yes	No	Level	Grade	Y	N	DK	Level	Grade
01		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __
02		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __
03		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 7 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __
04		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __
05		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __
06		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __
07		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __
08		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __
09		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __
10		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __
11		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __
12		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __
13		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __
14		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __
15		__ __	1 2⇨next line	0 1 2 3 4 5 6 8	__ __	1	2	0 1 2 3 4 5 6 8	__ __	1	2	8	0 1 2 3 4 5 6 8	__ __

WATER AND SANITATION		WS
WS1. WHAT IS THE **MAIN** SOURCE OF DRINKING 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, Borehole ..... 21 Dug well Protected well ..... 31 Unprotected well ..... 32 Water from spring Protected spring ..... 41 Unprotected spring ..... 42 Surface water (river, stream, dam, lake, pond, canal, irrigation channel) ..... 81 Bottled water ..... 91 Other (*specify*) _____ 96	11⇨WS6 12⇨WS6 13⇨WS6 WS3 96⇨WS3
WS2. WHAT IS THE **MAIN** SOURCE OF WATER USED BY YOUR HOUSEHOLD FOR OTHER PURPOSES SUCH AS COOKING AND HANDWASHING?	Piped water Piped into dwelling ..... 11 Piped into compound, yard or plot ..... 12 Piped to neighbour ..... 13 Public tap / standpipe ..... 14 Tube Well, Borehole ..... 21 Dug well Protected well ..... 31 Unprotected well ..... 32 Water from spring Protected spring ..... 41 Unprotected spring ..... 42 Surface water (river, stream, dam, lake, pond, canal, irrigation channel) ..... 81 Bottled water ..... 91 Other (*specify*) _____ 96	11⇨WS6 12⇨WS6 13⇨WS6
WS3. WHERE IS THAT WATER SOURCE LOCATED?	In own dwelling ..... 1 In own yard / plot ..... 2 Elsewhere 3	1⇨WS6 2⇨WS6
WS4. HOW LONG DOES IT TAKE TO GO THERE, GET WATER, AND COME BACK?	Number of minutes ..... __ __ __ DK 998	
WS5. WHO USUALLY GOES TO THIS SOURCE TO COLLECT THE WATER FOR YOUR HOUSEHOLD? *Probe:* IS THIS PERSON UNDER AGE 15? WHAT SEX?	Adult woman(age 15+ years) ..... 1 Adult man(age 15+ years) ..... 2 Female child (under 15) ..... 3 Male child (under 15) ..... 4 DK 8	
WS6. DO YOU TREAT YOUR WATER IN ANY WAY TO MAKE IT SAFER TO DRINK?	Yes ..... 1 No ..... 2 DK 8	2⇨WS8 8⇨WS8

WS7. WHAT DO YOU USUALLY DO TO THE WATER TO MAKE IT SAFER TO DRINK? *Probe:* ANYTHING ELSE? *Record all items mentioned.*	Boil ..... A Add bleach / 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 Other (*specify*) _____ X DK ..... Z	
WS8. 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 Pit latrine Ventilated Improved Pit latrine (VIP) ... 21 Pit latrine with slab ..... 22 Pit latrine without slab / Open pit..... 23 No facility, Bush, Field _____ 95 Other (*specify*) _____ 96	95⇨Next Module
WS9. Do you share this facility with others who are not members of your household?	Yes ..... 1 No 2	2⇨Next Module
WS10. Do you share this facility only with members of other households that you know, or is the facility open to the use of the general public?	Other households only (not public) ..... 1 Public facility..... 2	2⇨Next Module
WS11. How many households in total use this toilet facility, including your own household?	Number of households (if less than 10) 0 __ Ten or more households ..... 10 DK 98	

HANDWASHING		HW
HW1. 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	 2 ⇨HW4 3 ⇨HW4 6 ⇨HW4
HW2. *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	
HW3. *Record if soap or detergent is present at the specific place for handwashing.* *Circle all that apply.*	Bar soap ..... A Detergent (Powder / Liquid / Paste) ..... B Liquid soap ..... C Ash / Mud / Sand ..... D None ..... Y	Next module
HW4. DO YOU HAVE ANY SOAP OR DETERGENT (***or other locally used cleansing agent***) IN YOUR HOUSEHOLD FOR WASHING HANDS?	Yes ..... 1 No 2	 2⇨next module
HW5. CAN YOU PLEASE SHOW IT TO ME? *Record observation. Circle all that apply*	Bar soap ..... A Detergent (Powder / Liquid / Paste) ..... B Liquid soap ..... C Ash / Mud / Sand ..... D Not able / Does not want to show ..... Y	

Cluster No: ____ ____ ___ Household No: ____ ____

SALT IODIZATION		SI
SI1. WE WOULD LIKE TO CHECK WHETHER THE SALT USED IN YOUR HOUSEHOLD IS IODIZED. MAY I HAVE A SAMPLE OF THE SALT USED TO COOK MEALS IN YOUR HOUSEHOLD, YESTERDAY? *Once you have tested the salt, circle number that corresponds to test outcome.*	Not iodized 0 PPM .....1 More than 0 PPM & less than 15 PPM.....2 15 PPM or more .....3 No salt in the house.....6 Salt not tested 7	

HH20. *Does any eligible woman age 15-49 reside in the household?*

Check household listing, column HL7 for any eligible woman.
You should have a questionnaire with the Information Panel filled in for each eligible woman.

☐ *Yes. ⇨ Go to QUESTIONNAIRE FOR INDIVIDUAL WOMEN*
to administer the questionnaire to the first eligible woman.

☐ *No. ⇨ Continue.*

HH21. *Does any child under the age of 5 reside in the household?*

Check household listing, column HL9 for any eligible child under age 5.
You should have a questionnaire with the Information Panel filled in for each eligible child.

☐ *Yes. ⇨ Go to QUESTIONNAIRE FOR CHILDREN UNDER FIVE*
to administer the questionnaire to mother or caretaker of the first eligible child.

☐ *No. ⇨ End the interview by thanking the respondent for his/her cooperation.*
Gather together all questionnaires for this household and complete the relevant information(Question No. 9-15) on the cover page.

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QUESTIONNAIRE FOR INDIVIDUAL WOMEN

WOMAN'S INFORMATION PANEL	WM
This questionnaire is to be administered to all women age 15 through 49 (see column HL7 of Household Listing Form). Fill in one form for each eligible woman	
WM1. Cluster number: ___ ___ ___	WM2. Household number: ___ ___
WM3. Woman's name: Name_____	WM4. Woman's line number: ___ ___
WM5. Interviewer name and number: Name_____ ___ ___	WM6. Year / Month / Day of interview: ___ ___ ___ ___/ ___ ___ / ___ ___

Repeat greeting if not already read to this woman:

WE ARE FROM CENTRAL BUREAU OF STATISTICS. I WOULD LIKE TO TALK TO YOU ABOUT THE SUBLECTS CONCERNED WITH FAMILY HEALTH AND EDUCATION. ALL THE INFORMATION WE OBTAIN WILL REMAIN STRICTLY CONFIDENTIAL.

MAY I START NOW?

- ☐ *If permission is given, begin the interview.*
- ☐ *If permission is not given, complete WM7 . Discuss this result with your supervisor.*

WM7. Result of woman's interview	Completed .....1 Not at home .....2 Refused .....3 Partly completed .....4 Incapacitated .....5 Other (*specify*) _____6

WM8. Field Edited by (Name and number):	WM9. Data entry clerk (Name and number):
Name _____ No. ___ ___	Name _____ No. ___ ___

WOMAN'S BACKGROUND		WB
WB1. IN WHAT MONTH AND YEAR WERE YOU BORN?	Date of birth Month.....__ __ DK month.....98 Year .....__ __ __ __ DK year.....9998	
WB2. HOW OLD ARE YOU? *Probe:* HOW OLD WERE YOU AT YOUR LAST BIRTHDAY? *Compare and correct WB1 and/or WB2 if inconsistent*	Age (in completed years) .....__ __	

MATERNAL AND NEWBORN HEALTH		MN
MN0A. HAVE YOU EVER GIVEN BIRTH DURING YOUR LIFE TIME?	Yes.....1 No 2	2⇨NEXT MODULE
MN0B. WHEN DID YOU DELIVER THE LAST ONE (EVEN IF HE OR SHE HAS DIED)? *Month and year must be recorded.*	Date of last birth Day .....__ __ DK day.....98 Month ..... __ __ Year .....__ __ __ __	
MN0C. *Check MN0B: Last birth occurred within the last 2 years, that is, since (day and month of interview) in **2007*** ☐ *No live birth in last 2 years. ⇨ Go to ILLNESS SYMPTOMS Module.* ☐ *Yes, live birth in last 2 years. ⇨ Ask for the name of the child* *Name of child*_____ *If child has died, take special care when referring to this child by name in the following modules.* *Continue with the module.*		
MN1. DID YOU SEE ANYONE FOR ANTENATAL CARE DURING YOUR PREGNANCY WITH (*name*)?	Yes.....1 No 2	2⇨MN5
MN2. WHOM DID YOU SEE? ANYONE ELSE? *Probe for the type of person seen and circle all answers given.*	Health professional: Doctor/assistant doctor..... A Nurse / Midwife..... B Other (*specify*) _____ X	
MN3. HOW MANY TIMES DID YOU RECEIVE ANTENATAL CARE DURING THIS PREGNANCY?	Number of times .....__ __ DK.....98	

MN4. AS PART OF YOUR ANTENATAL CARE, 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 Blood pressure ..... 1 2 Urine sample ..... 1 2 Blood sample..... 1 2	
MN5A. DURING THE PREGNANCY FOR THIS CHILD, DID YOU TAKE MICRONUTRIENT TABLETS / ? *Show MICRONUTRIENT TABLETS..*	Yes .....1 No .....2 DK.....8	 2⇨MN17 8⇨MN17
MN5B. HOW MANY MONTHS DID YOU TAKE MICRONUTRIENT FOR PREGNANCY?	Number of months.....___ DK.....8	
MN17. WHO ASSISTED WITH THE DELIVERY OF (*name*)? *Probe:* ANYONE ELSE? *Probe for the type of person assisting and circle all answers given.*	Health professional: Doctor ..... A Nurse / Midwife ..... B Other person Relative /Friend ..... H Other (*specify*) _____ X No one ..... Y	
MN18. WHERE DID YOU GIVE BIRTH TO (*name*)? *If gave birth at hospital or clinic, write the name of the place.* _____ *(Name of place)* *Probe types of health facilities and circle relevant code*	Home Your home .....11 Other home.....12 Public sector Central hospital.....21 Govt. clinic .....22 Provincial hospital .....24 County/District hospital .....25 Other (*specify*) 96	 11⇨MN20 12⇨MN20 96⇨MN20
MN19. WAS (*name*) DELIVERED BY CAESEREAN SECTION?	Yes.....1 No 2	
MN20. WHEN (*name*) WAS BORN, WAS HE/SHE VERY LARGE, LARGER THAN AVERAGE, AVERAGE, SMALLER THAN AVERAGE, OR VERY SMALL?	Very large .....1 Larger than average .....2 Average .....3 Smaller than average .....4 Very small.....5 DK.....8	
MN21. WAS (*name*) WEIGHED AT BIRTH?	Yes.....1 No .....2 DK.....8	 2⇨MN24 8⇨MN24
MN22. HOW MUCH DID (*name*) WEIGH? *Record weight from health card, if available.*	From card ..... 1 (kg) __ . __ __ __ From recall..... 2 (kg) __ . __ __ __ DK.....99998	

MN24. DID YOU EVER BREASTFEED (*name*)?	Yes.....1 No 2	 2⇨MN28
MN25. 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 .....000 Hours .....1 __ __ Days.....2 __ __ Don't know / remember 998	
MN26. IN THE FIRST THREE DAYS AFTER DELIVERY, WAS (*name*) GIVEN ANYTHING TO DRINK OTHER THAN BREAST MILK?	Yes.....1 No 2	2⇨MN28
MN27. WHAT WAS (*name*) GIVEN TO DRINK? ANYTHING ELSE? *Record all liquids mentioned*	Milk (other than breast milk) ..... A Plain water..... B Sugar water ..... C Fruit juice ..... F Infant formula.....G Honey .....I Rice water..... K Other (*specify*) _____ X	
MN28. IN THE FIRST TWO MONTHS AFTER THE BIRTH OF (*name*), DID YOU RECEIVE A VITAMIN A DOSE LIKE THIS? *Show 200,000 IU capsule or dispenser.*	Yes.....1 No .....2 DK.....8	

ILLNESS SYMPTOMS	**IS**
IS1. *Check Household Listing, column HL9* *Is the respondent the mother or caretaker of any child under age 5?* ☐ *Yes. ⇨ Continue with IS2.* ☐ No. ⇨ Go to Next Module.	
IS2. SOMETIMES CHILDREN HAVE SEVERE ILLNESSES AND SHOULD BE TAKEN IMMEDIATELY TO A HEALTH FACILITY. WHAT TYPES OF SYMPTOMS WOULD CAUSE YOU TO TAKE YOUR CHILD TO A HEALTH FACILITY RIGHT AWAY? ANY OTHER SYMPTOMS? *Keep asking for more signs or symptoms until the mother/caretaker cannot recall any additional symptoms.* *Circle all symptoms mentioned, but do NOT prompt with any suggestions*	Child not able to drink or breastfeed ..... A Child becomes sicker ..... B Child develops a fever..... C Child has fast breathing..... D Child has difficult breathing ..... E Child has blood in stool ..... F Child is drinking poorly ..... G Other (*specify*) _____ X Other (*specify*) _____ Y Other (*specify*) _____Z

HIV/AIDS		HA
HA1. NOW I WOULD LIKE TO TALK WITH YOU ABOUT SOMETHING ELSE. HAVE YOU EVER HEARD OF AN ILLNESS CALLED AIDS, OR HIV, THE VIRUS THAT CAUSES AIDS?	Yes .....1 No 2	2⇨Next Module
HA2. CAN PEOPLE REDUCE THEIR CHANCE OF GETTING THE AIDS VIRUS BY HAVING JUST ONE UNINFECTED SEX PARTNER WHO HAS NO OTHER SEX PARTNERS?	Yes .....1 No .....2 DK.....8	
HA3. CAN PEOPLE GET INFECTED WITH THE AIDS VIRUS BECAUSE OF WITCHCRAFT OR OTHER SUPERNATURAL MEANS?	Yes .....1 No .....2 DK.....8	
HA4. CAN PEOPLE REDUCE THEIR CHANCE OF GETTING THE AIDS VIRUS BY USING A CONDOM EVERY TIME THEY HAVE SEX?	Yes .....1 No .....2 DK.....8	
HA5. CAN PEOPLE GET THE AIDS VIRUS FROM MOSQUITO BITES?	Yes .....1 No .....2 DK.....8	
HA6. CAN PEOPLE GET THE AIDS VIRUS BY SHARING FOOD WITH A PERSON WHO HAS AIDS?	Yes .....1 No .....2 DK.....8	
HA7. IS IT POSSIBLE FOR A HEALTHY-LOOKING PERSON TO HAVE THE AIDS VIRUS?	Yes .....1 No .....2 DK.....8	
HA8. CAN THE AIDS VIRUS BE TRANSMITTED FROM A MOTHER TO HER BABY? [A] DURING PREGNANCY? [B] DURING DELIVERY? [C] BY BREASTFEEDING?	Yes No DK During pregnancy .....1 2 8 During delivery .....1 2 8 By breastfeeding 1 2 8	
HA9. IN YOUR OPINION, IF A FEMALE TEACHER HAS THE AIDS VIRUS BUT IS NOT SICK, SHOULD SHE BE ALLOWED TO CONTINUE TEACHING IN SCHOOL?	Yes .....1 No .....2 DK / Not sure / Depends 8	
HA10. WOULD YOU BUY FRESH VEGETABLES FROM A SHOPKEEPER OR VENDOR IF YOU KNEW THAT THIS PERSON HAD THE AIDS VIRUS?	Yes .....1 No .....2 DK/ Not sure / Depends 8	
HA11. IF A MEMBER OF YOUR FAMILY BECAME INFECTED WITH THE AIDS VIRUS, WOULD YOU WANT IT TO REMAIN A SECRET?	Yes .....1 No .....2 DK/ Not sure / Depends 8	
HA12. IF A MEMBER OF YOUR FAMILY BECAME SICK WITH THE AIDS VIRUS, WOULD YOU BE WILLING TO CARE FOR HIM OR HER IN YOUR HOUSEHOLD?	Yes .....1 No .....2 DK.....8	

ANTHROPOMETRY		WA
This measurement is to be administered to all women aged 15-49 years.		
WA1. NAME AND NUMBER OF MEASURER	_____ ___ ___	
WA2. RESULTS OF MEASUREMENT	Measured .....1 Refused .....2 Other (*specify*)_____ 6	2⇨WM12 6⇨WM12
WA3. MUAC OF MOTHER	MUAC (cm) : ☐☐.☐	

WM12. IS THE RESPONDENT THE MOTHER OR CARETAKER OF ANY CHILD AGE 0-4 YEARS LIVING IN THIS HOUSEHOLD? CHECK HOUSEHOLD LISTING, COLUMN HL9.

☐ ***YES. ⇨ GO TO QUESTIONNAIRE FOR UNDER FIVE FOR THAT CHILD AND START THE INTERVIEW WITH THIS RESPONDENT.***

☐ ***NO. ⇨ END THE INTERVIEW WITH THIS HOUSEHOLD BY THANKING ALL PARTICIPANTS FOR THEIR COOPERATION. CHECK FOR THE PRESENCE OF ANY OTHER ELIGIBLE WOMEN OR CHILDREN UNDER 5 IN THE HOUSEHOLD.***

2009 MICS SURVEY IN DPR KOREA

QUESTIONNAIRE FOR CHILDREN UNDER FIVE

UNDER-FIVE CHILD INFORMATION PANEL	UF
This questionnaire is to be administered to all mothers or caretakers (see Household Listing Form, column HL9) who care for a child that lives with them and is under the age of 5 years (see Household Listing Form, column HL6). A separate questionnaire should be used for each eligible child.	
UF1. Cluster number: ___ ___ ___	UF2. Household number: ___ ___
UF3. Child's name: __	UF4. Child's line number: ___ ___
UF5. Mother's / Caretaker's name: __	UF6. Mother's / Caretaker's line number: ___ ___
UF7. Interviewer name and number: _____ ___ ___	UF8. Year/ Month / Day of interview: ___ ___ ___ ___ / ___ ___ / ___ ___

Repeat greeting if not already read to this respondent:

WE ARE FROM CENTRAL BUREAU OF STATISTICS. I WOULD LIKE TO TALK TO YOU ABOUT (*name*)'S HEALTH AND WELL-BEING. THE INTERVIEW WILL TAKE ABOUT 25 MINUTES. ALL THE INFORMATION WE OBTAIN WILL REMAIN STRICTLY CONFIDENTIAL.

MAY I START NOW?

- ☐ *Yes, permission is given* ⇨ *Begin the interview.*
- ☐ *No, permission is not given* ⇨ *Complete UF9. Discuss this result with your supervisor*

UF9. Result of interview for children under 5 *Codes refer to mother/caretaker*	Completed .....1 Not at home .....2 Refused .....3 Partly completed .....4 Incapacitated .....5 Other (*specify*) _____6
UF10. Field edited by (Name and number): Name _____No. ___ ___	UF11. Data entry clerk (Name and number): Name _____ No. ___ ___

AGE		AG
AG1. NOW I WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT THE HEALTH OF (*name*). IN WHAT MONTH AND YEAR WAS (*name*) BORN? *Probe:* WHAT IS HIS / HER BIRTHDAY? *If the mother/caretaker knows the exact birth date, also enter the day; otherwise, circle 98 for day* *Month and year must be recorded.*	Date of birth Day .....__ __ DK day.....98 Month.....__ __ Year .....__ __ __ __	
AG2. HOW OLD IS (*name*)? *Probe*: HOW OLD WAS (*name*) AT HIS / HER LAST BIRTHDAY? *Record age in completed years.* *Record '0' if less than 1 year.* *Compare and correct AG1 and/or AG2 if inconsistent.*	Age (in completed years) .....__	

BIRTH REGISTRATION		BR
BR1. DOES (*name*) HAVE A BIRTH CERTIFICATE? MAY I SEE IT?	Yes, seen.....1 Yes, not seen.....2 No .....3 DK.....8	1⇨Next Module 2⇨ Next Module
BR2. HAS (*name*)'S BIRTH BEEN REGISTERED WITH THE CIVIL AUTHORITIES?	Yes.....1 No .....2 DK.....8	1⇨Next Module
BR3. DO YOU KNOW HOW TO REGISTER YOUR CHILD'S BIRTH?	Yes.....1 No 2	2⇨Next Module
BR4. WHY IS (*name*)'S BIRTH NOT REGISTERED?	Must travel too far .....2 Did not know it should be registered .....3 Does not know where to register.....5 Other (specify) _____ 6 DK.....8	

EARLY CHILDHOOD DEVELOPMENT		EC
EC1. HOW MANY CHILDREN'S BOOKS OR PICTURE BOOKS DO YOU HAVE FOR (*name*)?	None .....00 Number of children's books ..... 0 __ Ten or more books 10	
EC2. I AM INTERESTED IN LEARNING ABOUT THE THINGS THAT (*name*) PLAYS WITH WHEN HE/SHE IS AT HOME. DOES HE/SHE PLAY WITH [A] HOMEMADE TOYS (SUCH AS DOLLS, CARS, OR OTHER TOYS MADE AT HOME)? [B] TOYS FROM A SHOP OR MANUFACTURED TOYS? [C] HOUSEHOLD OBJECTS (SUCH AS BOWLS OR POTS) OR OBJECTS FOUND OUTSIDE (SUCH AS STICKS, ROCKS, ANIMAL SHELLS OR LEAVES)? *If the respondent says "YES" to the categories above, then probe to learn specifically what the child plays with to ascertain the response*	Y N DK Homemade toys……1 2 8 Toys from a shop……. 1 2 8 Household objects or outside objects ……1 2 8	
EC3. SOMETIMES ADULTS TAKING CARE OF CHILDREN HAVE TO LEAVE THE HOUSE TO GO SHOPPING, WASH CLOTHES, OR FOR OTHER REASONS AND HAVE TO LEAVE YOUNG CHILDREN. ON HOW MANY DAYS IN THE PAST WEEK WAS (*name*): [A] LEFT ALONE FOR MORE THAN AN HOUR? [B] LEFT IN THE CARE OF ANOTHER CHILD (THAT IS, SOMEONE LESS THAN 10 YEARS OLD) FOR MORE THAN AN HOUR? *If 'none' enter' 0'. If 'don't know' enter' 8'*	Number of days left alone for more than an hour…… __ Number of days left with other child for more than an hour…… __	
EC4. *Check AG2: Age of child* ☐ *Child age 3 or 4 ⇨ Continue with EC5* ☐ *Child age 0, 1 or 2 ⇨ Go to Next Module*		
EC5. DOES (*name*) ATTEND ANY ORGANIZED LEARNING OR EARLY CHILDHOOD EDUCATION PROGRAMME, SUCH AS NURSERY OR KINDERGARTEN?	Yes……..1 No……2 DK……8	 2⇨EC7 8⇨EC7
EC6. WITHIN THE LAST SEVEN DAYS, ABOUT HOW MANY HOURS DID (*name*) ATTEND?	Number of hours……..__ __	
EC7. IN THE PAST 3 DAYS, DID YOU OR ANY HOUSEHOLD MEMBER OVER 15 YEARS OF AGE ENGAGE IN ANY OF THE FOLLOWING ACTIVITIES WITH (*name*): *If yes, ask:* WHO ENGAGED IN THIS ACTIVITY WITH (*name*)? *Circle all that apply.* [A] READ BOOKS TO OR LOOKED AT PICTURE BOOKS WITH (*name*)? [B] TOLD STORIES TO (*name*)? [C] SANG SONGS TO (*name*) OR WITH (*name*), INCLUDING LULLABYS? [D] TOOK (*name*) OUTSIDE THE HOME, COMPOUND, YARD OR ENCLOSURE? [E] PLAYED WITH (*name*)? [F] NAMED, COUNTED, OR DREW THINGS TO OR WITH (*name*)?	Mother Father Other No one Read books A B X Y Told stories A B X Y Sang songs A B X Y Took outside A B X Y Played with A B X Y Named/ counted A B X Y	

EC8. I WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT THE HEALTH AND DEVELOPMENT OF YOUR CHILD. CHILDREN DO NOT ALL DEVELOP AND LEARN AT THE SAME RATE. FOR EXAMPLE, SOME WALK EARLIER THAN OTHERS. THESE QUESTIONS ARE RELATED TO SEVERAL ASPECTS OF YOUR CHILD'S DEVELOPMENT. CAN (*name*) IDENTIFY OR NAME AT LEAST TEN LETTERS OF THE ALPHABET?	Yes.....1 No .....2 DK.....8	
EC9. CAN (*name*) READ AT LEAST FOUR SIMPLE, POPULAR WORDS?	Yes.....1 No .....2 DK.....8	
EC10. DOES (*name*) KNOW THE NAME AND RECOGNIZE THE SYMBOL OF ALL NUMBERS FROM 1 TO 10?	Yes.....1 No .....2 DK.....8	
EC11. CAN (*name*) PICK UP A SMALL OBJECT WITH TWO FINGERS, LIKE A STICK OR A ROCK FROM THE GROUND?	Yes.....1 No .....2 DK.....8	
EC12. IS (*name*) SOMETIMES TOO SICK TO PLAY?	Yes.....1 No .....2 DK.....8	
EC13. DOES (*name*) FOLLOW SIMPLE DIRECTIONS ON HOW TO DO SOMETHING CORRECTLY?	Yes.....1 No .....2 DK.....8	
EC14. WHEN GIVEN SOMETHING TO DO, IS (*name*) ABLE TO DO IT INDEPENDENTLY?	Yes.....1 No .....2 DK.....8	
EC15. DOES *(name*) GET ALONG WELL WITH OTHER CHILDREN?	Yes.....1 No .....2 DK.....8	
EC16. DOES (*name*) KICK, BITE, OR HIT OTHER CHILDREN OR ADULTS?	Yes.....1 No .....2 DK.....8	
EC17. DOES (*name*) GET DISTRACTED EASILY?	Yes.....1 No .....2 DK.....8	

VITAMIN A		VA
VA1. HAS (*name*) EVER RECEIVED A VITAMIN A CAPSULE (SUPPLEMENT) LIKE THIS ONE? Show capsule or dispenser for different doses – 100,000 IU for those 6-11 months old, 200,000 IU for those 12-59 months old.	Yes .....1 No .....2 DK.....8	 2⇨Next Module 8⇨Next Module
VA2. HOW MANY MONTHS AGO DID (*name*) TAKE THE LAST DOSE?	Months ago.....__ __ DK.....98	
VA3. WHERE DID (*name*) RECEIEVE THE LAST DOSE? WAS THIS A ROUTINE VISIT TO A HEALTH FACILITY OR A VISIT TO THE HEALTH FACILITY BECAUSE (*name*) WAS SICK?	On routine visit to health facility .....1 Sick child visit to health facility .....2 Child health Day .....3 Other (*specify*) _____6 DK.....8	

BREASTFEEDING		BF
BF1. HAS (*name*) EVER BEEN BREASTFED?	Yes .....1 No .....2 DK.....8	 2⇨BF3 8⇨BF3
BF2. IS HE/SHE STILL BEING BREASTFED?	Yes .....1 No .....2 DK.....8	
BF3. I WOULD LIKE TO ASK YOU ABOUT LIQUIDS THAT (*name*) MAY HAVE HAD YESTERDAY DURING THE DAY OR THE NIGHT. I AM INTERESTED IN WHETHER (*name*) HAD THE ITEM EVEN IF IT WAS COMBINED WITH OTHER FOODS. DID (*name*) DRINK PLAIN WATER YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	
BF4. DID (*name*) DRINK INFANT FORMULA YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	 2⇨BF6 8⇨BF6
BF5. HOW MANY TIMES DID (*name*) DRINK INFANT FORMULA?	Number of times.....__ _	
BF6. DID (*name*) DRINK MILK, SUCH AS TINNED, POWDERED OR FRESH ANIMAL MILK YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	 2⇨BF8 8⇨BF8
BF7. HOW MANY TIMES DID (*name*) DRINK TINNED, POWDERED OR FRESH ANIMAL MILK?	Number of times.....__ __	

BF8. DID (*name*) DRINK JUICE OR JUICE DRINKS YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	
BF9. DID (*name*) DRINK SOUP YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	
BF10. DID (*name*) DRINK OR EAT VITAMIN OR MINERAL SUPPLEMENTS OR ANY MEDICINES YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	
BF11. DID (*name*) DRINK ORS (ORAL REHYDRATION SOLUTION) YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	
BF12. DID (*name*) DRINK ANY OTHER LIQUIDS YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	
BF13. DID (*name*) DRINK OR EAT YOGURT YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	 2⇨BF15 8⇨BF15
BF14. HOW MANY TIMES DID (*name*) DRINK OR EAT YOGURT YESTERDAY, DURING THE DAY OR NIGHT?	Number of times .....__ __	
BF15. DID (NAME) EAT THIN PORRIDGE YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	
BF16. DID (*name*) EAT SOLID OR SEMI-SOLID (SOFT, MUSHY) FOOD YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	 2⇨BF18 8⇨BF18
BF17. HOW MANY TIMES DID (*name*) EAT SOLID OR SEMI-SOLID (SOFT, MUSHY) FOOD YESTERDAY, DURING THE DAY OR NIGHT?	Number of times .....__ __	
BF18. YESTERDAY, DURING THE DAY OR NIGHT, DID (*name*) DRINK ANYTHING FROM A BOTTLE WITH A NIPPLE?	Yes .....1 No .....2 DK.....8	

CARE OF ILLNESS		CA
CA1. IN THE LAST TWO WEEKS, HAS (*name*) HAD DIARRHOEA?	Yes ..... 1 No ..... 2 DK 8	 2⇨CA7 8⇨CA7
CA2. I WOULD LIKE TO KNOW HOW MUCH (*name*) WAS GIVEN TO DRINK DURING THE DIARRHOEA (INCLUDING BREASTMILK). DURING THE TIME (*name*) HAD DIARRHEA, DID HE/SHE DRINK LESS THAN USUAL, ABOUT THE SAME AMOUNT, OR MORE THAN USUAL? *If less, probe*: DID HE/SHE DRINK MUCH LESS THAN USUAL, OR SOMEWHAT LESS?	Much less ..... 1 Somewhat less ..... 2 About the same ..... 3 More ..... 4 Nothing to drink ..... 5 DK 8	
CA3. DURING THE TIME (*name*) HAD DIARRHEA, DID HE/SHE EAT LESS THAN USUAL, ABOUT THE SAME AMOUNT, MORE THAN USUAL, OR NOTHING TO EAT? *If "less", probe*: MUCH LESS OR SOMEWHAT LESS?	Much less ..... 1 Somewhat less ..... 2 About the same ..... 3 More ..... 4 Stopped food ..... 5 Never gave food ..... 6 DK 8	
CA4. DURING THE EPISODE OF DIARRHOEA, DID (*name*) 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 CALLED (*local name for ORS packet solution*)? [C] HOMEMADE FLUIDS?	Y N DK Fluid from ORS packet ..... 1 2 8 Breast milk ..... 1 2 8 Soups ..... 1 2 8 rice water ..... 1 2 8 Fresh fruit juices ..... 1 2 8 Weak tea ..... 1 2 8 Clean water 1 2 8	
CA5. WAS ANYTHING (ELSE) GIVEN TO TREAT THE DIARRHEA?	Yes ..... 1 No ..... 2 DK 8	 2⇨CA7 8⇨CA7
CA6. WHAT (ELSE) WAS GIVEN TO TREAT THE DIARRHEA? *Probe*: ANYTHING ELSE? *Record all treatments given. Write brand name(s) of all medicines mentioned.*	Pill or Syrup Antibiotic ..... A Antimotility ..... B Zinc ..... C Other ..... G Unknown pill or syrup ..... H Injection Antibiotic ..... L Non-antibiotic ..... M Unknown injection ..... N Intravenous ..... O Home remedy / Herbal medicine ..... Q Other (*specify*) _____ X	

CA7. AT ANY TIME IN THE LAST TWO WEEKS, HAS (*name*) HAD AN ILLNESS WITH A COUGH?	Yes .....1 No .....2 DK.....8	 2⇨CA14 8⇨CA14
CA8. 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 DK.....8	 2⇨CA14 8⇨CA14
CA9. WERE THESE DUE TO A PROBLEM IN THE CHEST OR A BLOCKED OR RUNNY NOSE?	Problem in chest.....1 Blocked or runny nose.....2 Both .....3 Other (*specify*) _____6 DK.....8	 2⇨CA14 6⇨CA14
CA10. DID YOU SEEK ADVICE OR TREATMENT FOR THE ILLNESS OUTSIDE THE HOME?	Yes .....1 No .....2 DK.....8	 2⇨CA12 8⇨CA12
CA11. FROM WHERE DID YOU SEEK ADVICE OR TREATMENT? ANYWHERE ELSE? *Circle all providers mentioned, 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.*	Central hospital ..... A Province hospital ..... N City(district)/county hospital ..... S Clinic.....T Other public (*specify*)_____X	
CA12. WAS (*name*) GIVEN ANY MEDICINE TO TREAT THIS ILLNESS?	Yes .....1 No .....2 DK.....8	 2⇨CA14 8⇨CA14
CA13. WHAT MEDICINE WAS (*name*) GIVEN? ANY OTHER MEDICINE? *Circle all medicines given. Write brand name(s) of all medicines mentioned.*	Antibiotic Pill / Syrup ..... A Injection ..... B Paracetamol / Panadol / Acetaminophen... P Aspirin ..... Q Ibuprofen ..... R Other (*specify*) _____X DK.....Z	
CA14. Check AG2: Child aged under 3? ☐ Yes. ⇨ Continue with CA15 ☐ NO. ⇨ GO TO NEXT MODULE		
CA15. THE LAST TIME *(name)* PASSED STOOLS, WHAT WAS DONE TO DISPOSE OF THE STOOLS?	Child used toilet / latrine.....01 Put / Rinsed into toilet or latrine .....02 Put / Rinsed into drain or ditch .....03 Thrown into garbage (solid waste).....04 Buried .....05 Left in the open.....06 Other (*specify*) _____96 DK.....98	

UF14. *Is the respondent the mother or caretaker of another child age 0-4 living in this household?*

☐ *Yes.* ⇨ *Indicate to the respondent that you will need to measure the weight and height of the child later. Go to the next QUESTIONNAIRE FOR CHILDREN UNDER FIVE to be administered to the same respondent*

☐ *No.* ⇨ *End the interview with this respondent by thanking him/her for his/her cooperation and tell her/him that you will need to measure the weight and height of the child..*

Check to see if there are other woman's or under-5 questionnaires to be administered in this household.

Move to another woman's or under-5 questionnaire, or start making arrangements for anthropometric measurements of all eligible children in the household.

ANTHROPOMETRY AN

After questionnaires for all children are complete, the measurer weighs and measures each child. Record weight and length/height below, taking care to record the measurements on the correct questionnaire for each child. Check the child's name and line number on the household listing before recording measurements.

AN1. Measurer's name and number:	Name_____ No. ___ ___	
AN2. Result of measurement	Measured .....1 Child not present .....2 Child or caretaker refused.....3 Other (*specify*) _____6	 2⇨AN6 3⇨AN6 6⇨AN6
AN3. Child's weight	Kilograms (kg) .....__ __ . __ Weight not measured 99.9	
AN4. Child's length or height Check age of child in AG2: ☐ Child under 2 years old. ⇨ Measure length (lying down). ☐ Child age 2 or more years. ⇨ Measure height (standing up).	Length (cm) Lying down .....1 __ __ __ . __ Height (cm) Standing up .....2 __ __ __ . __ Length / height not measured 9999.9	

AN6. Is there another child in the household who is eligible for measurement?

☐ Yes. ⇨ Record measurements for next child.

☐ No. ⇨ End the interview with this household by thanking all participants for their cooperation.

Gather together all questionnaires for this household and check that all identification numbers are inserted on each page.

Democratic People's Republic of Korea

Multiple Indicator Cluster Survey

2009