

REPUBLIC OF MACEDONIA

**Multiple Indicator
Cluster Survey
2005-2006**

STATE STATISTICAL OFFICE
September 2007

Contributors to the report:
Suzana Stojanovska
Vesna Dimitrovska
Rut Feuk

The Multiple Indicator Cluster Survey (MICS) in the Republic of Macedonia was carried by the State Statistical Office in cooperation and with technical and financial support from the United Nations Children's Fund (UNICEF).

The survey has been conducted as part of the third round of MICS surveys (MICS3), carried out around the world in more than 50 countries, in 2005-2006, following the first two rounds of MICS surveys that were conducted in 1995 and the year 2000. Survey tools are based on the models and standards developed by the global MICS project, designed to collect information on the situation of children and women in countries around the world. Additional information on the global MICS project may be obtained from www.childinfo.org.

Financial support was also provided by the British Embassy in Skopje and the United Nations Development Programme (UNDP).

Republic of Macedonia - Multiple Indicator Cluster Survey 2005-2006.

Final Report, Skopje, State Statistical Office of the Republic of Macedonia.

CIP - Каталогизација во публикација
Национална и универзитетска библиотека „Св. Климент Охридски“,
Скопје

364-784/-785-053.2(497.7)"2005/06"
364-784/-785-053.2(497.7)"2005/06"
614.1-055.26(497.7)"2005/06"
614.1-053.2(497.7)"2005/06"

MULTIPLE indicator cluster survey : 2005-2006 : final report
/ contributors to the report Suzana Stojanovska, Vesna Dimitrovska,
Rut Feuk. - Skopje : State statistical office, 2007. - 174 str.
: tabeli ; 29 sm

ISBN 978-9989-167-91-1

а) Деца - Здравствена состојба - Македонија - 2005-2006 -
Истражувања б) Жени - Здравствена состојба - Македонија -
2005-2006 - Истражувања
COBISS.MK-ID 70467594

Summary Table of Findings

Multiple Indicator Cluster Surveys (MICS)
and Millennium Development Goals (MDG) Indicators,
Republic of Macedonia, 2005-2006

Topic	MICS Indicator Number	MDG Indicator Number	Indicator	Value
CHILD MORTALITY				
Child mortality	1	13	Under-five mortality rate	17 per 1000
	2	14	Infant mortality rate	16 per 1000
NUTRITION				
Nutritional status	6	4	Underweight prevalence	2 percent
	7		Stunting prevalence	9 percent
	8		Wasting prevalence	2 percent
Breastfeeding	45		Timely initiation of breastfeeding	27 percent
	15		Exclusive breastfeeding rate	16 percent
	16		Continued breastfeeding rate at 12-15 months	45 percent
				at 20-23 months
	17		Timely complementary feeding rate	18 percent
	18		Frequency of complementary feeding	17 percent
	19		Adequately fed infants	16 percent
	9		Proportion of low-birth-weight infants	6 percent
10		Proportion of infants weighed at birth	93 percent	
CHILD HEALTH				
Immunization	25		Tuberculosis immunization coverage	97 percent
	26		Polio immunization coverage	81 percent
	27		DPT immunization coverage	82 percent
	28	15	Measles/Mumps/Rubella immunization coverage	80 percent
	31		Fully immunized children	60 percent
	34		Home management of diarrhoea	6 percent
	35		Received ORT or increased fluids, and continued feeding	45 percent
	23		Care seeking for suspected pneumonia	93 percent
22		Antibiotic treatment of suspected pneumonia	74 percent	
Solid fuel use	24	29	Solid fuels	36 percent
ENVIRONMENT				
Water and Sanitation	11	30	Use of improved drinking water sources	99 percent
	13		Water treatment	11 percent
	12	31	Use of improved sanitation facilities	93 percent
	14		Disposal of child's faeces	50 percent
REPRODUCTIVE HEALTH				
Contraception and unmet need	21	19c	Contraceptive prevalence	14 percent
	98		Unmet need for family planning	34 percent
	99		Demand satisfied for family planning	29 percent
Maternal and newborn health	20		Antenatal care	98 percent
	44		Content of antenatal care	99 percent
	4	17	Skilled attendant at delivery	98 percent
	5		Institutional deliveries	98 percent
CHILD DEVELOPMENT				
Child development	46		Support for learning	85 percent
	47		Father's support for learning	61 percent
	48		Support for learning: children's books	49 percent
	49		Support for learning: non-children's books	51 percent
	50		Support for learning: materials for play	1 percent
	51		Non-adult care	9 percent
EDUCATION				

Topic	MICS Indicator Number	MDG Indicator Number	Indicator	Value
Education	52		Pre-school attendance (age 3-4 years)	11 percent
	53		School readiness	76 percent
	54		Net intake rate in primary education	95 percent
	55	6	Net primary school attendance rate	95 percent
	56		Net secondary school attendance rate	63 percent
	58		Transition rate to secondary school	95 percent
	59	7b	Primary completion rate	83 percent
	61	9	Gender parity index primary school secondary school	0.96 ratio 1.15 ratio
Literacy	60	8	Adult literacy rate	97 percent
CHILD PROTECTION				
Birth registration	62		Birth registration	94 percent
Child labour	71		Child labour	6 percent
	72		Labourer students	94 percent
	73		Student labourers	6 percent
Child discipline	74		Child discipline Any psychological/physical punishment	69 percent
Early marriage	67		Marriage before age 15	1 percent
			Marriage before age 18	12 percent
	68		Young women aged 15-19 currently married/in union	2 percent
	69		Spousal age difference	10 percent
Domestic violence	100		Attitudes towards domestic violence	21 percent
Disability	101		Child disability	10 percent
HIV/AIDS, SEXUAL BEHAVIOUR, AND ORPHANED AND VULNERABLE CHILDREN				
HIV/AIDS knowledge and attitudes	82	19b	Comprehensive knowledge about HIV prevention among young people	24 percent
	89		Knowledge of mother- to-child transmission of HIV	56 percent
	86		Attitude towards people with HIV/AIDS	16 percent
	87		Women who know where to be tested for HIV	45 percent
	88		Women who have been tested for HIV	3 percent
	90		Counselling coverage for the prevention of mother-to-child transmission of HIV	12 percent
Sexual behaviour	84		Age at first sex among young people	1 percent
	92		Age-mixing among sexual partners	5 percent
	83	19a	Condom use with non-regular partners	70 percent
	85		Higher risk sex in the last year	80 percent
Orphanhood	75		Prevalence of orphans	2 percent
	78		Children's living arrangements	0.4 percent

Table of Contents

Summary Table of Findings	3
Table of Contents.....	5
List of Tables.....	7
List of Figures.....	9
List of Abbreviations.....	10
Acknowledgements	11
Executive Summary	12
I. Introduction	15
Background.....	15
Survey Objectives	16
II. Sample and Survey Methodology	17
Sample Design.....	17
Questionnaires.....	19
Training and Fieldwork.....	19
Data Processing.....	19
III. Sample Coverage and the Characteristics of Households and Respondents.....	21
Sample Coverage.....	21
Characteristics of Households.....	21
Characteristics of Respondents.....	22
IV. Child Mortality	23
V. Nutrition	25
Nutritional Status.....	25
Breastfeeding	26
Low Birth Weight.....	28
VI. Child Health.....	31
Immunization.....	31
Oral Rehydration Treatment	32
Care Seeking and Antibiotic Treatment of Pneumonia	34
Solid Fuel Use	35
VII. Environment	37
Water and Sanitation.....	37
VIII. Reproductive Health.....	41
Contraception.....	41
Antenatal Care	42
Assistance at Delivery	43
IX. Child Development	45
X. Education.....	47
Pre-School Attendance and School Readiness.....	47
Primary and Secondary School Participation	48
Adult Literacy.....	49

XI. Child Protection	51
Birth Registration	51
Child Labour.....	51
Child Discipline	52
Early Marriage	53
Domestic Violence	54
Child Disability.....	54
XII. HIV/AIDS, Sexual Behaviour, and Orphaned Children	55
Knowledge of HIV Transmission and Condom Use.....	55
Sexual Behaviour Related to HIV Transmission	58
Children’s Living Arrangements and Orphanhood.....	59
Tables	61
List of References	121
Appendixes	123
Appendix A. List of Personnel Involved in the Survey.....	125
Appendix B. Sample Design.....	128
Appendix C. Estimates of Sampling Errors	129
Appendix D. Data Quality Tables.....	142
Appendix E. MICS Indicators: Numerators and Denominators	149
Appendix F. Questionnaires	153

List of Tables

Table HH.1:	Results of household and individual interviews	62
Table HH.2:	Household age distribution by sex.....	62
Table HH.3:	Household composition	63
Table HH.4:	Women’s background characteristics	64
Table HH.5:	Children’s background characteristics.....	65
Table CM.1:	Child mortality.....	66
Table CM.2:	Children ever born and proportion dead	66
Table NU.1:	Child malnourishment.....	67
Table NU.2:	Initial breastfeeding.....	68
Table NU.3:	Breastfeeding	69
Table NU.3w:	Infant feeding patterns by age	70
Table NU.4:	Adequately fed infants	71
Table NU.8:	Low birth weight infants.....	72
Table CH.1:	Vaccinations in first year of life	73
Table CH.2:	Vaccinations by background characteristics	73
Table CH.4:	Oral rehydration treatment.....	74
Table CH.5:	Home management of diarrhoea	75
Table CH.6:	Care seeking for suspected pneumonia.....	76
Table CH.7:	Antibiotic treatment of pneumonia.....	77
Table CH.7A:	Knowledge of the two danger signs of pneumonia	78
Table CH.8:	Solid fuel use	79
Table CH.9:	Solid fuel use by type of stove or fire.....	80
Table EN.1:	Use of improved water sources	81
Table EN.2:	Household water treatment	82
Table EN.3:	Time to source of water	83
Table EN.4:	Person collecting water	83
Table EN.5:	Use of sanitary means of excreta disposal	84
Table EN.6:	Disposal of child’s faeces	85
Table EN.7:	Use of improved water sources and improved sanitation.....	86
Table RH.1:	Use of contraception.....	87
Table RH.2:	Unmet need for contraception	88
Table RH.3:	Antenatal care provider	89
Table RH.4:	Antenatal care.....	90
Table RH.5:	Assistance during delivery	91
Table CD.1:	Family support for learning.....	92
Table CD.2:	Learning materials.....	93
Table CD.3:	Children left alone or with other children.....	94
Table ED.1:	Early childhood education	95
Table ED.2:	Primary school entry	96
Table ED.3:	Primary school net attendance ratio	97
Table ED.4:	Secondary school net attendance ratio	98
Table ED.4W:	Secondary school age children attending primary school	99
Table ED.6:	Primary school completion and transition to secondary education	100
Table ED.7:	Education gender parity.....	101
Table ED.8:	Adult literacy	102
Table CP.1:	Birth registration.....	103
Table CP.2:	Child labour	104
Table CP.3:	Labourer students and student labourers	105
Table CP.4:	Child discipline	106
Table CP.5:	Early marriage	107
Table CP.6:	Spousal age difference	108

Table CP.9:	Attitudes toward domestic violence	109
Table CP.10:	Child disability.....	110
Table HA.1:	Knowledge of preventing HIV transmission	111
Table HA.2:	Identifying misconceptions about HIV/AIDS	112
Table HA.3:	Comprehensive knowledge of HIV/AIDS transmission.....	113
Table HA.4:	Knowledge of mother-to-child HIV transmission.....	114
Table HA.5:	Attitudes toward people living with HIV/AIDS	115
Table HA.6:	Knowledge of a facility for HIV testing	116
Table HA.7:	HIV testing and counselling coverage during antenatal care.....	117
Table HA.8:	Sexual behaviour that increases risk of HIV infection.....	118
Table HA.9:	Condom use at last high-risk sex	119
Table HA.10:	Children’s living arrangements and orphanhood	120

List of Figures

Figure HH.1: Age and sex distribution of household population	21
Figure CM.1: Under-5 mortality rates by background characteristics.....	24
Figure CM.2: Children ever born and proportion dead	24
Figure NU.1: Percentage of children under age five who are undernourished	26
Figure NU.2: Percentage of mothers who started breastfeeding within one hour and within one day of birth	27
Figure NU.3: Infant feeding patterns by age: Percentage distribution of children aged under 3 years by feeding pattern by age group	28
Figure NU.5: Percentage of Infants Weighing Less Than 2500 Grams at Birth, Republic of Macedonia, 2005.....	29
Figure CH.1: Percentage of children aged 12-23 months who received the recommended vaccination by 12 months	32
Figure CH.2: Percentage of children aged 18-29 months currently vaccinated against childhood diseases, Republic of Macedonia, 2005.....	32
Figure CH.3: Percentage of children aged 0-59 months with diarrhoea who received oral rehydration treatment	33
Figure CH.4: Percentage of children aged 0-59 months with diarrhoea who received ORT or increased fluids, AND continued feeding.....	34
Figure EN.1: Percentage distribution of household members by source of drinking water	37
Figure HA.1: Percentage of women who have comprehensive knowledge of HIV/AIDS transmission	57
Figure HA.2: Sexual behaviour that increases risk of HIV infection.....	58

List of Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
BCG	Bacillus-Cereus-Geuerin (Tuberculosis)
CSPro	Census and Survey Processing System
DPT	Diphtheria Pertussis Tetanus
EPI	Expanded Programme on Immunization
GPI	Gender Parity Index (female to male ratio of primary school or secondary school attendance)
HIV	Human Immunodeficiency Virus
IUD	Intrauterine Device
LAM	Lactational Amenorrhea Method
MDG	Millennium Development Goals
MICS	Multiple Indicator Cluster Survey
MoH	Ministry of Health
NAR	Net Attendance Rate
ppm	Parts Per Million
ORT	Oral Rehydration Treatment
SPSS	Statistical Package for Social Sciences
UNAIDS	United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNGASS	United Nations General Assembly Special Session on HIV/AIDS
UNICEF	United Nations Children's Fund
WFFC	World Fit for Children
WHO	World Health Organization

Acknowledgements

The State Statistical Office, responsible for implementing MICS-2005 in Republic of Macedonia (Multiple Indicator Cluster Survey on children's and women's situation) expresses its gratitude to the United Nations Children's Fund (UNICEF) for providing methodological and advisory assistance in conducting the survey.

We would particularly like to thank the British Embassy, UNICEF and UNDP for their generous financial contributions. UNICEF also contributed funding for training and equipment and technical support through its offices in Republic of Macedonia, Geneva and New York. The UNICEF country and regional offices and the Global MICS team provided invaluable and ongoing support and we hope to continue to work in such a productive way in future. The four regional workshops arranged for survey teams for thirteen countries currently using this methodology were very useful to ensure that the survey met high international standards and increased the skills and knowledge of our survey teams.

Special thanks to Mr. Trevor Croft for his kind and professional technical assistance and for providing quality control.

We address special thanks to the survey team comprised of a large number of people and institutions. Over one hundred people were involved in technical and field work. The survey teams, including coordinators, field staff and data entry staff, carried out the work diligently. We would like to thank the 5 287 households, which agreed to participate and be interviewed.

We would also like to thank the following Ministries and other organizations for their excellent cooperation:

Ministry of Health - including the Republic Institute for Health Protection;
Ministry of Education and Science;
Ministry of Local-Self Governance;
Ministry of Labour and Social Policy;
Ministry of Environment and Physical Planning; and
World Health Organization.

Executive Summary

The 2005 Republic of Macedonia Multiple Indicator Cluster Survey (MICS) is a nationally representative survey of households, women and children. The main objectives of the survey are to provide up-to-date information for assessing the situation of children and women in Republic of Macedonia, and to supply the data needed for monitoring progress towards the World Fit for Children goals. In addition, the purpose of the MICS survey is to provide data needed for evaluating how far we have come midway into the decade in reaching the child-related Millennium Development Goals (MDGs).

Fieldwork was conducted in the period November 2005.

Education

Eleven percent of children aged 36-59 months are attending early childhood education. The attendance is almost ten times higher in urban areas than rural areas.

Overall, 95 percent of children of primary school age (ages 7-14) in Republic of Macedonia are attending primary school (at 2005/2006 school year). There is virtually no difference between male/female and urban/rural rates.

Overall, 63 percent of children of secondary school age (ages 15-18) in Republic of Macedonia are attending secondary school. There is a higher proportion of girls (68 percent) of this age attending secondary school than that of boys (59 percent). In urban areas, 71 percent of children attend school while in rural areas 56 percent attend.

Water and Sanitation

Ninety one percent of the population has water that is piped either into the dwelling or the yard/plot. Such access is higher in urban areas (96 percent) than in rural areas (84 percent). In rural areas, 10 percent of the population has a tubewell/borehole with a pump and 4 percent has a protected well.

Ninety three percent of the population use sanitary means of excreta disposal. Ninety percent have a flush toilet connected either to a sewage system or septic tank. Septic tanks are much more common in rural areas; 53 percent of the rural

population use a septic tank, whereas in urban areas 12 percent of the population fall into this category.

Child Malnutrition

Two percent of children under age five are underweight, 9 percent are too short for their age (stunted) and 2 percent are too thin for their height (wasted).

Children whose mothers have secondary education are the least likely to be underweight and stunted compared to children of mothers with less education.

Breastfeeding

Approximately 16 percent of children aged less than six months are exclusively breastfed, a level considerably lower than recommended. At age 6-9 months, 18 percent of children are receiving breast milk and solid or semi-solid foods. By age 20-23 months, 22 percent continue to be breastfed.

Immunization

Ninety seven percent of children aged 18-29 months received a BCG vaccination by the age of 12 months and the first dose of DPT was given to 94 percent. The percentage declines for subsequent doses of DPT to 90 percent for the second dose, and 82 percent for the third dose. Similarly, 95 percent of children received Polio 1 by age 12 months and this declines to 81 percent by the third dose.

Eighty percent of children received a measles vaccine (in the form of the measles -mumps - rubella (MMR) vaccine) by the age of 18 months.

Sixty percent of children had all eight recommended vaccinations according to the national immunization schedule.

Acute Respiratory Infection

Six percent of under five children had an acute respiratory infection in the two weeks prior to the survey. Virtually all of these children were taken to an appropriate health provider.

Integrated Management of Childhood Infections (IMCI)

Among children under five who were reported to have had diarrhoea in the two weeks preceding the MICS, 45 percent received ORT or increased fluids and continued feeding as recommended under the IMCI program.

Thirty seven percent of mothers/caretakers who recognized the two danger signs of pneumonia indicating that a child should be taken immediately to a health facility.

Seventy four percent of mothers reported administering an antibiotic to a child suffering from suspected pneumonia in the two last weeks.

HIV/AIDS

Twenty two percent of women aged 15-49 know three ways to prevent the sexual transmission of HIV transmission: 61 percent believe that having only one faithful uninfected sex partner can prevent HIV transmission, 60 percent believe that using a condom during each act of sexual intercourse, and abstaining from sex (28 percent), can prevent HIV transmission. This proportion is higher among women with more education.

Thirty two percent of women aged 15-49 correctly identified three misconceptions about HIV transmission and infection -that HIV cannot be transmitted by sharing food, or by supernatural means, and that a healthy-looking person can be infected with HIV.

Sixty two percent of women of reproductive age know all three ways in which HIV can be transmitted from mother to child.

Forty five percent of women know a place to get tested for HIV. Three percent had been tested of whom 92 percent had been given the result.

Eighty four percent of women express a discriminatory attitude towards people with HIV/AIDS.

Twenty four percent of women have comprehensive knowledge of HIV/AIDS transmission, with the proportion having comprehensive knowledge being strongly positively associated with the woman`s level of education.

Contraception

Current use of contraception was reported by 14 percent of married or in union women. The most popular method is condom, which is used by 5 percent of married women, followed by pill and diaphragm.

Antenatal Care

Virtually all women in Republic of Macedonia receive some type of prenatal care and 98 percent receive antenatal care from skilled personnel (doctor, nurse, midwife).

Assistance at Delivery

In the two years prior to the survey, 84 percent of deliveries were assisted by a medical doctor and 14 percent by a nurse/midwife. Less than 1 percent of deliveries did not have any assistance at delivery.

Birth Registration

The births of 94 percent of children under five years of age in Republic of Macedonia have been registered. There are no significant variations in birth registration across sex, age, urban/rural or education categories.

Child Labour

Six percent of children age 5-14 are involved in some form of child labour. Less than 1 percent of children 5-14 years old engage in paid work. About 3 percent participate in unpaid work outside the household, and 3 percent of children are engaged in family businesses.

Orphaned Children and Living Arrangements of Children

Overall 94 percent of children aged 0-17 are living with both parents. Children who are not living with a biological parent comprise 0.4 percent, but children for whom one or both parents are dead amount to almost 2 percent of all children aged 0-17 years. It is more likely that a father will be dead than a mother.



Introduction

Background

This report is based on the Republic of Macedonia Multiple Indicator Cluster Survey, conducted in 2005 by the State Statistical Office (SSO). The survey provides valuable information on the situation of children and women in Republic of Macedonia and was based, in large part, on the needs to monitor progress towards goals and targets emanating from recent international agreements: the 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). The Macedonian Government released its first report on the Millennium Development Goals

Table 1.1 A Commitment to Action: National and International Reporting Responsibilities

The governments that signed the Millennium Declaration and the 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**, paragraph 60)

"...We will conduct periodic reviews at the national and subnational levels of progress in order to address obstacles more effectively and accelerate actions...." (**A World Fit for Children**, paragraph 61)

The Plan of Action (paragraph 61) 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."

Similarly, the **Millennium Declaration** (paragraph 31) 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."

(MDGs) in June 2005. The report was structured around the eight MDGs and provided MDG indicators which were adapted to the country's national development context. Of the 48 MDG indicators, there are currently 12 for which the SSO has appropriate data. The MICS survey has generated data for another 9 indicators, not previously available in the country.

A National Action Plan for Children was adopted by the government in February 2005, which reviewed progress made and steps to take to improve the situation of children in the country. The plan will serve as the basis for policy formulation on children's rights for the next 10 years.

The Macedonian government has prepared its first report to the Committee on the Rights of the Child (CRC) and has reported on the progress made against the World Fit for Children (WFFC) goals.

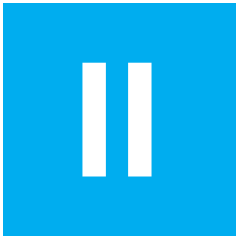
The MICS data is very timely for providing a valuable evidence-base for these ongoing processes.

This final report presents the results of the indicators and topics covered in the survey.

Survey Objectives

The 2005 Republic of Macedonia Multiple Indicator Cluster Survey has as its primary objectives:

- To provide up-to-date information for assessing the situation of children and women in Republic of Macedonia;
- To furnish data needed for monitoring progress toward goals established by the Millennium Declaration, the goals of A World Fit For Children (WFFC), and other internationally agreed upon goals, as a basis for future action;
- To contribute to the improvement of data and monitoring systems in Republic of Macedonia and to strengthen technical expertise in the design, implementation, and analysis of such systems.



Sample and Survey Methodology

Sample Design

The sample for the Republic of Macedonia Multiple Indicator Cluster Survey (MICS) was designed to provide estimates on a large number of indicators on the situation of children and women at the national level, and for some of the indicators at lower levels (urban and rural areas, and for eight regions). In addition, the sample was designed to provide reliable estimates of many indicators for the Roma population.

The Republic of Macedonia MICS 2005 sample design used a stratified two stage model, where geographical strata are 8 NUTS3 (Nomenclature of territorial units for statistics) regions (Skopski Region, Pelagoniski Region, Vardarski Region, North-East Region, South-West Region, South-East Region, Poloski Region and East Region.), and 2 strata (urban and rural) in each region, yielding 16 strata.

A total sample of 5250 households was designed, with 350 clusters selected and 15 households selected within each cluster.

The sample is further stratified to include specific strata for the Roma population, dividing all strata into Roma and non-Roma strata, yielding an additional 12 strata (4 of the original strata did not have clusters selected for the Roma sub-sample), with 70 clusters being allocated for the Roma population of the original 350.

The sample frame is the Population Census from 2002, using data on subpopulations of women aged from 12-46 year, children from 0-2 and the Roma population.

The allocation of clusters to each domain was performed by taking the number of women aged 12-46 from the Census 2002 data and using the ratio of the number of women in each stratum to the total to determine the distribution of the clusters to each stratum ($350 * \frac{m_i}{\sum m_j}$, where m_j is the number of woman aged 12-46 in the strata according to the 2002 Census), as follows:

Region	Region (HH7)	Urban/Rural (HH6)	Total ED	Total Women 12-46	Roma Women 12-46	Total Clusters	Roma Clusters	Non-Roma Clusters
Skopski (Skopje)	1	1	1435	113833	6627	75	31	44
	1	2	400	37555	426	25	1	24
Pelagoniski (Bitola)	2	1	593	40204	1987	26	9	17
	2	2	478	17239	28	12	0	12
Vardarski (Veles)	3	1	293	24752	425	16	1	15
	3	2	202	9096	158	6	2	4
North-East (Kumanovo)	4	1	246	27219	1383	18	6	12
	4	2	374	17391	24	12	0	12
South-West (Ohrid)	5	1	278	27273	751	18	4	14
	5	2	438	31472	99	21	1	20
South-East (Strumica)	6	1	267	19655	98	14	0	14
	6	2	353	24291	58	16	0	16
Poloski (Tetovo)	7	1	267	25404	1267	17	4	13
	7	2	590	60613	137	40	1	39
East (Stip)	8	1	472	34709	1877	23	9	14
	8	2	419	16804	100	11	1	10
Total			7105	527510	15445	350	70	280

Selection of clusters

The selection of clusters was performed by generating a list of all clusters in each stratum, ordered by the total number of women aged 12-46 at the time of the census in 2002 (who would be 15-49 at the time of the survey in 2005), with the cluster with the largest number of women listed first. From this list, the first K clusters were selected, where K is the number of clusters to be selected in the stratum, according to the selection table above. This selection of the clusters with the largest numbers of women has led to a bias in the overall sample selected, in particular clusters containing households with larger than average numbers of household members. As households with large numbers of members tend to be from the poorer communities, this bias is likely to produce results that are somewhat worse than the true picture of the population. After reviewing the results, however, the overall bias does not appear to be large, but may vary in different regions.

Selection of households within clusters

Fertility levels in Republic of Macedonia are low and households with a child under 5 account for less than 20 percent of households nationally. As these levels would require a very large overall sample to provide a sufficiently large sample for estimates for children under 5, households with children under the age of 5 were over sampled.

The selection of households was performed by sorting the list of households in each cluster into two groups: households with children under 5, and those without children under 5. From these two groups, 12 households were to be selected from the first group and 3 households from the second group. The information concerning the identification of households with children under 5 was based on the 2002 census data, for children aged 0, 1 and 2 at the time of the census (Nov. 1, 2002), and updated with information on households registering a birth in 2003 and 2004 according to vital registration data for 2003 and 2004 respectively.

The selection of the 12 households was performed by using random selection within the first group. Within the second group, the households were ordered according to whether the household had an eligible woman (eligibility for the women's survey was defined as women aged 12-46 according to the census data) or not, with households with eligible women being listed before those without eligible women. The selection of the 3 households in the second group was again performed randomly.

Separate weighting of data is necessary for each household depending on the urban and rural strata in the 8 regions, as well whether the sample cluster was from the Roma sub sample or not, and whether it belonged to the group of households with children under 5 or the group of households without children under 5. Additionally, the household member data and the individual women's questionnaire data are further weighted

to adjust for biases in the distribution by age group and sex to match the census distribution.

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 of the household), the household, and the dwelling; 2) a women's questionnaire administered in each household to all women aged 15-49 years; and 3) an under-5 children's questionnaire, administered to mothers or caretakers of all children under 5 living in the household. The questionnaires included the following modules:

The Household Questionnaire included the following modules:

- Household Listing
- Education
- Water and Sanitation
- Household Characteristics
- Child Labour
- Child Discipline
- Disability

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

- Child Mortality
- Maternal and Newborn Health
- Marriage/Union
- Contraception
- Attitudes Towards Domestic Violence
- Sexual Behaviour
- HIV/AIDS

The Questionnaire for Children under-5 was administered to mothers or caretakers of children under-5 years of age¹ living in the households. Normally, the questionnaire was administered to mothers of under-5 children; 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:

- Birth Registration and Early Learning
- Child Development
- Breastfeeding
- Care of Illness
- Immunization
- Anthropometry

The questionnaires are based on the MICS3 model questionnaire². From the MICS3 model English version, the questionnaires were translated into Macedonian and Albanian languages and were

pre-tested in eight municipalities in urban and rural areas, during 13-14 October 2005. Based on the results of the pre-test, modifications were made to the wording and translation of the questionnaires. A copy of the Republic of Macedonia MICS questionnaires is provided in Appendix F.

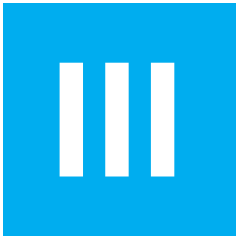
Training and Fieldwork

Training for the fieldwork was conducted for 15 days in 5 cities: Kumanovo, Tetovo, Skopje, Stip and Ohrid, (3 days at each point) from October 17 to October 31, 2005. 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 2 days in practice interviewing in 8 municipalities within the Skopski region.

Data was collected by 20 teams; each comprised 4 interviewers, one driver, one editor/measurer and a supervisor. Fieldwork began on November 4 and concluded on November 30, 2005.

Data Processing

Data was entered using the CSPro software. The data was entered on 20 microcomputers and carried out by 20 data entry operators and 4 data entry supervisors. In order to ensure quality control, all questionnaires were double entered and internal consistency checks were performed. Procedures and standard programs developed under the global MICS3 project and adapted to Republic of Macedonia questionnaire were used throughout. Data processing began simultaneously with data collection on November 10, 2005 and was completed on December 15, 2005. Data was analysed using the Statistical Package for Social Sciences (SPSS) software program, Version 14, and the model syntax and tabulation plans developed by UNICEF for this purpose.



Sample Coverage and the Characteristics of Households and Respondents

Sample Coverage

Originally, 5250 households were selected for the sample. During the fieldwork the number of households identified increased to 5379, due to the fact that in some cases, more than one household was found in one dwelling. In these cases, the MICS3 guidelines were followed, and in the cases where two households were found in one dwelling, both households were included in the survey. Of the total of 5379 households, 5287 were found to be occupied. Of these, 4701 were successfully interviewed for a household response rate of 89 percent. In the interviewed households, 7539 women (age 15-49) were identified. Of these, 7397 were successfully interviewed, yielding a response rate of 98 percent. In addition, 4578 children under age five were listed in the household questionnaire. Of these, questionnaires were completed for 4548, which corresponds to a response rate of 99 percent. Overall response rates of 87 and 88 percent are calculated for the women's and under-5's interviews respectively (Table HH.1). The response rates were similar across regions and areas.

Characteristics of Households

The age and sex distribution of the survey population is provided in Table HH.2. The distribution is also used to produce the population pyramid in Figure HH.1. In the 4701 households successfully interviewed in the survey, 26 423 household members were listed. Of these, 13 249 were male, and 13 174 were female. These figures also indicate that the survey estimated the average household size at 5.6 household members which is appropriate to the data from the 2002 census (5.5).

Figure HH.1: Age and sex distribution of household population, Republic of Macedonia, 2005

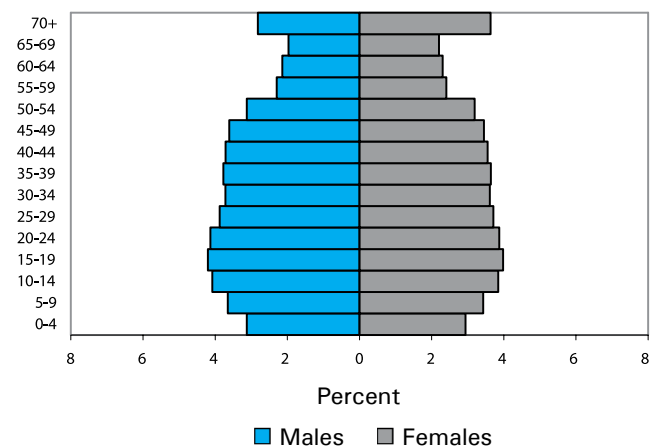


Table HH.2 and Figure HH.1 show the five-year age distribution of household members by sex. This distribution is almost the same for male and female. Due to the low fertility, there is a small number of children in the 0-4 age group. The largest number of persons is found in the 15-19 age group. The number in each age group then steadily declines up to the age group 30-34 with a slight increase in the 35-39 age group. After 40 years of age, the population starts to fall slowly, until age 55 when there is a bigger decline. The male/female ratio shows some variations over the first 50 years of life and then the number of women definitely exceeds that of men. Twenty six percent of the population comprises the group of children aged 0-17. The proportion of males who are children is slightly higher compared to females who are children (27 versus 25 percent).

The artificially large population at the end of the curve results from the fact that all people over the age of 70 were considered a single group.

Table HH.3 provides basic background information on the households. Within households, the sex of the household head, region, urban/rural status, number of household members, and ethnicity³ group of the household head are shown in the table. These background characteristics are also used in subsequent tables in this report; the figures in the table are also intended to show 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 B). The table also shows the proportions of households where at least one child under 18, at least one child under 5, and at least one eligible woman age 15-49 were found. About 61 percent of the households are urban and 39 percent of households are rural. The Skopski region comprises the largest of the eight regions with 26 percent of households while East region is the next largest with 14 percent. According to the ethnic group of the head of the household, 65 percent are Macedonian, 25 percent are Albanian and about 3 percent are Roma. Most of the households have between 2 and 7 members. Twenty percent of the households contain at least one child under age five and 97 percent contain at least one woman age 15-49. Note that the weighted and unweighted numbers of cases varies quite widely for some characteristics, such as the number of household members and ethnic group of head. This is due to the over sampling of households with children under the age of 5 and of Roma households and is to be expected with the complex sample design used in this survey. Because of the complex nature of the sample design, even after weighting of the data there may be some characteristics for which the sample distribution according to certain characteristics does not match with the census distribution for those same characteristics.

Characteristics of Respondents

Tables HH.4 and HH.5 provide information on the background characteristics of female respondents 15-49 years of age and of 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 to providing useful information on the background characteristics of women and children, the tables are also intended to show the numbers of observations in each background category. These categories are used in the subsequent tabulations of this report.

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, urban-rural areas, age, marital status, motherhood status, education⁴, wealth index quintiles⁵, and ethnicity. Women aged 15-19 comprise the greatest percentage of the sample at around 15 percent. This percentage declines steadily across age groups until age 45-49 where it is 13 percent. Approximately 58 percent of women in the sample are currently married and 59 percent have ever had a birth. The majority of women have had at least some secondary education while only 4 percent have had no education. According to the ethnic group of the head of the household, the percentage of women is larger in the Macedonian group (61 percent) than the Albanian group (29 percent). Women from Roma ethnic group comprise 3 percent of the sample.

Some background characteristics of children under 5 are presented in Table HH.5. These include distribution of children by several attributes: sex, region and area of residence, age in months, mother's or caretaker's education, wealth, and ethnicity. Fifty three percent of the children are male and forty seven percent are female. The age distribution of children under five is well balanced. Approximately 7 percent of mothers of children under age five have no education, while the majority of mothers (55 percent) have primary education. Note that, for children whose mothers did not live in the household, the education of the child's caretaker is used. According to the ethnic group of the head of the household, the percentage of children under five is larger in the Albanian group (about 46 percent) than the Macedonian group (38 percent). This differs from the distribution of children by ethnic group found in the census where 6 percent of the total population of children under-5 are Macedonian and 2 percent of children under 5 are Albanian. This difference may be the result of the complex sample design and the potential bias described earlier.



Child Mortality

One of the overarching goals of the Millennium Development Goals (MDGs) and the World Fit for Children (WFFC) is to reduce infant and under-five mortality. Specifically, the MDGs call for the reduction in under-five mortality by two-thirds between 1990 and 2015. Monitoring progress towards this goal is an important but difficult objective. Measuring childhood mortality may seem easy, but attempts using direct questions, such as “Has anyone in this household died in the last year?” give inaccurate results. Using direct measures of child mortality from birth histories is time consuming, more expensive, and requires greater attention to training and supervision. Alternatively, indirect methods developed to measure child mortality produce robust estimates that are comparable with the ones obtained from other sources. Indirect methods minimize the pitfalls of memory lapses, inexact or misinterpreted definitions, and poor interviewing technique.

The infant mortality rate is the probability of dying before the first birthday. The under-five mortality rate is the probability of dying before the fifth birthday. In the Republic of Macedonia MICS, infant and under five mortality rates are calculated based on a variant of the indirect estimation technique known as the Brass method (United Nations, 1983; 1990a; 1990b).

For the application of the technique, women are classified into 5-year groups of time since first birth (TSFB), namely 0-4, 5-9, 10-14, 15-19 and 20-24 years, and average numbers of children ever born and proportion dead among these children are calculated for each group of women. The proportions dead calculated for each group are very closely related to mortality risks. The technique converts the proportions dead into

conventional mortality risks by using several assumptions in regard to the length of exposure to the risk of dying among children born to each group of women, on the distribution of deaths of children over time, and on the level and pattern of fertility prevalent in the population. Simulations on model data have shown that proportions dead by TSFB groups of women can be converted into probabilities of dying by using modelled relationships, namely into ${}_2q_0$ (probability of dying before age 2) for proportion dead among children of women in the 0-4 years TSFB group, under-5 mortality rates for the 5-9, 10-14 and 15-19 year TSFB groups, and ${}_{15}q_0$ (probability of dying before age 15) for the 20-24 years TSFB group. The technique also time-locates these estimates, again by using several assumptions. This is necessary because children of women who have had their first births long ago have been exposed to mortality risks for a longer period of time, and therefore, their mortality experience refers to farther back in time, compared to that of children born to women who have had their first births recently.

The final step in the calculations is the conversion of the estimated mortality risks into comparable probabilities of dying for each estimate derived from different TSFB groups of women. The so-called Coale-Demeny model life tables are used for this purpose. Coale-Demeny model life tables are life table schedules at different levels of mortality, that embody typical age patterns of mortality in human populations, categorized into 4 ‘families’ of such typical patterns – North, South, East and West models. Using typical relationships between ${}_2q_0$, ${}_5q_0$ and ${}_{15}q_0$ and the infant mortality rate embodied in these model life tables, the initial estimates of mortality are converted into

infant mortality rates, while the estimates of ${}_2q_0$ and ${}_{15}q_0$ are converted into estimates of ${}_5q_0$ (Note that the 5-9, 10-14 and 15-19 year TSFB groups produce estimates of under-5 mortality rates at the initial calculation stage). By expressing mortality risks at different points in time with the same indicator, it then becomes possible to show trends in mortality during the last 15-20 years.

For the calculations in this report, the East model life table was selected as most appropriate, based on previous information on the age pattern of mortality in Republic of Macedonia.

Although relatively small, the survey estimates give higher infant and under five mortality rates than the official statistics. According to data from the Institute for Mother and Child Health Protection 2005, infant mortality rate is 12.8 per 1000 live births and under 5 mortality rate is 14.4 per 1000 live births. This difference may have been due to sample design, but may also reflect some under-reporting in the health statistics. Nevertheless, the focus in the use of these data should not be on the absolute level of mortality, but rather on the differences between groups of the population where substantial differences can be observed.

Table CM.1 provides estimates of child mortality by various background characteristics, while Table CM.2 provides the basic data used in the calculation of the mortality rates for the national total. The infant mortality rate is estimated at 16 per thousand, while the probability of dying under-5 (U5MR) is around 17 per thousand. These estimates are based on the information collected from women who have had their first birth 0-4 years ago, and refer to mid-2003. There is some difference between the probabilities of dying between urban and rural areas; 10 versus 26 per 1000. There are also differences in mortality in terms of educational levels and wealth. Differentials in under-5 mortality rates by background characteristics are also shown in Figure CM.1.

Figure CM.1 Under-5 mortality rates by background characteristics, Republic of Macedonia, 2005

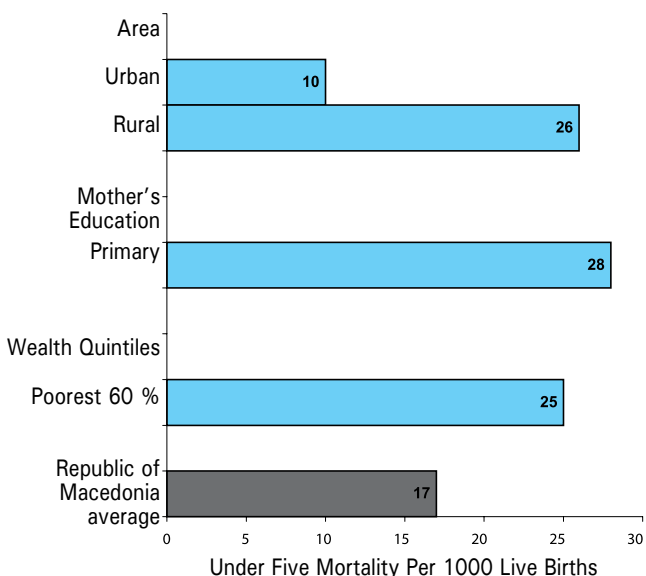
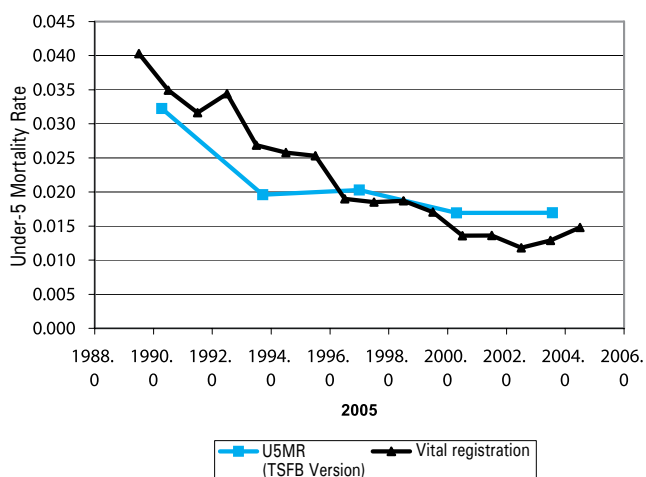


Figure CM.2 shows the series of U5MR estimates of the survey, based on responses of women in different age groups, and referring to various points in time, thus showing the estimated trend in U5MR based on the survey. The MICS estimates indicate a decline in mortality during the last 15 years. The trend indicated by the survey results are in broad agreement with those from the vital registration data and are positive.

Figure CM.2: Trend in under-5 mortality rates, Republic of Macedonia, 2005





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 children 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. The World Fit for Children goal is to reduce the prevalence of malnutrition among children under five years of age by at least one-third (between 2000 and 2010), with special attention to children under 2 years of age. A reduction in the prevalence of malnutrition will 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 the WHO/CDC/NCHS reference, which was recommended for use by UNICEF and the World Health Organization at the time the survey was implemented. 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 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 *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 MICS, weights and heights of all children under-5 years of age were measured using

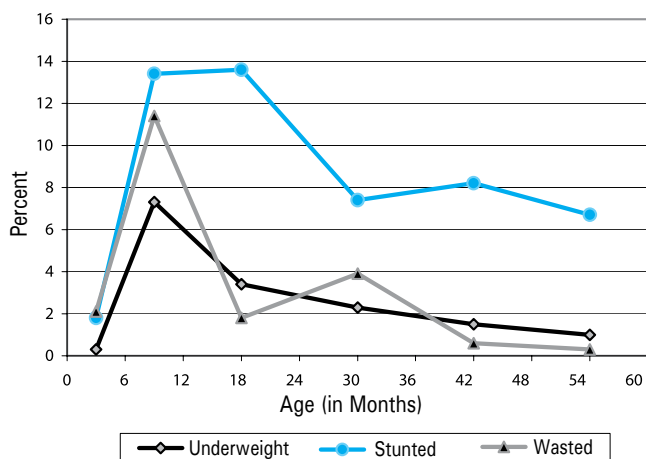
anthropometric equipment recommended by UNICEF (UNICEF, 2006). Findings in this section are based on the results of these measurements.

Table NU.1 shows percentages of children classified into each of these categories, based on the anthropometric measurements that were 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 more than two standard deviations above the median of the reference population.

In Table NU.1, children who were not weighed and measured (approximately 7 percent of children) and those whose measurements are outside a plausible range are excluded. In addition, a small number of children whose birth dates are not known are excluded.

About 2 percent of children under age five in Republic of Macedonia are moderately underweight and less than half a percent are classified as severely underweight (Table NU.1). Nine percent of children are stunted or too short for their age and 2 percent are wasted or too thin for their height.

Figure NU.1: Percentage of children under-5 who are



There is no difference between the percentage of male and female children that are moderately underweight. Boys appear to be more likely to be stunted than girls, while the girls appear to be more likely to be wasted than boys.

Children in the South West region are more likely to be underweight, while the children in the South East and North East regions are more likely to be stunted than other children. Those children whose

mothers have secondary education are the least likely to be underweight and stunted compared to children of mothers with no education. Roma children are twice as likely to be stunted and are more likely to be underweight than Macedonian or Albanian children.

The age pattern shows that a higher percentage of children aged 6-11 months are undernourished according to all three indices in comparison to children who are younger and older (Figure NU.1). This pattern is expected and is related to the age at which many children cease to be breastfed and are exposed to contamination in water, food, and environment.

More than 10 percent of children are overweight, with children in urban areas and children in richer households more likely to be overweight.

Breastfeeding

Breastfeeding for the first few years of life protects children from infection, provides an ideal source of nutrients, and is economical and safe. However, many mothers stop breastfeeding too soon and there are often pressures to switch to infant formula, which can contribute to growth faltering and micronutrient malnutrition and is unsafe if clean water is not readily available. The World Fit for Children goal states that children should be exclusively breastfed for 6 months and continue to be breastfed with safe, appropriate and adequate complementary feeding for up to 2 years of age and beyond.

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: 2 times per day for 6-8 month olds; 3 times per day for 9-11 month olds

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

The indicators of recommended child feeding practices are as follows:

- Exclusive breastfeeding rate (< 6 months & < 4 months)
- Timely complementary feeding rate (6-9 months)
- Continued breastfeeding rate (12-15 & 20-23 months)



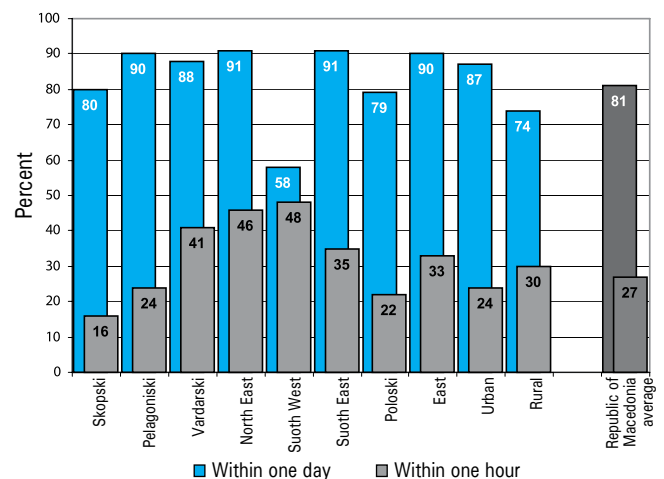
- Timely initiation of breastfeeding (within 1 hour of birth)
- Frequency of complementary feeding (6-11 months)
- Adequately fed infants (0-11 months)

Table NU.2 provides the proportion of women who started breastfeeding their infants within one hour of birth, and women who started breastfeeding within one day of birth (which includes those who started within one hour). Within the 2 years prior to the MICS survey, 81 percent of women aged 15-49 years started breastfeeding within one day of birth. Twenty seven percent started breastfeeding within one hour of birth. Rural women are more likely to start breastfeeding in the first hour after birth (30 percent) than women from urban areas (24 percent). The women's level of education is negatively related to the likelihood of starting breastfeeding within the first hour, but positively related to starting breastfeeding in the first day. The percentage of women who breastfed within the first hour declines with increasing education from 33 percent among those with no education to 28 percent among women with primary education, and to 23 percent among women with secondary education.

In Table NU.3, breastfeeding status is based on the reports of mothers/caretakers of children's consumption of food and fluids in the 24 hours prior to the interview. *Exclusively breastfed*

Republic of Macedonia

Figure NU.2 Percentage of mothers who started breastfeeding within one hour and within one day of birth, Republic of Macedonia, 2005



refers to infants who received only breast milk (and possibly vitamins, mineral supplements, or medicine). The table shows exclusive breastfeeding of infants during the first six months of life (separately for 0-3 months and 0-5 months), as well as complementary feeding of children 6-9 months and continued breastfeeding of children at 12-15 and 20-23 months of age.

Approximately 16 percent of children aged less than six months are exclusively breastfed, a level considerably lower than recommended. A higher percentage of children from urban areas are exclusively breastfed (20 percent), against

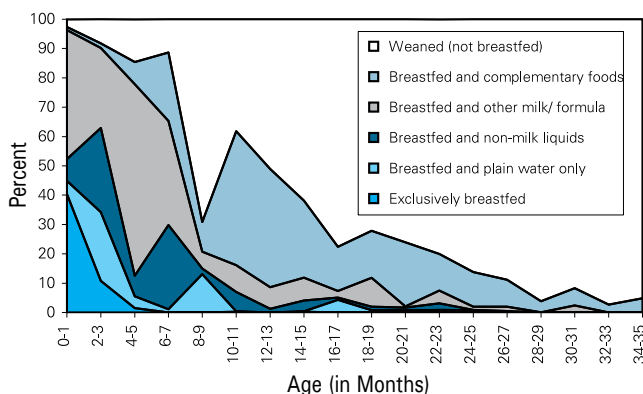
10 percent of rural children. Poorer children are more likely to be breastfed than children from the richest quintiles (10 percent versus 2 percent). Twenty one percent of Albanian children are exclusively breastfed, compared with only 3 percent of Roma children.

At age 6-9 months, 18 percent of children are receiving breast milk and solid or semi-solid foods. By age 12-15 months, 45 percent of children are still being breastfed and by age 20-23 months, 22 percent are still breastfed. Girls were more likely to be exclusively breastfed than boys, while boys had higher levels than girls for timely complementary feeding.

Continued breastfeeding at age 20-23 months is more prevalent in urban areas (26 percent) than in rural areas (17 percent), although there is little difference at ages 12-25 months. The percentage of children who are breastfed at 12-15 months varies according to the mother's education, and there are also significant differences when the child is aged 20-23 months. In this latter age group, children of mothers with no education have a significantly higher breastfeeding rate (48 percent) than for children whose mothers have a secondary education (8 percent). In the same age group, there is a big disparity in breastfeeding rate among the children from Roma and Macedonian ethnic group. This percentage is significantly higher among the Roma children (53 percent) than among the Macedonian children (12 percent).

Figure NU.3 shows the detailed pattern of breastfeeding status by the child's age in months. Even at the earliest ages, the majority of children are receiving liquids or foods other than breast milk. About 40 percent of infants aged 0-1 months are exclusively breastfeed, and this proportion drops rapidly until it is close to zero by four months. (See Table NU.3w)

Figure NU.3 Infant feeding patterns by age: Percent distribution of children aged under 3 years by feeding pattern by age group, Republic of Macedonia, 2005



The adequacy of infant feeding in children under 12 months is provided in Table NU.4. 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. Infants aged 6-8 months are considered to be adequately fed if they are receiving breastmilk plus complementary food at least two times per day, while infants aged 9-11 months are considered to be adequately fed if they are receiving breastmilk and eating complementary food at least three times a day.

Seventeen percent of infants aged 6-11 months received breastmilk and complementary food at least the minimum recommended number of times per day. The administration of breastmilk and complementary food is much common among male infants (18 percent) than among female infants (15 percent). Rural children appear more likely to be adequately fed than urban. Infants whose mothers have secondary education are less likely to be adequately fed (8 percent) compared with those whose mothers have primary education (23 percent). Twenty nine percent of infants from the poorest quintile and only 7 percent from the richest one are adequately fed. While 15 percent of Macedonian and 39 percent of Roma received breastmilk and complementary food at least the minimum recommended number of times per day, this percentage is only 9 among Albanian infants.

Sixteen percent of all infants (aged 0-11) are appropriately fed. The results show no real difference between the sexes, nor between children in urban versus rural areas, but show a decline from around 20 percent for the children of mother's with no education and primary education groups to less than 10 percent for the children of mother's with secondary education.

Low Birth Weight

Weight at birth is a good indicator not only of a mother's health and nutritional status but also the newborn's chances for survival, growth, long-term health and psychosocial development. Low birth weight (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 job opportunities as adults.

In the developing world, low birth weight 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.

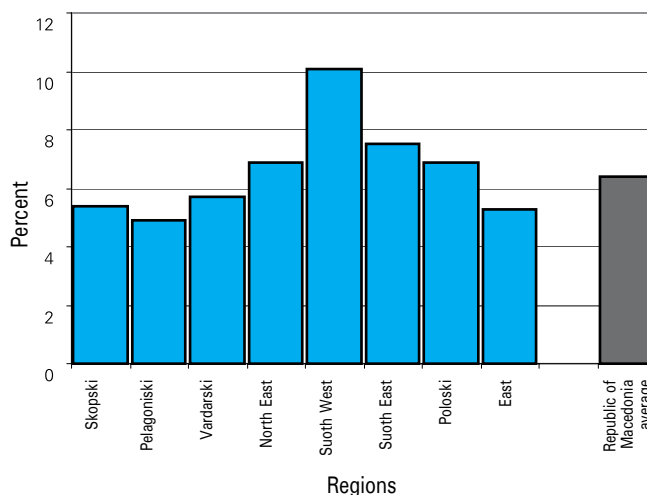
One of the major challenges in measuring the incidence of low birth weight is the fact that more than half of infants in the developing world are not weighed. In the past, most estimates of low birth weight for developing countries were based on data compiled from health facilities. However, these estimates 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, the reported birth weights usually cannot be used to estimate the prevalence of low birth weight among all children. Therefore, the percentage of births weighing below 2500 grams is estimated from two items in the questionnaire: the mother's assessment of the child's **size** at birth (i.e., 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 birth⁶.

Overall, ninety-three percent of births were weighed at birth and approximately 6 percent of infants are estimated to weigh less than 2500 grams at birth (Table NU.8). The prevalence of low birth weight does not vary much by urban and rural areas or by mother's education.

Figure NU.5 Percentage of Infants Weighing Less Than 2500 Grams at Birth, Republic of Macedonia, 2005





Child Health

Immunization

The Millennium Development Goal (MDG) 4 is to reduce child mortality by two thirds between 1990 and 2015. Immunization plays a key part in this goal. Immunizations have saved the lives of millions of children in the three decades since the launch of the Expanded Programme on Immunization (EPI) in 1974. Worldwide there are still 27 million children overlooked by routine immunization and as a result, vaccine-preventable diseases cause more than 2 million deaths to children under the age of five every year.

A World Fit for Children goal is to ensure full immunization of children under one year of age at 90 percent nationally, with at least 80 percent coverage in every district or equivalent administrative unit.

According to UNICEF and WHO guidelines, a child in Republic of Macedonia should receive a BCG vaccination to protect against tuberculosis, three doses of DPT to protect against diphtheria, pertussis, and tetanus, three doses of polio vaccine, and a measles vaccination, all within the first few months of life (at 13 months for Measles). Mothers were asked to provide vaccination cards for children under the age of five. Interviewers copied vaccination information from the cards onto the MICS3 questionnaire.

Overall, the mother or caretaker was able to show the health card (health record book) for 75 percent of children aged 18-29 months, 14 percent reported that they had the health card but were not able to show it and 11 percent reported that they did not have a health card for the child. If the child did not have a card or the mother was

not able to show the card, the mother was asked to recall whether or not the child had received each of the vaccinations and, for DPT and Polio, how many times. The percentage of children aged 18 to 29 months who received each of the vaccinations is shown in Table CH.1. The denominator for the table is comprised of children aged 18-29 months so that only children who are old enough to be fully vaccinated are counted. In the top panel, the numerator includes all children who were vaccinated at any time before the survey according to the vaccination card or the mother's report. In the bottom panel, only those who were vaccinated before 12 months of age (18 months for measles) are included. For children without vaccination cards, the proportion of vaccinations given before 12 months of age is assumed to be the same as for children with vaccination cards.

Approximately 97 percent of children aged 18-29 months received a BCG vaccination by the age of 12 months and the first dose of DPT was given to 94 percent. The percentage declines for subsequent doses of DPT to 90 percent for the second dose, and 82 percent for the third dose (Figure CH.1). Similarly, 95 percent of children received Polio 1 by age 12 months and this declines to 81 percent by the third dose. The coverage for measles vaccine by 18 months is 80 percent. The percentage of children who had all eight recommended vaccinations by 12 months of age (18 months for measles) is 60 percent.

The coverage figures for whether a child has ever received BCG, DPT1, Polio 1, and Measles seem to be in line with the official statistics, however, the DPT3 and Polio 3 figures show a drop off.

Looking more closely at table CH.1, this drop of is largely in the cases where the mother reported the vaccinations, and not in the vaccinations according to the health card. It seems likely that at least some of this is because mothers do not remember the number of DPT and Polio vaccinations, although they remember that the child received at least one vaccination. This has been found in other surveys where mother's reporting has been compared directly with the vaccination card held at the health centre. However it is also likely that there is some drop off in the vaccination rates from DPT1 to DPT3 and from Polio 1 to Polio 3 in certain groups of the population. This appears to be the case, for example, for child whose mother's are less educated and for Roma children (see CH.2).

Figure CH.1: Percentage of children aged 18-29 months who received the recommended vaccinations by 12 months, Republic of Macedonia, 2005⁷

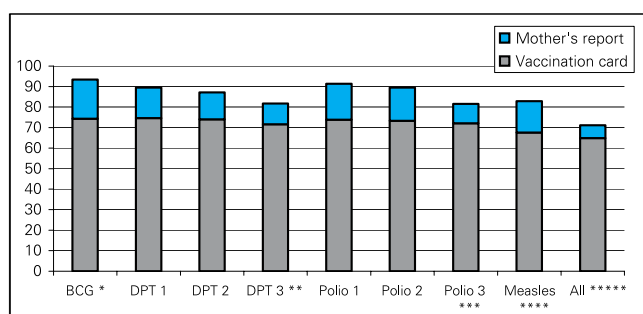
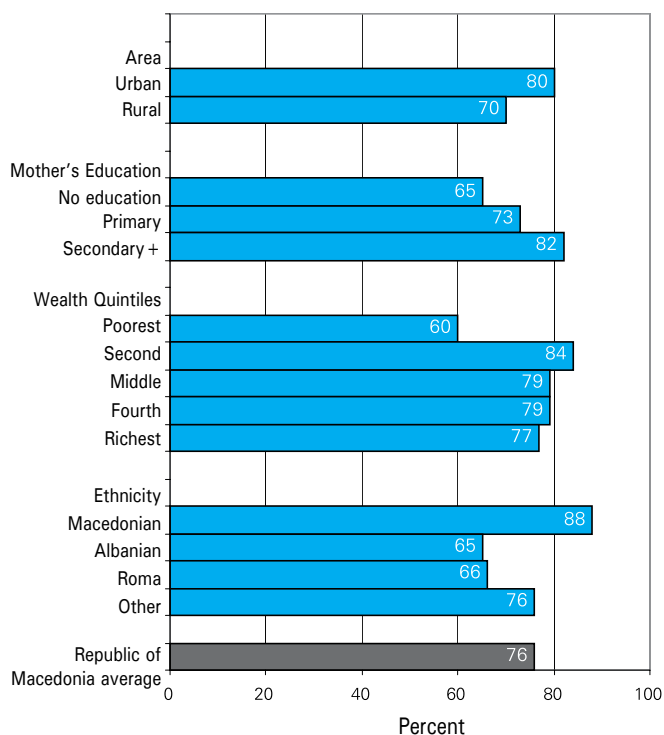


Table CH.2 shows vaccination coverage rates among children 18-29 months by background characteristics. The figures indicate children receiving the vaccinations at any time up to the date of the survey, and are based on information from both the vaccination cards and mothers'/ caretakers' reports. The percentage of children currently vaccinated against childhood diseases is 76. Male and female children are vaccinated at roughly the same rate. Urban children are more likely to be vaccinated (80 percent) than rural children (70 percent). Vaccination coverage is higher among children whose mothers have secondary education. Albanian (65 percent) and Roma (66 percent) children are less likely to be vaccinated, compared to Macedonian children (88 percent).

Figure CH.2 Percentage of children aged 18-29 months currently vaccinated against childhood diseases, Republic of Macedonia, 2005



Oral Rehydration Treatment

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 World Fit for Children calls for a reduction in the incidence of diarrhoea by 25 percent.

The indicators are:

- Prevalence of diarrhoea
- Oral rehydration therapy (ORT)
- Home management of diarrhoea (ORT or increased fluids) **AND** continued feeding

* Measles includes children who received the vaccination by 18 months

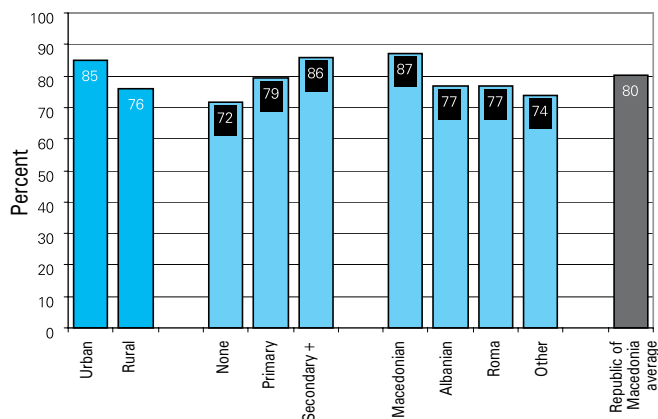
In the MICS questionnaire, mothers (or caretakers) were asked to report whether their child had had diarrhoea in the two weeks prior to the survey. If so, the mother was asked a series of questions about what the child had to drink and eat during the episode and whether this was more or less than the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

Overall, 7 percent of children under five had diarrhoea in the two weeks preceding the survey (Table CH.4). Diarrhoea prevalence was highest in Pelagoniski region at 25 percent. The prevalence of diarrhoea among girls (9 percent) was higher than among boys (6 percent). The peak of diarrhoea prevalence occurs in the weaning period, among children age 0-11 months at 20 percent.

Table CH.4 also shows the percentage of children receiving various types of recommended liquids during the episode of diarrhoea. Since mothers were able to name more than one type of liquid, the percentages do not necessarily add to 100. About 24 percent received fluids from ORS packets and 63 percent received recommended homemade fluids. Eighty one percent of children aged 0-59 months with diarrhoea received oral rehydration treatment. Children from urban areas were more likely to receive ORT (85 percent) than those from rural areas (76 percent). Eighty six percent of children of mothers with secondary education received ORT, compared to seventy two percent of children whose mothers have no

education. The ORT use rate is highest among the Macedonian children (87 percent). The ORT use rate among children from Albanian, Roma and other ethnic groups is virtually the same (around 74 – 77 percent).

Figure CH.3 Percentage of children aged 0-59 months with diarrhoea who received oral rehydration treatment, Republic of Macedonia, 2005



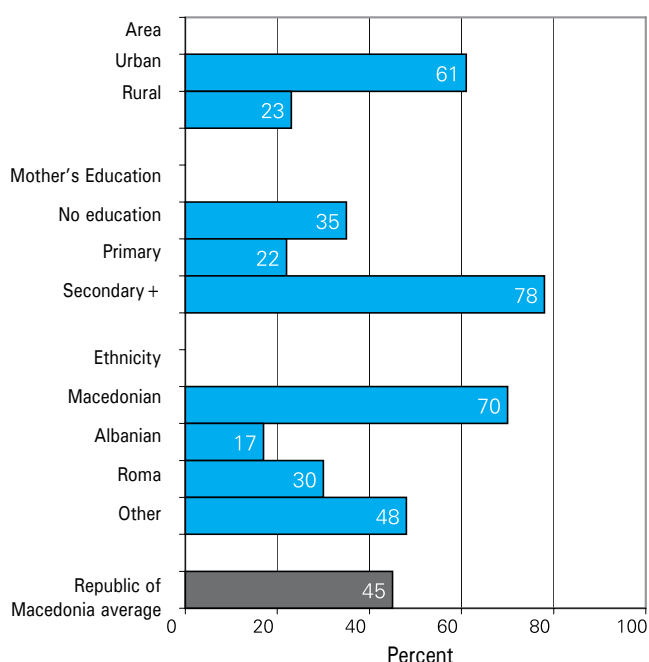
Fourteen percent of under five children with diarrhoea drank more than usual while 84 percent drank the same or less (Table CH.5). Fifty five percent ate somewhat less, the same or more (continued feeding), but forty two ate much less or ate almost none. Girls are more likely to eat somewhat less, the same or more (66 percent) than boys (40 percent).



The indicator of home management of diarrhoea is defined as children with diarrhoea who drank more and continued feeding (eating the same, more, or somewhat less). This follows WHO/UNICEF recommendations that children should drink more than usual and should continue eating while being treated at home for diarrhoea. Overall 6 percent of children are receiving increased fluids and continuing to eat while being treated for diarrhoea. There are significant differences in the home management of diarrhoea by background characteristics.

Combining the information in Table CH.5 with those in Table CH.4 on oral rehydration therapy, it is observed that 45 percent of children either received ORT or fluid intake was increased, and at the same time, feeding was continued, as is the recommendation. Children from the rural areas are almost three times less likely to follow recommended treatment (23 percent) than children from urban areas (61 percent). There is important association between the mother's education level and socio-economic status of the households. Twenty two percent of children whose mothers have primary education received ORT or increased fluids and continued feeding, compared with 78 percent whose mothers have secondary education. There are differences across ethnic groups. Only 17 percent of children from Albanian ethnic group received increased fluids and continued feeding compared to 30 percent of Roma children and 70 percent of Macedonian children.

Figure CH.4 Percentage of children aged 0-59 with diarrhoea who received ORT or increased fluids, AND continued feeding Republic of Macedonia, 2005



Care Seeking and Antibiotic Treatment of Pneumonia

Pneumonia is the leading cause of death in children 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 or 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.6 presents the prevalence of suspected pneumonia and, if care was sought outside the home, the site of care. Six percent of children aged 0-59 months were reported to have had symptoms of pneumonia during the two weeks preceding the survey. Of these children, 93 percent were taken to an appropriate provider. 26 percent of these children were taken to a hospital, 16 percent to a health centre, 29 percent to a government health post, and 12 percent to a private hospital clinic. There are no differences between regions, urban/rural and wealth quintiles in terms of children taken to an appropriate provider. Small differences were observed among children whose mothers have secondary education. These children were more likely to be taken to a private hospital clinic than to a government hospital (39 versus 23 percent). Roma children were less likely to be taken to any appropriate provider (92 percent).

Table CH.7 presents the use of antibiotics for the treatment of suspected pneumonia in under-5s by sex, age, residence, and socioeconomic factors. In Republic of Macedonia, 74 percent of under-5 children with suspected pneumonia during the two weeks prior to the survey had received an antibiotic. The table also shows that the percentage of under-5 children with suspected pneumonia who received antibiotics varies among education groups and it is higher among those whose mother's have at least secondary education. This percent is also higher for boys than for girls, and among the children that belong to the Roma ethnic group.

Issues related to knowledge of danger signs of pneumonia are presented in Table CH.7A. Obviously, mothers' knowledge of the danger signs is an important determinant of care-seeking behaviour. Overall, 37 percent of women know of the two danger signs of pneumonia – fast breathing and difficult breathing. The most common response, given by 91 percent of mothers, is that they would take their child to a health facility right away if he/she developed a fever. Fifty five percent said that the child becoming sicker would cause them to take the child to a health facility and 54 percent mentioned difficulty breathing. Forty three percent of mothers cited fast breathing, and 37 percent blood in the stools, as reasons for taking a child to a health facility right away. The less frequently reported signs were drinking poorly (26 percent) and inability to drink or breastfeed (25 percent).

Rural mothers and those with primary education were more likely to mention at least two signs for seeking care than other mothers.

Solid Fuel Use

More than 3 billion people around the world rely on solid fuels (biomass and coal) for their basic energy needs, including cooking and heating. Cooking and heating with solid fuels leads to high levels of indoor smoke, a complex mix of health-damaging pollutants. The main problem with the use of solid fuels is products of incomplete combustion, including CO, polyaromatic hydrocarbons, SO₂, and other toxic

elements. Use of solid fuels increases the risks of acute respiratory illness, pneumonia, chronic obstructive lung disease, cancer, and possibly tuberculosis, low birth weight, cataracts, and asthma. The primary indicator is the proportion of the population using solid fuels as the primary source of domestic energy for cooking.

Information on the type of fuel used for cooking is another measure of the socio-economic status of the household. Table CH.8 shows that 36 percent of the households use solid fuel for cooking (principally wood). About 61 percent use electricity. Households in urban areas are more likely to use electricity for cooking. The use of wood is higher among the poorest households (78 percent) and households where the head of the household is without education (63 percent). There is a substantial difference in use of electricity for cooking between the richest and the poorest households (89 versus 21 percent).

Solid fuel use alone is a poor proxy for indoor air pollution, since the concentration of the pollutants is different when the same fuel is burnt in different stoves or fires. Use of closed stoves with chimneys minimizes indoor pollution, while open stove or fire with no chimney or hood means that there is no protection from the harmful effects of solid fuels. The type of stove used with a solid fuel is depicted in Table CH.9. Of the households using solid fuels, 87 percent of households use a closed stove with chimney, and only 13 percent use open stove of fire with chimney or hood. There are no differences between regions, urban/rural and different wealth quintiles.





Environment

Water and Sanitation

Safe drinking water is a basic necessity for good health. Unsafe drinking water can be a significant carrier of diseases such as trachoma, cholera, and typhoid. 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 may be particularly important for women and children, especially in rural areas, 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 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 list of indicators used in MICS is as follows:

Water

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

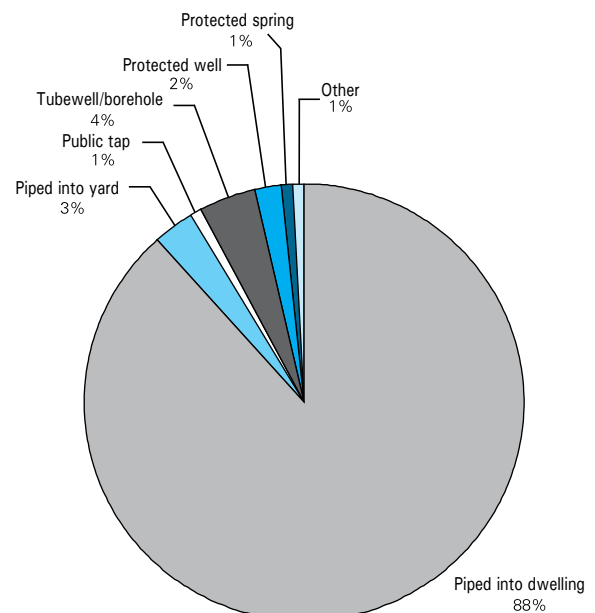
Sanitation

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

The distribution of the population by source of drinking water is shown in Table EN.1 and Figure EN.1. The population using *improved sources* of drinking water are those using any of the following

types of supply: piped water (into dwelling, yard or plot), public tap/standpipe, tubewell/borehole, protected well, protected spring, and rainwater collection. Bottled water is considered as an improved water source only if the household is using an improved water source for other purposes, such as hand washing and cooking.

Figure EN.1: Percent distribution of the population by source of drinking water, Republic of Macedonia, 2005



Ninety one percent of the population has water that is piped either into the dwelling or the yard/plot. Such access is higher in urban areas (96 percent) than in rural areas (84 percent). In rural areas, 9 percent of the population has a tubewell/borehole with a pump and 4 percent has a protected well.

The source of drinking water for the population varies by region (Table EN.1). In the Skopski region, 95 percent of the population uses drinking water that is piped into their dwelling or into their yard or plot. In contrast, only about 73 percent of those residing in the South East region have piped water.

There are differences in terms of access to a water supply piped into the dwelling or yard/plot among the richest and poorest households (100 versus 74 percent), and in terms of education of the head of the household -- 96 percent into the households where the household head has secondary education or more and 85 percent into the households where the household head has no education.

Use of in-house water treatment is presented in Table EN.2. Households were asked of ways they may be treating water at home to make it safer to drink – boiling, adding bleach or chlorine, using a water filter, and using solar disinfection were considered as proper treatment of drinking water. The table shows the percentages of household members using appropriate water treatment methods

Eleven percent of the household population use an appropriate water treatment method. Eight seven percent of household members used no water treatment method. The most common method is boiling. Households using water sources from rural areas are more likely to use an appropriate water treatment than those from urban areas (14 versus 10 percent). The poorest households are more likely to use a water treatment method than the richest one.

The amount of time it takes to obtain water is presented in Table EN.3 and the person who usually collected the water in Table EN.4. 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 EN.3 shows that for 96 percent of households, the drinking water source is on the premises. For 0.3 percent of households, it takes less than 30 minutes to get to the water source and bring water, while 0.5 percent of households spend more than 1 hour for this purpose. Excluding those households with water on the premises, the average time to the source of drinking water is 19 minutes. For those households without access to water on the premises, the time spent in urban areas in collecting water is higher than in rural areas.

Table EN.4 shows that for the majority of households, an adult female is usually the person collecting the water (63 percent), when the source of drinking water is not on the premises. Adult men collect water in 33 percent of cases, while almost no female or male children under age 15 collect water.

Inadequate disposal of human excreta and personal hygiene is associated with a range of diseases including diarrhoeal diseases and polio. Improved sanitation facilities for excreta disposal include: flush or pour flush to a piped sewer system, septic tank, or latrine; ventilated improved pit latrine, pit latrine with slab, and composting toilet.

Ninety three percent of the population in Republic of Macedonia is living in households with a sanitary means of excreta disposal - 97 percent in urban areas and 88 percent in rural areas (Table EN.5). Ninety percent have a flush toilet connected either to a sewage system or septic tank. Septic tanks are much more common in rural areas; 53 percent of the rural population use a septic tank, whereas in urban areas 12 percent of the population fall into this category. In urban areas less than 1 percent uses a pit latrine with slab, while the proportion in rural areas is around 2 percent.

The coverage of the population with a flush toilet linked to a sewage system is lowest in the Poloski region (23 percent), which also has the highest proportion of toilets linked to aseptic tank (72 percent). There are some disparities in the use of flush toilet piped to the sewer system between the household population from the Albanian ethnic group (only 34 percent use this type of sanitation facility) and the Macedonian and Roma population (75 and 80 percent).

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 EN.6. The proportion of children whose stools are disposed of safely is 50 percent. The likelihood of safely disposing of the child's faeces increases with the education of the mother or caretaker. The percentage of children whose stools are thrown into garbage is almost 40 percent. Twenty one percent of children used a toilet or latrine. This percentage is higher in urban areas (26 percent) than in rural areas (14 percent). Roma children are less likely to use a toilet or latrine (10 percent). The disposal of stools by putting or rinsing them into a toilet or latrine is

more common among rural children (34 percent) compared to children from urban areas (25 percent).

An overview of the percentage of household members who use improved sources of drinking water and sanitary means of excreta disposal is presented in Table EN.7. Overall, 92 percent of the population use improved sources of drinking water and sanitary means of excreta disposal. Ninety nine percent use improved sources of drinking water and 93 percent use sanitary means of excreta disposal. The percentage who

use both improved sources of drinking water and sanitary means of excreta disposal is higher in urban than in rural areas (97 versus 87 percent), increases with the level of education of the head of household.

There is important association between the use of improved water sources and improved sanitation and socio-economic status of the households. Only 76 percent of the poorest household population use improved sources of drinking water and sanitary means of excreta disposal, compared to 100 percent of the household population from the richest quintiles.



Reproductive health

Contraception

Appropriate family planning is important to the health of women and children by: 1) preventing pregnancies that are too early or too late; 2) extending the period between births; and 3) limiting the number of children. A World Fit for Children goal is access by all couples to information and services to prevent pregnancies that are too early, too closely spaced, too late or too many.

Current use of contraception was reported by 14 percent of women currently married or in union (Table RH.1). The most popular method is the condom which is used by 5 percent of women currently married or in union, followed by the pill, which accounts for 3 percent of married women. One percent of married women use diaphragm, foam or jelly as a contraceptive method. Less than 1 percent use periodic abstinence, withdrawal, female sterilization, vaginal methods, or the lactational amenorrhea method (LAM). Use of any traditional method is three times as high in rural areas as compared with urban places. Use of the pill is higher in urban areas.

Contraceptive prevalence is highest in the South West region at 19 percent and almost as high in the Skopski region at 18 percent. Fifteen percent of married women in the Pelagoniski and Poloski region and 12 percent in the East use a method of contraception. In the Vardarski, North East and South East, contraceptive use is rare; less than 10 percent of married women reported using any method. Adolescents are far less likely to use contraception than older women. Only about

1 percent of married or in union women aged 15-19 currently use a method of contraception compared to 12 percent of 20-24 year olds.

Women's education level is strongly associated with contraceptive prevalence. Use increases with educational level. The percentage of women using any method of contraception rises from 8 percent among those with no education to 12 percent among women with primary education, and to 17 percent among women with secondary or higher education. In addition to differences in prevalence, the method mix varies by education. About 3 percent of contraceptive users with primary education use the condom. Similarly, 7 percent of contraceptive users with secondary or higher education use the condom and 3 percent use pill.

There are no significant differences between the women from different ethnic groups. The modern methods of contraception prevail in women from the richest quintiles, while traditional methods are more frequently used by poorer women. However, even the poorest women are more likely to use a modern method than a traditional method. Interestingly, the middle income group of women have the lowest rate of contraceptive use overall.

Unmet need⁸ for contraception refers to fecund women who are not using any method of contraception, but who wish to postpone the next birth or who wish to stop childbearing altogether. Unmet need is identified in MICS by using a set

of questions eliciting current behaviours and preferences pertaining to contraceptive use, fecundity, and fertility preferences.

Women in unmet need for spacing includes women who are currently married (or in union), fecund (are currently pregnant or think that they are physically able to become pregnant), currently not using contraception, and want to space their births. Pregnant women are considered to want to space their births when they did not want the child at the time they got pregnant. Women who are not pregnant are classified in this category if they want to have a(nother) child, but want to have the child at least two years later, or after marriage.

Women in unmet need for limiting are those women who are currently married (or in union), fecund (are currently pregnant or think that they are physically able to become pregnant), currently not using contraception, and want to limit their births. The latter group includes women who are currently pregnant but had not wanted the pregnancy at all, and women who are not currently pregnant but do not want to have a(nother) child.

Total unmet need for contraception is simply the sum of unmet need for spacing and unmet need for limiting.

Using information on contraception and unmet need, the percentage of demand for contraception satisfied is also estimated from the MICS data. Percentage of demand for contraception satisfied is defined as the proportion of women currently married or in union who are currently using contraception, of the total demand for contraception. The total demand for contraception includes women who currently have an unmet need (for spacing or limiting), plus those who are currently using contraception.

Table RH.2 shows the results of the survey on contraception, unmet need, and the demand for contraception satisfied. While 14 percent of women aged 15-49 years currently married or in union use contraception, the total unmet need for contraception is 34 percent. There are some differences among women by age group, urban/rural and educational level.

Five percent of women have unmet need for spacing. This percentage is highest among women aged 20-29. Women with no education are less likely to have unmet need for spacing (2 percent), compared to women with secondary education (6 percent). Albanian women and women from the

category of other ethnic groups are most likely to have an unmet need for spacing.

Twenty nine percent of women have unmet need for limiting. Urban women are more likely to have unmet need for limiting than rural. The percentage is highest among women aged 40-44.

The percentage of demand for contraception satisfied is 29 percent. This percentage is higher in rural areas (35 percent) than in urban (24 percent). Women with no education are less likely to have demand for contraception satisfied, than women with secondary education (13 percent versus 33 percent). The percent is lowest among Roma women (20 percent).

Antenatal Care

The antenatal period presents important opportunities for reaching pregnant women with a number of 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 the antenatal period is used to inform women and families about the danger signs and symptoms and about the risks of labour and delivery, it may provide the route for ensuring that pregnant women do, in practice, deliver with the assistance of a skilled health care provider. The antenatal period also provides an opportunity to supply 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. According to the Republic of Macedonia immunization protocol tetanus immunization is not standard practice. Management of anaemia during pregnancy and treatment of STIs can significantly improve foetal outcomes and improve maternal health. Adverse outcomes such as low birth weight can be reduced through a combination of interventions to improve women's nutritional status and prevent infections 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.

WHO recommends a minimum of four antenatal visits based on a review of the effectiveness of different models of antenatal care. WHO

guidelines are specific on the content of antenatal care visits, which include:

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

In Republic of Macedonia blood testing during antenatal care is only conducted to detect severe anemia and syphilis testing is only conducted on signs of the infection as determined by the medical practitioner.

Coverage of antenatal care by skilled personnel (a doctor, nurse, midwife or auxiliary midwife) is almost universal in Republic of Macedonia with 98 percent of women receiving antenatal care at least once during the pregnancy. Antenatal care coverage is almost the same in urban and rural areas.

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.3. 94 percent of women with a birth in the two years prior to the survey received antenatal care from a doctor and 4 percent from a nurse or midwife. Health assistance providing antenatal care for women with no education is 85 percent and for those with secondary education is 99 percent. Women from the Roma ethnic group are less likely to receive antenatal care from a doctor than Macedonian women (79 versus 98 percent).

The types of services pregnant women received are shown in table RH.4. Virtually all women in Republic of Macedonia received specific care as part of the antenatal care during pregnancy. 96 percent of women aged 15-49 had blood sample taken, 93 percent had blood pressure measured, 96 percent had urine specimen taken and 94 percent had their weight measured. These percentages are lowest among pregnant women

from the poorest quintile, the Roma ethnic group and among women with no education. There are no significant differences between women from urban/rural areas.

Assistance at Delivery

Globally, 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 a competent health worker with midwifery skills is present at every birth, and 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 attendance 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, midwife or auxiliary midwife.

About 98 percent of births occurring in the year prior to the MICS survey were delivered by skilled personnel (Table RH.5). The more educated a woman is, the more likely she is to have delivered with the assistance of a skilled person.

About 84 percent of births in the year prior to the MICS survey were delivered with assistance by a doctor. Nurses or midwives assisted with the delivery of 14 percent of births. The percentage assisted by a doctor is lower among Roma women (70 percent) and women with no education (78 percent). About 1 percent of births were delivered with the assistance of a relative or friend, and less than 1 percent with the assistance of a traditional birth attendant.



Child Development

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. A World Fit for Children goal is that "children should be physically healthy, mentally alert, emotionally secure, socially competent and ready to learn."

Information on a number of activities that support early learning was collected in the survey. 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 85 percent of children under the age of five, an adult engaged in four or more activities that promote learning and school readiness during the 3 days preceding the survey (Table CD.1). The average number of activities that adults engaged in with children is 5. The table also indicates that the father's involvement in one or more activities occurred for 61 percent of children. Only 3 percent of children are living in a household without their fathers.

Exposure to books in the early years not only provides the child with greater understanding of the nature of print, but may also give the child opportunities to see others reading, such as older siblings doing school work. Presence of books is important for later school performance and IQ scores.

In Republic of Macedonia, 51 percent of children are living in households where at least 3 non-children's books are present (Table CD.2). Forty nine percent of children aged 0-59 months have 3 or more children's books. While no gender differentials are observed, urban children appear to have more access to both types of books than those living in rural households. The proportion of under-5 children who have 3 or more children's books is 60 percent in urban areas, compared to 36 percent in rural areas. Children from the poorest households appear to have less access to both types of books than those living in the richest households. Twenty one percent of under-5 children living in poorest households live in households with more than 3 children's books, while the figure is 89 percent in the richest households. Children from the Roma and Albanian ethnic groups have the lowest access to children's books (32 and 27 percent).

Table CD.2 also shows that 65 percent of children play with toys that come from a store, about 19 percent of children play with homemade toys, 6 percent of children play with household objects and 6 percent with objects found outside the home (note that percentages do not add up to 100 as children may play with more than one type of toy). About 8 percent had none of the playthings asked to the mothers/caretakers. The highest percentages of children who have none of the playthings are from the Roma population (about 17 percent) and the group where the mother has no education (about 17 percent). Leaving children alone or in the presence of other young children is known to increase the risk of accidents. In MICS, two questions were asked to find out whether children aged 0-59 months were left alone during the week preceding the

interview, and whether children were left in the care of other children under 10 years of age.

Table CD.3 shows that 8 percent of children aged 0-59 months were left in the care of other children, while 3 percent were left alone during the week preceding the interview. Combining the two care indicators, it is calculated that 9 percent of children were left with inadequate care during the week preceding the survey. No clear

differences are observed by the level of mother's education or between urban and rural areas. On the other hand, inadequate care was more prevalent among female children (11 percent), as opposed to male (8 percent). Children aged 24-59 months were left with inadequate care more (12 percent) than those who were aged 0-23 months (4 percent). Small differences are observed in regard to socioeconomic status of the household.



Education

Pre-School Attendance and School Readiness

Attendance to pre-school education in an organized learning or child education program is important for the readiness of children to school. One of the World Fit for Children goals is the promotion of early childhood education.

Only 11 percent of children aged 36-59 months are attending pre-school (Table ED.1). A higher percentage of boys (15 percent) compared to girls (6 percent) are attending pre-school. Urban-rural and regional differentials are significant – children in urban areas are about ten times as likely to attend early learning activities (the figure is as high as 19 percent in urban areas, compared to less than 2 percent in rural areas). There are regional variations ranging from 1 percent in Poloski to 23 percent in Vardarski region. Differentials by socioeconomic status are significant. Twenty five percent of children living in the richest households attend pre-school, while the figure drops to only 1 percent in the poorest households. Relatively few children attend at age 48-59 months (8 percent) when compared to children aged 36-47 months (13 percent). There are some differences in the attendance rate of children from different ethnic groups - only 2 percent of Albanian children attend pre-school education compared to 17 percent of Macedonian children. This figure is 4 percent for the Roma children. Finally, mother's education appears to be strongly related to the likelihood that a child will attend an early childhood education. The percentage of children attending increases from less than 2 percent to 23 percent as the mother's education increases from primary to secondary or higher education.



The table also shows the proportion of children in the first grade of primary school who attended pre-school the previous year (Table ED.1), an important indicator of school readiness. Overall, 76 percent of children who are currently age 6 or 7 and attending the first grade of primary school

were attending pre-school the previous year. The proportion among males is higher (87 percent) than females (64 percent), while this proportion is almost the same among children living in urban and rural areas.

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 and democracy, protecting the environment, and influencing population growth.

The indicators for primary and secondary school attendance include:

- Net intake rate in primary education
- Net primary school attendance rate
- Net secondary school attendance rate
- Net primary school attendance rate of children of secondary school age
- Female to male education ratio (or gender parity index - GPI)

The indicators of school progression include:

- Transition rate to secondary school
- Net primary completion rate

Of children who are of primary school entry age (age 7) in Republic of Macedonia, 95 percent are attending the first grade of primary school (ED.2).

There are no significant differences between boys and girls, urban and rural areas and regions. A positive correlation with mother's education and socioeconomic status is observed; for children age 7 whose mothers have at least secondary school education, 98 percent were attending the first grade, compared to 83 percent of children whose mothers have no education. In the richest households, the proportion is around 98 percent, while it is 86 percent among children living in the poorest households. Roma children have the lowest levels with only 63 percent attending the first grade of primary school.

Table ED.3 provides the percentage of children of primary school age attending primary or secondary school. Overall, 95 percent of children of primary school age (ages 7-14) in Republic of Macedonia are attending primary school or secondary school (Table ED.3). The lowest proportion of children attending primary school can be observed in the poorest wealth quintile. This proportion varies from 87 percent in the poorest wealth quintile to



100 percent in the richest one. The attendance rate of Roma children is lower in comparison to other ethnic groups (61 percent). In urban areas, 93 percent of children attend school while in rural areas 97 percent attend. This difference is principally because of the lower attendance rate for the Roma population, and the Roma live predominantly in the urban areas. School attendance in the South East and Pelagoniski region is lower than in the other regions at 81 percent. At the national level, there is a small difference between male and female primary school attendance.

The secondary school net attendance ratio is presented in Table ED.4. Overall, 63 percent of children of secondary school age (ages 15–18) in Republic of Macedonia are attending secondary school (Table ED.4). This percentage is the lowest in the South East region, (37) and among the children of the Roma population, only 17 percent. In urban areas, 71 percent of children attend school while in rural areas 56 percent attend. The attendance of secondary school is strongly determined by the socio-economic status of the households. It ranges from 34 percent in the poorest quintile to 90 percent in the richest quintile. Seventy four percent of Macedonian children of secondary school age attend secondary school, while only 17 percent of Roma children of the same age attend secondary school. There is a higher proportion of girls (68 percent) of this age attending secondary school than of boys (59 percent).

The primary school net attendance ratio of children of secondary school age is presented in Table ED.4W. Three percent of the children of secondary school age are attending primary school when they should be attending secondary school. This percentage is higher among the children from the poorest households (3 percent), than among the children from the richest households (1 percent). The highest percentage of children of secondary school age that should be attending secondary school is among the children from Albanian ethnic group - 7 percent, compared with the Macedonian children where this percentage is less than 1 percent. Overall 5 percent of boys of secondary school age are still in primary school, whereas only 1 percent of girls of the same age are in primary school.

The net primary school completion rate and transition rate to secondary education are presented in Table ED.6. At the time of the survey, 83 percent of the children of primary school completion age (age 14) were attending the last grade of primary education. This value should be distinguished from the gross primary

completion ratio which includes children of any age attending the last grade of primary. The primary school completion rate measures the proportion of children completing primary school at (or before) the recommended age. There are no significant variations in primary school completion across sex or urban and rural areas. However, the lowest percentage of children attending the last grade of primary education can be observed in the poorest wealth quintile. This percentage is lower among children who belong to the Roma ethnic group (45 percent), compared to 87 percent of Macedonian children, and among children whose mothers have no education. The secondary school transition rate measures the proportion of children transitioning directly from primary school to secondary school. Ninety five percent of children that attended the last grade of primary school in the previous year were found at the time of the survey to be attending the first grade of secondary school. There is virtually no difference between urban and rural children, or males and females, however Roma children are significantly less likely to transition to secondary school (only 27 percent) than other children (more than 90 percent).

The ratio of girls to boys attending primary and secondary education is provided in Table ED.7. The table shows that gender parity for primary school is 0.96, indicating that boys have a slight advantage in attendance at primary school. However, the indicator rises to 1.15 for secondary education indicating that girls are substantially more likely to attend secondary school.

Adult Literacy

One of the World Fit for Children goals is to assure adult literacy. Adult literacy is also an MDG indicator, relating to both men and women. In MICS, since only a women's questionnaire was administered, the results are based only on females age 15-24. Literacy was assessed on the ability of women to read a short simple statement or on school attendance. The percentage literate is presented in Table ED.8. The vast majority of the women (97 percent) aged 15-24 in Republic of Macedonia are literate. Overall, there are no substantial differences in the literacy rate among the regions as well as urban and rural areas. The literacy level is strongly associated with women's education. The literacy percentage declines from 100 percent among those with secondary education to 19 percent among the women with no education. Roma women are less likely to be literate than Macedonian or Albanian women (61 versus 99 percent).



Child Protection

Birth Registration

The 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. Birth registration is a fundamental means of securing these rights for children. The 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 94 percent of children under-5 years in Republic of Macedonia have been registered (Table CP.1). There are no significant variations in birth registration across sex, age, or socio-economic categories. Children in the Pelagoniski region are significantly less likely to have their births registered than other children. There are also somewhat lower levels of birth registration of children of mother's with no or primary education compared with those with secondary education. Macedonian children are registered at slightly higher rates than children of other ethnic groups. Eighty nine percent of infants (children aged 0-11 months) were registered, while 95 percent of those aged 24 months and older were registered, suggesting that some children's births may be registered not at their birth, but a little later in life.

Child Labour

Article 32 of the Convention on the Rights of the Child states: "States Parties recognize the [Republic of Macedonia](#)

right of the child to be protected from economic exploitation and from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development..." The World Fit for Children mentions nine strategies to combat child labour and the MDGs call for the protection of children against exploitation. In the MICS questionnaire, a number of questions addressed the issue of child labour, that is, children 5-14 years of age involved in labour activities. A child is considered to be involved in child labour activities at the moment of the survey if during the week preceding the survey:

- Ages 5-11: at least one hour of economic work or 28 hours of domestic work per week.
- Ages 12-14: at least 14 hours of economic work or 28 hours of domestic work per week.

This definition allows differentiation between child labour and child work to identify the type of work that should be eliminated. As such, the estimate provided here is a minimum of the prevalence of child labour since some children may be involved in hazardous labour activities for a number of hours that could be less than the numbers specified in the criteria explained above. Table CP.2 presents the results of child labour by the type of work. Percentages do not add up to the total child labour as children may be involved in more than one type of work.

In Republic of Macedonia, the MICS survey estimates that 6 percent of children aged 5-14 years are involved in child labour activities. Much less than 1 percent of children are engaged in paid



work. About 3 percent participate in unpaid work for someone other than a household member and 3 percent are working for family business. Boys are somewhat more likely to participate in unpaid work outside household and for family business than girls, and younger children (aged 5-11) are more likely than older children (aged 12-14) to be involved in activities considered as child labour, however, this is due to the stricter definition of child labour for the younger children. Levels of child labour vary from less than 1 percent in South East region to almost 15 percent in Vardarski region.

Table CP.3 presents the percentage of children classified as student labourers or as labourer students. Student labourers are the children attending school that were involved in child labour activities at the moment of the surveys. More specifically, of the 85 percent of the children 5-14 years of age attending school, 6 percent are also involved in child labour activities. On the other hand, out of the 6 percent of the children classified as child labourers, the majority of them are also attending school (95 percent).

Child Discipline

As stated in *A World Fit for Children*, “children must be protected against any acts of violence ...” and the Millennium Declaration calls for the protection of children against abuse, exploitation and violence. In the Republic of Macedonia MICS survey, mothers/caretakers of children age 2-14

years were asked a series of questions on the ways parents tend to use to discipline their children when they misbehave. Note that for the child discipline module, one child aged 2-14 per household was selected randomly during field-work. Out of these questions, the two indicators used to describe aspects of child discipline are: 1) the number of children 2-14 years that experience psychological aggression as punishment **or** minor physical punishment **or** severe physical punishment; and 2) the number of parents/caretakers of children 2-14 years of age that believe that in order to raise their children properly, they need to physically punish them.

In Republic of Macedonia almost 70 percent of children aged 2-14 years are subjected to at least one form of psychological or physical punishment by their mothers/caretakers or other household members. More importantly, 16 percent of children are subjected to severe physical punishment. On the other hand, mothers/caretakers who believed that children should be physically punished are only 7 percent, which implies an interesting contrast with the actual prevalence of physical discipline.

Male children are subjected more to severe physical discipline (19 percent) than female children (11 percent). It is very interesting that differentials with respect to many of the background variables are relatively small. Children aged between 5-9 years, Roma children and children from other ethnic groups as well as children from the poorest groups are more likely to experience severe

physical punishment. In contrast, children living in the richest households, children in Macedonian households and children whose mother's have at least secondary education are all more likely to have been disciplined only using non-violent means, that is not using psychological or physical means to discipline the child.

Early Marriage

Marriage before the age of 18 is a reality for many young girls. According to UNICEF's worldwide estimates, over 60 million women aged 20-24 were married/in union before the age of 18. Factors that influence child marriage rates include: the state of the country's civil registration system, which provides proof of age for children; the existence of an adequate legislative framework with an accompanying enforcement mechanism to address cases of child marriage; and the existence of customary or religious laws that condone the practice.

In many parts of the world parents encourage the marriage of their daughters while they are still children in hopes that the marriage will benefit them both financially and socially, while also relieving financial burdens on the family. In actual fact, child marriage is a violation of human rights, compromising the development of girls and often resulting in early pregnancy and social isolation, with little education and poor vocational training reinforcing the gendered nature of poverty. The right to 'free and full' consent to a marriage is recognized in the Universal Declaration of Human Rights - with the recognition that consent cannot be 'free and full' when one of the parties involved is not sufficiently mature to make an informed decision about a life partner. The Convention on the Elimination of all Forms of Discrimination against Women mentions the right to protection from child marriage in article 16, which states: "The betrothal and the marriage of a child shall have no legal effect, and all necessary action, including legislation, shall be taken to specify a minimum age for marriage..." While marriage is not considered directly in the Convention on the Rights of the Child, child marriage is linked to other rights - such as the right to express their views freely, the right to protection from all forms of abuse, and the right to be protected from harmful traditional practices - and is frequently addressed by the Committee on the Rights of the Child. Other international agreements related to child marriage are the Convention on Consent to Marriage, Minimum Age for Marriage and Registration of Marriages and the African Charter on the Rights and Welfare of the Child and the Protocol to the African Charter on Human and People's Rights on

the Rights of Women in Africa. Child marriage was also identified by the Pan-African Forum against the Sexual Exploitation of Children as a type of commercial sexual exploitation of children.

Young married girls are a unique, though often invisible, group. Required to perform heavy amounts of domestic work, under pressure to demonstrate fertility, and responsible for raising children while still children themselves, married girls and child mothers face constrained decision-making and reduced life choices. Boys are also affected by child marriage but the issue impacts girls in far larger numbers and with more intensity. Cohabitation - when a couple lives together as if married - raises the same human rights concerns as marriage. Where a girl lives with a man and takes on the role of caregiver for him, the assumption is often that she has become an adult woman, even if she has not yet reached the age of 18. Additional concerns due to the informality of the relationship - for example, inheritance, citizenship and social recognition - might make girls in informal unions vulnerable in different ways than those who are in formally recognized marriages.

Research suggests that many factors interact to place a child at risk of marriage. Poverty, protection of girls, family honour and the provision of stability during unstable social periods are considered as significant factors in determining a girl's risk of becoming married while still a child. Women who married at younger ages were more likely to believe that it is sometimes acceptable for a husband to beat his wife and were more likely to experience domestic violence themselves. The age gap between partners is thought to contribute to these abusive power dynamics and to increase the risk of untimely widowhood.

Closely related to the issue of child marriage is the age at which girls become sexually active. Women who are married before the age of 18 tend to have more children than those who marry later in life. Pregnancy related deaths are known to be a leading cause of mortality for both married and unmarried girls between the ages of 15 and 19, particularly among the youngest of this cohort. There is evidence to suggest that girls who marry at young ages are more likely to marry older men which may put them at increased risk of HIV infection. Parents seek to marry off their girls to protect their honour. The demand for this young wife to reproduce and the power imbalance resulting from the age differential lead to very low condom use among such couples.

Two of the indicators are to estimate the percentage of women married before 15 years

of age and percentage married before 18 years of age. The legal age of marriage in Republic of Macedonia is 18 without parental consent. A competent court can in a non-contentious decision permit a person who has attained 16 years of age to enter into marriage, provided that the court is of the opinion that the person possesses the physical and psychological maturity required. The court bases its opinion on the findings provided by a medical institution, as well as through the expert assistance provided by the Centre for Social Work.

The percentage of women married at various ages is provided in Table CP.5. At the national level the percentage married before age 15 is just 1 percent, while the percentage married before age 18 is 12 percent. This percentage varies among the women from different ethnic groups. The percentage married before age 15 and before age 18 is the highest among the women of the Roma ethnic group (11 percent before age 15 and 49 percent before age 18). There is no difference in the percentage married before age 15 in urban and rural areas, but a difference appears in the percentage married before age 18 (10 percent in urban areas compared with 16 percent in rural areas). Women with no education are more likely to have married before age 15 (11 percent). Overall, 2 percent of women currently 15-19 years of age are married/in union. For this age group, the proportions currently married are highest in the Roma population and in the group with no education.

Another component is the spousal age difference with an indicator being the percentage of married/in union women 10 or more years younger than their current spouse. Table CP.6 presents the results of the age difference between husbands and wives. The majority of women aged 20-24 have spouses aged 0-4 years older. Ten percent of women have a husband/partner 10 and more years older. There is no significant difference between women from urban and rural areas. Women with lower educational level are less likely to have a 10 and more years older spouse than more educated women (2 versus 14 percent). Macedonian women are more likely to have their husband/partner 10+ years older, than women from other ethnic groups.

Domestic Violence

A number of questions were asked to women age 15-49 years to assess their attitudes towards whether husbands are justified to hit or beat their wives/partners for a variety of scenarios. These questions were asked to have an indication of

cultural beliefs that tend to be associated with the prevalence of violence against women by their husbands/partners. The main assumption here is that women that agree with the statements indicating that husbands/partners are justified to beat their wives/partners under the situations described in reality tend to be abused by their own husbands/partners. The responses to these questions can be found in Table CP.9. Twenty one percent of women aged 15-49 believe a husband is justified in beating his wife/partner in various circumstances. Women from rural areas are more likely to believe a husband is justified in beating his wife when she goes out without telling him, when she neglects the children and when she argues with him. Attitudes toward domestic violence are strongly associated with women's education. Thirty six percent of women with no education agree with any of these reasons, while this percentage is lower among women with secondary education (11 percent). Women in the poorest quintile (32 percent) are more likely to believe one or more of the reasons are justified than women in the richest quintile (8 percent). Women from the Roma ethnic group are more likely to believe a husband is justified in beating his wife when she goes out, neglects the children and argues with him, than Macedonian women.

Child Disability

One of the World Fit for Children goals is to protect children against abuse, exploitation, and violence, including the elimination of discrimination against children with disabilities. For children age 2 through 9 years, a series of questions were asked to assess a number of disabilities or impairments, such as sight impairment, deafness, and difficulties with speech. This approach rests in the concept of functional disability developed by WHO and aims to identify the implications of any impairment or disability for the development of the child (e.g. health, nutrition, education, etc.). Table CP.10 presents the results of these questions. Ten percent of children 2-9 years of age have at least one reported disability. This percentage is higher in the poorest quintile at 12 percent compared to 8 percent in the richest quintile. Roma children are more likely to have at least one reported disability. Three percent of children are not learning to do things like other children his/her age, 2 percent of children have no understanding of instructions and 1 percent has difficulty seeing, either in the daytime or at night. In thirteen percent of children aged 3-9, their mothers or caretakers believe that their speech is not normal. Nine percent of children aged 2 are reported as not being able to name at least one object.



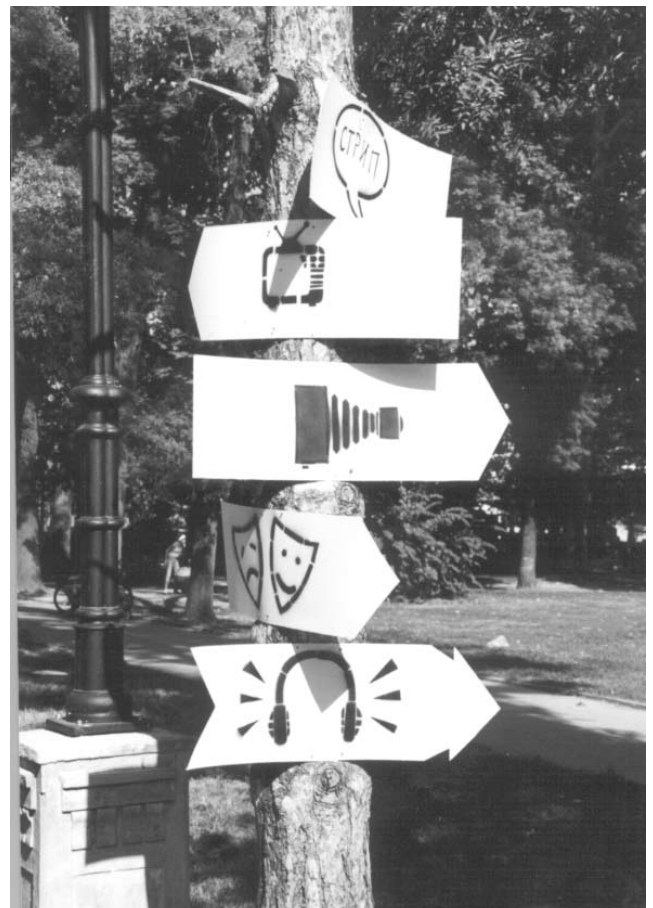
HIV/AIDS, Sexual Behaviour, and Orphaned Children

Knowledge of HIV Transmission and Condom Use

One of the most important prerequisites for reducing the rate of HIV infection is accurate knowledge of how HIV is transmitted and strategies for preventing transmission. Correct information is the first step toward raising awareness and giving young people the tools to protect themselves from infection. Misconceptions about HIV/AIDS 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/AIDS module was administered to women 15-49 years of age.

One indicator which is both an MDG and UNGASS indicator is the percentage of young women who have comprehensive and correct knowledge of HIV prevention and transmission. Women were asked whether they knew of the three main ways of HIV transmission – having only one faithful uninfected partner, using a condom every time, and abstaining from sex. The results are presented in Table HA.1. In Republic of Macedonia 80 percent of interviewed women aged 15-49 have heard of AIDS. There was a significant difference

between women with no education (34 percent) and women with secondary education (96 percent). The poorest quintile (58 percent) is significantly less likely to have heard of AIDS than the richest quintile (96 percent). Ninety five percent of Macedonian women have heard of AIDS, but less than 60 percent of women from other ethnic groups have heard of AIDS.



Women in the MICS were read several statements about means of HIV transmission and asked to state whether they believed the three statements on main ways of preventing HIV were true. The three main ways are “having only one faithful uninfected sex partner”, “using a condom every time” and “abstaining from sex”.

Among women aged 15-49, 61 percent believed that having only one uninfected sex partner can prevent HIV transmission, 60 percent know using a condom every time can prevent HIV transmission, and 28 percent know of abstaining from sex as a way of preventing HIV transmission. Overall, 22 percent know all three ways and 71 percent are aware of at least one of the means of preventing transmission. Thirty percent of women do not know any of these three ways.

Regionally, women in Vardarski region (85 percent aware of at least one way) are better informed than in Poloski region (57 percent). Women in urban areas (80 percent) are better informed than women in rural areas (58 percent).

Knowledge of preventing HIV transmission increased significantly with educational level. The percentage of women (15-49) who know all three ways of preventing transmission is lowest among women with no education (4 percent), while it is 27 percent among women with secondary education, and knowledge of at least one way of preventing transmission is only 22 percent for women with no education but 91 percent for women with at least secondary education. Differences in knowledge across age groups are not particularly large.

In general, women from Albanian and Roma ethnic group are less informed than Macedonian women. While 77 percent of Macedonian women believe that using a condom every time can prevent HIV/AIDS transmission, this percentage is significantly lower among women from Albanian and Roma ethnic groups (34 percent).

Table HA.2 presents the percentage of women who can correctly identify misconceptions concerning HIV. The indicator is based on the two most common and relevant misconceptions in Republic of Macedonia, that HIV can be transmitted by supernatural means and sharing food. The table also provides information on whether women know that HIV cannot be transmitted by mosquito bites, and that HIV can be transmitted by sharing needles. Of the interviewed women, 32 percent reject the two most common misconceptions and know that a healthy-looking person can be infected. Seventy one percent of women know

that HIV cannot be transmitted by supernatural means, and 41 percent of women know that HIV cannot be transmitted by mosquito bites, while 57 percent of women know that a healthy-looking person can be infected.

Women in rural areas are less likely to identify both misconceptions than urban women (19 versus 41 percent). Women with secondary education (49 percent) are more likely to recognize both misconceptions than women with primary (11 percent) or no education (3 percent). There are significant differences among women from different ethnic groups. Only 8 percent of Roma women can identify both misconceptions, compared with Macedonian women where this percentage is 43. Identification of both misconceptions is also positively correlated with the socio-economic status measured by the wealth quintiles – 9 percent of the poorest quintile identified both misconceptions, compared with 52 percent of the richest quintile.

Table HA.3 summarizes information from Tables HA.1 and HA.2 and presents the percentage of women who know two ways of preventing HIV transmission and reject three common misconceptions. Comprehensive knowledge of HIV prevention methods and transmission is still fairly low although there are differences by area of residence.

The first column shows the percentage of women who know two ways of preventing HIV transmission-having one faithful uninfected partner and using a condom every time. Roughly half of women know these two ways. The second column shows the percentage of women who correctly identify two misconceptions about HIV transmission-that it can be transmitted through mosquito bites, and that a healthy looking person cannot be infected. Roughly one third of women correctly identified these as misconceptions. Finally, the third column of the table shows the percentage of women who have comprehensive knowledge of HIV transmission. These are women who know two prevention methods and three misconceptions. Twenty four percent of women aged 15-49 fell into this category.

Overall, 51 percent of women report knowing two prevention methods while in urban areas 57 percent of women identified both methods. Seventy percent of the richest quintile know two prevention methods compared with only 29 percent of the poorest quintile.

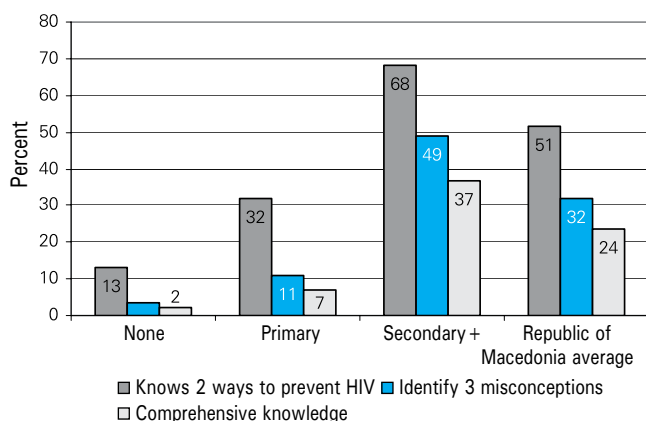
Level of education is highly associated with knowledge of HIV. Knowledge of preventing

HIV transmission increased significantly with educational level. The percentage of women (15-49) who know both means of preventing transmission is lowest among women with no education (13 percent) or primary education (32 percent), while it is 68 percent among women with secondary education.

Twenty four percent of women aged 15-49 correctly identified the two ways to prevent HIV transmission and rejected the three misconceptions about HIV/AIDS. Women in rural areas are less likely to have comprehensive correct knowledge about HIV/AIDS than urban women (14 versus 30 percent). Comprehensive correct knowledge is highest among the Macedonian population (33 percent) than the other ethnic groups (less than 8 percent for either the Albanian population or the Roma population). Thirty seven percent of secondary educated women have comprehensive correct knowledge about HIV/AIDS, compared with only 7 percent or less of women with primary or no education. In the poorest quintile only 5 percent have comprehensive correct knowledge while that figure rises to 40 percent in the richest quintile. Comprehensive correct knowledge varies by region from a low of 12 percent in Poloski region to a high of 39 percent in Vardarski region.

A key indicator used to measure countries' responses to the HIV/AIDS epidemic is the proportion of young people 15-24 years who know two methods of preventing HIV reject two misconceptions and know that a healthy looking person can have HIV. Twenty seven percent of young women have comprehensive correct knowledge of HIV/AIDS (Figure HA.1).

Figure HA.1 Percent of women who have comprehensive knowledge of HIV/AIDS transmission, Republic of Macedonia, 2005



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 infection in the baby. Women should know

that HIV can be transmitted during pregnancy, delivery, and through breastfeeding. The level of knowledge among women age 15-49 years concerning mother-to-child transmission is presented in Table HA.4. Overall, seventy one percent 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 56 percent, while 9 percent of women did not know of any specific way.

Knowledge of all three ways in which HIV can be transmitted from mother to child is higher in urban areas (61 percent) than in rural areas (47 percent); it is also significantly higher among the more educated women (72 percent among women with secondary education against 17 percent among women with no education). Women from the Albanian and Roma ethnic group are less likely to correctly identify means of HIV transmission from mother to child than Macedonian women (29 percent versus 70 percent). When asked specifically about the mechanisms through which mother to child transmission can take place, about 69 percent said that transmission during pregnancy was possible, 60 percent said that transmission at delivery was possible, and 62 percent agreed that HIV can be transmitted through breast milk.

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 was 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.5 presents the attitudes of women towards people living with HIV/AIDS. Eighty four percent of women aged 15-49 agreed with at least one discriminatory statement towards people with HIV/AIDS, while only 16 percent expressed accepting attitudes. Only 5 percent of women would not care for a family member who was sick with AIDS, 65 percent would not buy fresh vegetables from person with HIV/AIDS and 55 percent believe that a female teacher with HIV should not be allowed to work. Urban women (18 percent) are more likely to express accepting attitudes than rural women (13 percent). Women aged 25-29 are most likely to show accepting attitudes. Twenty eight percent of women with no education agree with none of the discriminatory statements, compared to only 9 percent of those with primary education. Roma women are most likely to

express no discriminatory attitudes (23 percent). For all background categories, including region, urban/rural, age groups, education, wealth index and ethnic group, the proportion expressing a discriminatory attitude increases from the first to the fourth question.

Another important indicator is the knowledge of where to be tested for HIV and use of such services. The indicators shown in Table HA.6 are designed to monitor whether women are aware of places to get tested for HIV, the extent to which they have been tested, and the extent to which those tested have been told the results of the test. In some places, a relatively large proportion of people who are tested do not return to get their results due to fear of having the disease, fear that their privacy will be violated, or other reasons.

Forty five percent of women of reproductive age in Republic of Macedonia know a place to get tested for HIV. Women living in urban areas are most likely to know a place compared to those of rural areas. Women living in Pelagoniski region know a place to be tested (64 percent) more than any other region, followed by East region (55 percent), while this percent is lowest in the Poloski region (28 percent). Only 17 percent of women with primary education know a place to get tested compared to 68 percent of women with secondary education. Women from the Albanian ethnic group are less likely to know a place to get tested (18 percent) compared to Macedonian women (60 percent).

Only 3 percent of women have actually been tested. Again this percentage is higher among women with secondary education (5 percent) than among those with no or primary education (0.3 percent). The vast majority of women who have been tested were told their results (92 percent).

Among women who had given birth within the two years preceding the survey, the percentage who received HIV/AIDS counselling during antenatal care is presented in Table HA.7. Ninety eight percent of women in Republic of Macedonia received antenatal care from a health professional for last pregnancy, however, only 12 percent of women were provided information about HIV prevention during antenatal care visit. The percentage is higher in urban areas (14 percent) than in rural areas (9 percent). Receipt of HIV counselling increased with level of education from 7 percent for women with no education to 17 percent for women with secondary education. Macedonian women were the most likely (20 percent) of any ethnic group to have been provided information about HIV prevention.

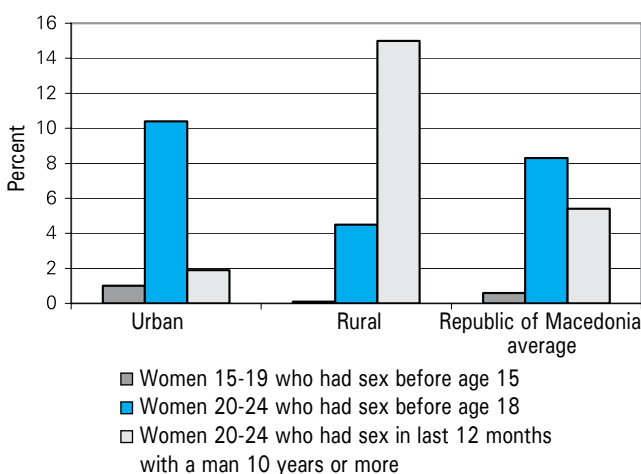
Sexual Behaviour Related to HIV Transmission

Promoting safer sexual behaviour is critical for reducing HIV prevalence. The use of condoms during sex, especially with non-regular partners, is especially important for reducing the spread of HIV. In most countries over half of new HIV infections are among young people 15-24 years thus a change in behaviour among this age group will be especially important to reduce new infections. A module of questions was administered to women 15-24 years of age to assess their risk of HIV infection. Risk factors for HIV include sex at an early age, sex with older men, sex with a non-marital non-cohabitating partner, and failure to use a condom.

The frequency of sexual behaviours that increase the risk of HIV infection among women is presented in Table HA.8 and Figure HA.2. Among women aged 15-19 in Republic of Macedonia, less than 1 percent had sex before age 15. Eight percent of women aged 20-24 years had sex before age 18. There is a significant difference between women from urban areas (10 percent) and rural areas (5 percent) and between women with no education (26 percent) and those with secondary education (7 percent). Women from the Roma ethnic group are more likely to had sex before 18 (27 percent), compared with women from other ethnic groups.

Five percent of women aged 15-24 who had sex in the 12 months prior to the survey stated that they had sex with a man 10 or more years older. Women in urban areas are less likely to have had sex with a man 10+ years older than rural women (2 versus 15 percent).

Figure HA.2 Sexual behaviour that increases risk of HIV infection, Republic of Macedonia, 2005





Promoting safer sexual behaviour is critical for reducing HIV prevalence. The use of condoms during sex, especially with non-regular partners is especially important for reducing the spread of HIV. Over half of new HIV infections are among young people 15-24 years, thus a change in behaviour among this age group will be especially important to reduce new infections.

Condom use during sex with men other than husbands or live-in partners (non-marital, non-cohabiting) was assessed in women 15-24 years of age who had sex with such a partner in the previous year (Table HA.9). Almost 80 percent of women 15-24 years who had sex in the 12 months prior to the survey report having sex with a non-regular partner in the 12 months prior to the survey. Of those women, 70 percent report using a condom when they had sex with their last high risk partner. Twenty four percent of women with primary education report using a condom during higher risk sex in the year before the survey while 73 percent of women with secondary or more education used a condom with such a partner. Seventy six percent of women in urban areas used a condom during the last high risk sex compared to 46 percent of women in rural areas.

Children's living arrangements and orphanhood

Children who are orphaned or living away from their parents may be at increased risk of impoverishment, discrimination, denial of property rights to inheritance, various forms of abuse, neglect, and exploitation of their labor or sexuality. Monitoring the condition level of orphaned children and the living arrangements of children assists in identifying those who may be at risk and in tracking changes over time.

The frequency of children living with neither parent, mother only, and father only is presented in Table HA.10. Overall 94 percent of children aged 0-17 are living with both parents. Children who are not living with either biological parent comprise 0.4 percent, but children one or both of whose parents are dead amount to almost 2 percent of all children aged 0-17 years. It is more likely that the child's father will be dead than their mother. Four percent of children live with their mother only and their father lives elsewhere, but that percentage reaches almost 12 percent in the South East region.

Endnotes

- 1 The terms “children under 5”, “children age 0-4 years”, and “children aged 0-59 months” are used interchangeably in this report.
- 2 The model MICS3 questionnaire can be found at www.childinfo.org, or in UNICEF, 2006.
- 3 This was determined by asking “To what ethnic group does the head of the household belong?”.
- 4 Unless otherwise stated, “education” refers to the highest educational level attended by the respondent throughout this report when it is used as a background variable.
- 5 Principal components analysis was performed by using information on the ownership of household goods and amenities (assets) to assign weights to each household asset, and obtain wealth scores for each household in the sample (The assets used in these calculations were as follows: persons per sleeping room, type of the floor, type of the roof, type of the walls, type of cooking fuel and other assets: electricity, radio, television, mobile telephone, non-mobile telephone, refrigerator, dish washer, computer, washing machine, watch, bicycle, motorcycle/scooter, animal drawn-cart, car/truck, boat with motor, tractor. Each household was then weighted by the number of household members, and the household population was divided into five groups of equal size, from the poorest quintile to the richest quintile, based on the wealth scores of households they were living in. The wealth index is assumed to capture the underlying long-term wealth through information on the household assets, and is intended to produce a ranking of households by wealth, from poorest to richest. The wealth index does not provide information on absolute poverty, current income or expenditure levels, and the wealth scores calculated are applicable for only the particular data set they are based on. Further information on the construction of the wealth index can be found in Rutstein and Johnson, 2004, and Filmer and Pritchett, 2001.
- 6 For a detailed description of the methodology, see Boerma, Weinstein, Rutstein and Sommerfelt, 1996.
- 7 All means “percent of children who missed out on at least one of the eight recommended doses”
- 8 Unmet need measurement in MICS is somewhat different than that used in other household surveys, such as the Demographic and Health Surveys (DHS). In DHS, more detailed information is collected on additional variables, such as postpartum amenorrhoea, and sexual activity. Results from the two types of surveys are strictly not comparable.