DHS Demographic and Health Surveys

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Exploring New Directions at DHS

When most people think of DHS, they think of the standard national surveys of women of reproductive age that provide data on fertility levels and desires, family planning use, childhood mortality, and maternal and child health. Some are aware of the numerous surveys of men that DHS has undertaken since 1987 (see DHS Newsletter, vol. 8, no. 1). Far fewer are aware of the more recent ways in which DHS has been diversifying—from experimental in-depth surveys, to clinical testing, to making survey datasets available through the World Wide Web. While the major area of innovation is new sets of questions, DHS has also undertaken some methodological and physical tests which have added to the general understanding of population and health issues.

Testing of women and children for anemia was an important part of the DHS surveys in Kazakstan and Uzbekistan. In Kazakstan, half of women of reproductive age and more than two-thirds of children under three suffer from some degree of anemia.

In-depth Surveys

DHS has recently implemented four in-depth surveys that are designed to expand into new areas of questioning, to test new methodologies, and to enhance the data that are available through standard DHS surveys.

In Guatemala, DHS is engaged in a Health Demand and Expenditure Survey in four geographic departments in the highlands. A Household Questionnaire is being used to gather information about household expen-

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Vaccination Coverage Increasing Worldwide

Vaccination against childhood illnesses is increasing according to a recent study of 28 countries in Africa, Asia, and Latin America (*Childhood Immunization: 1990-1994*, by Elisabeth Sommerfelt and Andrea Piani, DHS Comparative Studies No. 22). The study presents comparative findings regarding childhood vaccinations against six diseases—tuberculosis, diphtheria, whooping cough (pertussis), tetanus, poliomyelitis and measles. In the countries that have had at least two DHS surveys, vaccination coverage rates were highest in the most recent survey. The smallest change was in Kenya, where coverage levels were already high in the first DHS survey; the largest change was in Senegal, where coverage rates have increased markedly. Intermediate improvements were seen in Bolivia, Colombia, Ghana, Morocco, and Peru.

There are large differences in vaccination coverage rates across countries. For example, vaccination against measles before the first birthday ex-

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ditures and will identify respondents with an illness during the last 30 days and all women who gave birth or sought family planning services in the past year. These respondents are then interviewed about the health care providers they went to and are asked questions about distance traveled, waiting time, medical treatment received, payments made, satisfaction with services, and general treatment by the provider. The data will be used to analyze the determinants of health-seeking behavior as well as health expenditures and satisfaction with specific types of providers. The survey is being implemented by the National Institute of Statistics (INE).

A complementary study in Guatemala is the Health Care Provider Survey, in which all permanent health facilities—both public and private—in the four index departments are being visited. Five questionnaires will be used to collect information on: the types of equipment and supplies available; number and qualifications of staff; observation of client-provider interaction; client exit interviews; and community-level interviews with knowledgeable respondents. This survey is being implemented by the Central American Institute of Nutrition (INCAP). Both surveys are on-going.

Other in-depth surveys include a study of how couples in Uganda negotiate reproductive outcomes (see DHS newsletter, vol.8, no.2), a methodological study comparing women's own birth histories with the proxy reports given by their sisters in Tanzania (see DHS newsletter, vol.8, no.2), and an ongoing multi-round study of reasons for nonuse of family planning in two governorates in Upper Egypt.

New Questionnaire Modules

In addition to the in-depth surveys, DHS has experimented with new areas of questioning in the standard surveys, including female genital mutilation, domestic violence, and abortion.

Questions about female circumcision or female genital mutilation have been included in the DHS questionnaires in seven countries in Africa (Central African Republic, Côte d'Ivoire, Egypt, Eritrea, Mali, Sudan, and Tanzania). Although the questions vary from country to country, most include age at circumcision, the severity of the procedure received, complications, attitudes toward the practice, and whether or not the woman's daughters have been circumcised. In some countries where a survey of men was conducted, men were also asked about their attitudes towards female circumcision. A comprehensive report on the results of six of these surveys will be published in August 1997.

Questions on domestic violence have been included in surveys in Egypt and Colombia and are planned for the upcoming DHS survey in South Africa. Results show that in both Colombia and Egypt many women have suffered beatings at the hands of their partners—19 percent and 35 percent, respectively.

Although the experience of DHS in trying to obtain data on induced abortion has yielded mixed results, findings from the recent surveys in Kazakstan, Uzbekistan, and Turkey have been plausible. This is largely due to the fact that induced abortion has long been a major means of fertility control in the republics of the former Soviet Union and has been legal in Turkey since 1983. For example, in Kazakstan, 38 percent of all pregnancies are terminated by abortion and 41 percent of women report having had at least one abortion. More encouraging is the fact that as contraceptive methods have become more widely available in Kazakstan the incidence of induced abortion has been declining.

Testing in DHS Surveys

Recent DHS surveys have included various kinds of physical tests, ranging from a simple test of household salt for iodine content that was included in five surveys, to sophisticated blood and urine tests for five sexually-transmitted diseases that were conducted in a pilot test in southern Ethiopia (see DHS newsletter, vol. 8, no. 2). In between in terms of complexity is anemia testing, which has been conducted in DHS surveys in Kazakstan, Uzbekistan, and Peru.

DHS procedures for collecting data on anemia are relatively simple, although they involve the use of medical personnel. Prior to participating in the study, each respondent is asked to sign a consent form giving permission for the collection of a blood droplet from her and her children. Blood is taken from a finger prick using sterile disposable lancets, a battery-operated portable photometer (Hemocue system), and a disposable cuvette which serves both as a blood collection device and the site where reaction occurs. The procedure is performed by specially trained medical personnel on each survey team. Levels of anemia are classified as severe, moderate, and mild based on the hemoglobin concentration in the blood, using WHO criteria.

Geo-locating DHS Data

A potentially useful addition to the data collected in DHS surveys is the exact geographic location of survey sample points. Knowing the exact lati-

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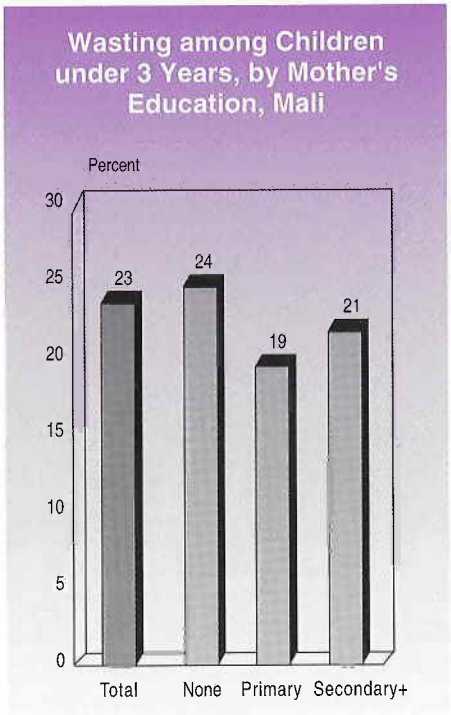
The Demographic and Health Surveys (DHS) program assists developing countries to conduct national surveys on population and maternal and child health. Funded primarily by the U.S. Agency for International Development (USAID), the DHS program is implemented by Macro International Inc. in Calverton, Maryland. The *DHS Newsletter* is published twice a year by Macro International Inc. to provide information about the DHS program and the current status of DHS surveys. Send correspondence to: DHS, Macro International Inc., 11785 Beltsville Drive, Suite 300, Calverton, MD 20705, USA (Telephone 301-572-0200; Telefax 301-572-0999). Project Director, Martin Vaessen; Deputy Director for Survey Operations, Jerry Sullivan; Deputy Director for Analysis, Shea Rutstein; Deputy Director for Dissemination and Data Utilization, Ann Way.

Malnutrition in Mali: A Major Concern for Child Health

The results of the 1995-96 DHS survey in Mali (Enquête Démographique et de Santé, Mali)—the second DHS survey carried out in that country—indicate high levels of malnutrition among young children. Feeding practices as well as food shortages may explain why, among all DHS countries surveyed, Mali has the highest proportion of children wasted.

Twenty-three percent of Malian children under three years are wasted—i.e., they are too thin for their height. Wasting is the result of a recent failure to receive adequate nutrition and may be affected by acute illness, especially diarrhea. In Mali, wasting affects children of all socioeconomic levels, suggesting that insufficient food intake is a widespread problem. The survey was conducted between November and April, which is the more food secure season in Mali.

The survey indicates that only 12 percent of children under four months are exclusively breastfed as recommended by the World Health Organization. The vast majority are introduced too early to other liquids and/or solid foods. These feeding practices increase the child's exposure to pathogens, which may lead to infectious diseases such as diarrhea. WHO also recommends that solid foods be introduced at around age six months because breast milk alone is no longer sufficient to maintain a child's optimal growth. In Mali, however, almost 40 percent of children age 7-9 months are still not receiving solid foods—most of them being breastfed or receiving water—and at 12-13 months, 15 percent of Malian children are still not properly fed.



In Mali, wasting affects children of all socioeconomic levels, suggesting that insufficient food intake is a widespread problem.

Although there have been improvements in childhood mortality in Mali, the worsening nutritional status of young children has limited these improvements. While infant mortality has declined by 22 percent since 1987 (to 123 deaths per 1,000) and under-five mortality has declined by 30 percent (to 238 deaths per 1,000), the propor-

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tude and longitude of sample points provides several potential benefits. At the most basic level, data can be presented visually on maps, which can be used for a variety of purposes. Data can also be analyzed spatially to identify geographic patterns that may not be apparent using standard analysis techniques. One of the most useful benefits of geo-locating DHS sample points, however, is the possibility of linking DHS data to other geo-coded data sources, including data on agriculture, crops, rainfall, and aridity.

With the assistance of the U.S. Bureau of the Census, DHS has geolocated sample points for most of the DHS surveys that have been implemented in West Africa as part of the West Africa Spatial Analysis Prototype (WASAP). This work has primarily been done through the use of gazetteers (dictionaries of place names and geographic locations). While for most purposes this gives reasonably accurate results—on average, to within 5 kilometers of the correct location—the accuracy can be improved through the use of Global Positioning Systems (GPS).

GPS are hand-held devices that make use of an array of satellites circling the earth to pinpoint the location in which the device is being used. GPS are commonly used in commercial applications, such as in delivery trucks to locate drop-off points. The simpler GPS are inexpensive and provide accurate readings to within about 100 meters. More expensive GPS can provide more accurate readings, some to within a meter.

As part of a larger project covering 14 West African countries, DHS interviewers in Benin, Côte d'Ivoire, Mali, and Senegal identified the latitude and longitude of each sample point. The coordinates were then downloaded directly to a computer and are being used to re-aggregate and map data. This approach will be used increasingly in DHS surveys and is planned for upcoming surveys in Burkina Faso, Cameroon, Côte d'Ivoire, Madagascar, and Togo.

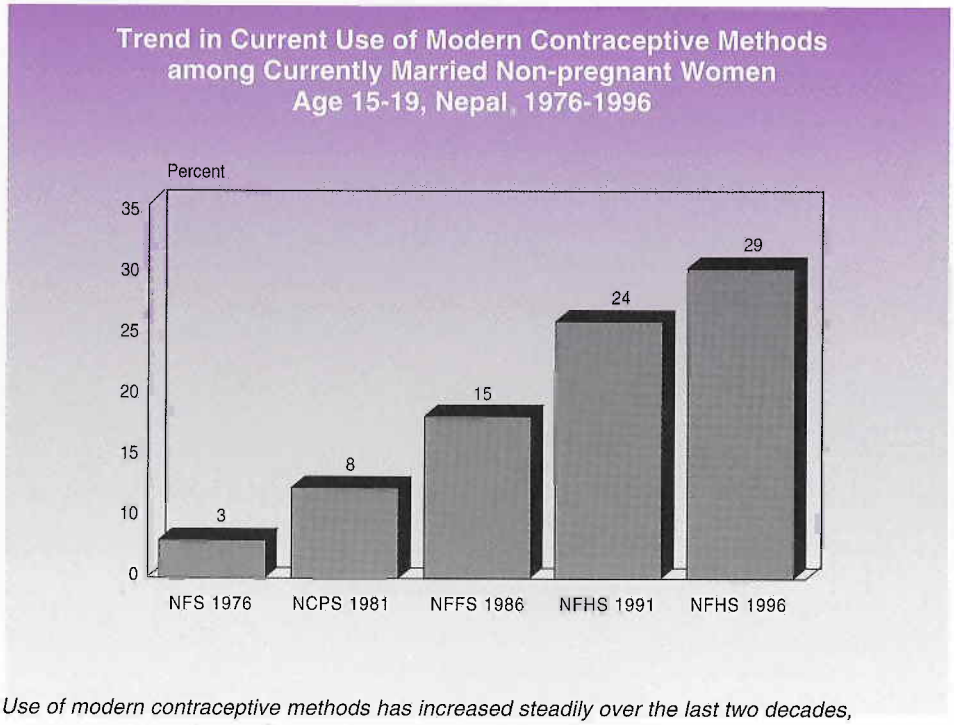
Experiments in survey research are an important part of the DHS program. These examples are efforts to meet one of the major objectives of the program—to expand survey methodology. ■

Nepal Family Health Survey Points to Continued Decline in Fertility

Data from the 1996 Nepal Family Health Survey (NFHS) show that fertility has declined steadily in Nepal from more than 6 births per woman in the mid-1970s to 4.6 births per woman in the mid-1990s. This decline has been influenced both by an increase in the age at marriage and rising contraceptive use over the past 25 years.

The median age at marriage has risen from 15.5 years among women age 45-49 to 17.1 years among women age 20-24. The rise in age at marriage is strongly correlated with an increase in female education. For example, the median age at first marriage for women with no formal education is 16 years, compared with 19.8 years for women with some secondary education.

Despite the trend toward later marriage, childbearing begins early for many Nepalese women. One in four women age 15-19 is already a mother or pregnant with her first child, with teenage childbearing more common among rural women, women who reside in the *terai* (plains), and women who live in the Central Development Region of Nepal. Furthermore, Nepalese women continue to have more children than they consider ideal, at current fertility levels, a woman will have, on average, almost 60 percent more births than she wants.



Use of modern contraceptive methods has increased steadily over the last two decades, contributing to the decline in fertility nationwide.

The percentage of Nepalese women who want to stop childbearing has increased substantially, from 40 percent in 1981 to 59 percent in 1996. Ever use of contraception has also increased, from 4 percent of currently married women in 1976 to 27 percent in 1991 and to 35 percent in 1996. The contraceptive prevalence rate among currently married women was 29 percent in 1996, with the majority of women using modern methods. Despite these improvements, one in three women has an unmet need for family planning.

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Malnutrition in Mali

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tion of children who are alive, but malnourished has increased. It is estimated that 57 percent of deaths that occur before the age of five are related to malnutrition—i.e., 136 deaths per 1,000.

Fertility has declined slightly in Mali, according to the 1995-96 survey, from an average of 7.1 to 6.7 children per woman. Despite this decline, the country still has one of the highest levels of fertility in Africa. Many factors contribute to high fertility in Mali:

- Women marry very young: by age 16, half are already married or have become sexually active;
- The rate of teenage pregnancy is high: 49 percent of women 15-19 in rural areas have already started their reproductive life;
- Use of family planning is low: only 5 percent of women in union are using a modern method; and
- There is little spacing between births: for 26 percent of births, the interval between births is less than two years, which may affect the health of both the mother and child.

The 1995-96 DHS survey in Mali was implemented by the Ministère de la Santé, de la Solidarité et des Personnes Âgées and the Direction Nationale de la Statistique et de l'Informatique. A total of 9,704 women age 15-49, and 2,474 men age 15-59 were interviewed, making it the largest DHS survey carried out in sub-Saharan Africa. The final report and summary report for the survey are available in French. ■

Fertility Remains High in Guatemala Despite Increasing Use of Contraception

With a total fertility rate of 5.1, Guatemala has one of the highest levels of fertility in Latin America, according to findings from the 1995 DHS survey in Guatemala (Encuesta Nacional de Salud Materno Infantil—ENSMI-95). Fertility is lower among educated women, urban women, and Ladino women. The differences are most striking by education: on average, women with no formal education will have 7 children, compared with 2 or 3 children among women with at least some secondary education.

Contraceptive use among currently married women increased from 23 percent in 1987 to 32 percent in 1995; however, this level of use is still low compared with other countries in the region. Almost half of contraceptive users (15 percent) rely on female steril-

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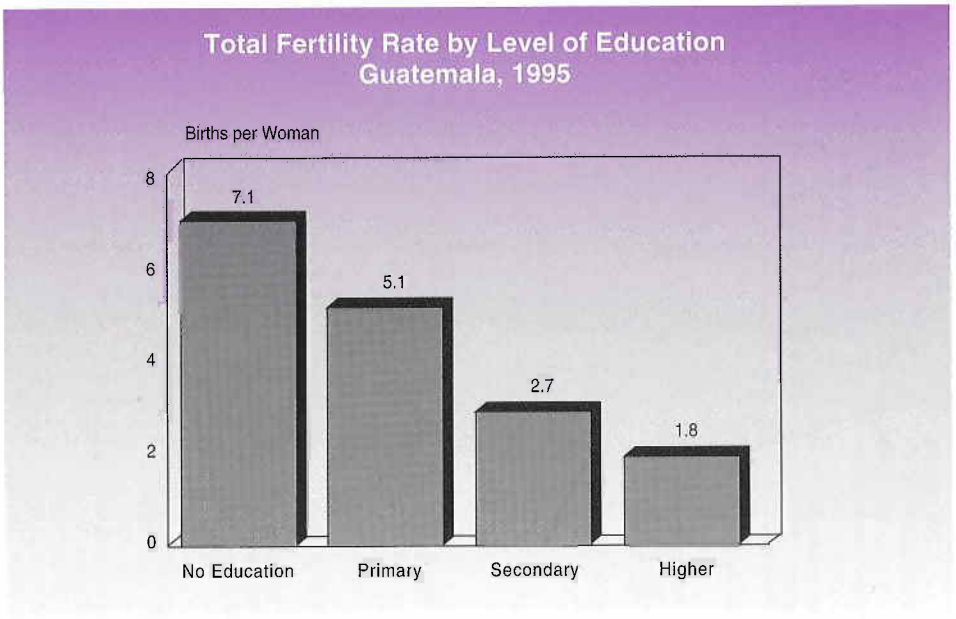

Guatemalan women who have no education have more than twice as many children as women who have attended secondary school or higher.

Vaccination Coverage Increasing Worldwide

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ceeds 75 percent in only 3 countries (Jordan, Kenya, and Rwanda). In 10 countries (Bolivia, Burkina Faso, Cameroon, Dominican Republic, Indonesia, Madagascar, Pakistan, Paraguay, Senegal, and Sudan), one-third to one-half of children receive measles vaccine in the first year of life. In Niger and Nigeria, coverage rates are even lower: only 1 in 5 and 1 in 3 children, respectively, are vaccinated against measles. In the remaining 13 countries, one-half to three-quarters of children receive measles vaccine in the first year (Bangladesh, Northeast Brazil, Colombia, Egypt, Ghana, Malawi, Morocco, Namibia, Peru, the Philippines, Tanzania, Turkey, and Zambia).

In addition to providing overall vaccination coverage rates, DHS data allow identification of subgroups of children who are at high risk of not being vaccinated or of receiving suboptimal vaccination services. For example, in most countries urban children have higher coverage rates than rural children, and children from households with a radio tend to have higher coverage rates than those from households without a radio. The largest differentials are seen according to mother's level of education; children of mothers with little or no formal schooling have consistently lower vaccination coverage levels than children of mothers with more education. There are smaller differentials according to birth order or length of the preceding birth interval, with lower order births and children born after longer birth intervals having slightly higher coverage rates. Differences in coverage between boys and girls are small and inconsistent.

The report recommends that immunization coverage reports include the following information for all children 12-23 months of age at the time of the survey: the percentage for whom a written vaccination record was seen by the interviewer, the percentage who had received each vaccination by the time of the survey, and the percentage who had received each vaccination by the first birthday. Vaccination status at the time of the survey is simple to calculate, which aids in comparing surveys. In contrast, vaccination coverage by the first birthday, which gives an indication of the timeliness of vaccination, requires more complex calculations and demands that a number of assumptions be made. This leaves the potential for lack of comparability between surveys that may have used disparate assumptions or made errors in calculating vaccination coverage rates by the first birthday, which could cause problems in evaluating improvements in vaccination coverage.

Attaining the goal of the World Summit for Children—90 percent vaccination coverage by the year 2000—is a realistic possibility for a handful of countries included in the study. For many others, however, the challenge is substantial, and determined effort will be required to meet the goal. ■

Summary of Demographic and Health Surveys as of July 1997

REGION/SURVEY COUNTRY	DATE OF FIELDWORK	IMPLEMENTING ORGANIZATION	CORE QUESTIONNAIRE	RESPONDENTS	SAMPLE SIZE	MALE/HUSBAND SURVEY	SUPPLEMENTAL MODULES/ADDITIONAL QUESTIONS: Child Anthropometry	Service Availability Info	Social Marketing	Maternal Mortality	AIDS	Women's Employment	Causes of Death	Sterilization	Pill Compliance	Maternal Anthropometry	REPORT	DATA FILES
SUB-SAHARAN AFRICA																		
DHS-I																		
Botswana	Aug-Dec 1988	Ministry of Health	A/B	AW 15-49	4,368						X				X		FR	Recode
Burundi	Apr-Jul 1987	Dép. de la Pop., Min. de l'Intérieur	B	AW 15-49	3,970	542 Husbands	X	X									FR	Recode
Ghana	Feb-May 1988	Ghana Statistical Service	B	AW 15-49	4,488	943 Husbands	X		X			X					FR	Recode
Kenya	Dec-May 1988/89	Nat. Council for Population and Dev.	B	AW 15-49	7,150	1,133 Husbands											FR	Recode
Liberia	Feb-Jul 1986	Min. of Planning & Economic Affairs	B	AW 15-49	5,239												FR	Recode
Mali	Mar-Aug 1987	Institut du Sahel: USED/CERPOD	B	AW 15-49	3,200	970 Men 20-55	X										FR	Recode
Ondo State, Nigeria	Sep-Jan 1986/87	Ministry of Health, Ondo State	B	AW 15-49	4,213		X										FR	Recode
Senegal	Apr-Jul 1986	Min. de l'Economie et des Finances	B	AW 15-49	4,415		X						X				FR	Recode
Sudan	Nov-May 1989/90	Dept. of Stat., Min. of Fin. & Econ. Plan.	B	EMW 15-49	5,860					X							FR	Recode
Togo	Jun-Nov 1988	Unité de Recherche Dém., U. du Benin	B	AW 15-49	3,360		X	X									FR	Recode
Uganda	Sep-Feb 1988/89	Ministry of Health	B	AW 15-49	4,730		X	X									FR	Recode
Zimbabwe	Sep-Jan 1988/89	Central Statistical Office	A/B	AW 15-49	4,201		X	X			X	X			X		FR	Recode
DHS-II																		
Burkina Faso	Dec-Mar 1992/93	Inst. Nat. de la Stat. et de la Démo.	B	AW 15-49	6,354	1,845 Men 18+	X	X			X					X	FR	Recode
Cameroon	Apr-Sep 1991	Min. du Plan et de l'Amén. du Terr.	B	AW 15-49	3,871	814 Husbands	X	X					X				FR	Recode
Madagascar	May-Nov 1992	Centre Nat. de Recherches sur l'Env.	B	AW 15-49	6,260		X	X		X							FR	Recode
Malawi	Sep-Nov 1992	National Statistical Office	B	AW 15-49	4,850	1,151 Men 20-54	X	X		X	X					X	FR	Recode
Namibia [1]	Jul-Nov 1992	Min. of Health and Social Services	B	AW 15-49	5,421		X			X			X			X	FR	Recode
Niger	Mar-Jun 1992	Dir. de la Stat. et des Comptes Nat.	B	AW 15-49	6,503	1,570 Husbands	X	X		X						X	FR	Recode
Nigeria	Apr-Oct 1990	Federal Office of Statistics	B	AW 15-49	8,781		X	X									FR	Recode
Rwanda	Jun-Oct 1992	Office National de la Population	B	AW 15-49	6,551	598 Husbands	X										FR	Recode
Senegal	Nov-Aug 1992/93	Dir. de la Prévision et de la Stat.	B	AW 15-49	6,310	1,436 Men 20+	X	X		X	X					X	FR	Recode
Tanzania	Oct-Mar 1991/92	Bureau of Statistics, Planning Comm.	B	AW 15-49	9,238	2,114 Men 15-60	X	X			X					X	FR	Recode
Zambia	Jan-May 1992	University of Zambia	B	AW 15-49	7,060		X				X					X	FR	Recode
DHS-III																		
Benin	Jun-Aug 1996	Inst. Nat. de la Statistique	B	AW 15-49	5,491	1.535 Men 20-64	X	X		X	X					X	FR	Recode
Burkina Faso	Feb-Mar 1998	Inst. Nat. de la Statistique et la Dem.	B [2]	AW 12-49	1,000	1,000 Men 12-59					X							
Cameroon	Sep-Nov 1997	Bur. Cen. Recensements et Etudes de Pop.	B	AW 12-49	3,500	1,800 Men 12-59				X	X		X					
Central African Rep.	Sep-Mar 1994/95	Dir. des Stat. Dém. et Sociales	B	AW 15-49	5,884	1,729 Men 15-59	X	X		X	X		X			X	FR	Recode
Chad [1,3]	Dec-Jul 1996/97	Bureau Central du Recensement	B	AW 15-49	7,000	2,000 Men 15-59	X	X		X	X		X			X		
Comoros [3]	Mar-May 1996	Centre Nat. de Doc. et de Rech. Sci.	B	AW 15-49	3,050	795 Men 15-64	X									X	FR	Recode
Congo [1]	Sep-Dec 1997	Centre Nat. de la Statistique	B	AW 15-49	5,000	1,500 Men 20-59	X									X		
Côte d'Ivoire	Jun-Nov 1994	Inst. Nat. de la Statistique	B	AW 15-49	8,099	2,552 Men 12-49	X	X								X	FR	Recode
Côte d'Ivoire	Nov-Dec 1997	Inst. Nat. de la Statistique	B [2]	AW 12-49	1,000	1,800 Men 12-59												
Eritrea	Sep-Jan 1995/96	National Statistics Office	B	AW 15-49	5,054	1,114 Men 15-59	X	X		X	X					X	FR	
Ghana	Sep-Dec 1993	Ghana Statistical Service	B	AW 15-49	4,562	1,302 Men 15-59	X									X	FR	Recode
Kenya	Feb-Aug 1993	Nat. Council Population and Dev.	B	AW 15-49	7,540	2,336 Men 15-54	X	X			X					X	FR	Recode
Kenya	Feb-May 1998	Nat. Council Population and Dev.	A	AW 15-49	7,500	3,000 Men 15-54	X			X	X					X		
Madagascar [3]	Sep-Dec 1997	Dir. de la Dem. et de la Statis. Sociales	B	AW 15-49	6,000		X				X					X		
Malawi (KAP)	Jun-Oct 1996	National Statistical Office	B [4]	AW 15-49	2,683	2,658 Men 15-54					X						PR	
Mali [5]	Nov-Apr 1995/96	CPS/MSSPA et DNSI	B	AW 15-49	9,704	2,474 Men 15-59	X	X		X	X					X	FR	Recode
Mozambique	Mar-Jun 1997	Instituto Nacional de Estatística	B	AW 15-49	9,200	2,750 Men 15-59	X	X		X						X		
Niger	Oct-Feb 1997/98	Care International	B	AW 15-49	7,000	3,500 Men 15-59					X							
Senegal (Interim)	Jan-April 1997	Min. de l'Economie et des Finances	B	AW 15-49	8,593	4,306 Men 20+					X						PR	
South Africa	Nov-Mar 1997/98	Dept. of Health/ Med. Research Council	B	AW 15-49	12,000					X								
Tanzania (KAP)	Jul-Sep 1994	Bureau of Statistics, Planning Comm.	B [4]	AW 15-49	4,225	2,097 Men 15-59					X				X		FR	Raw only
Tanzania (In-Depth)*	Jun-Oct 1995	Bureau of Statistics, Planning Comm.	–	AW 15-49	2,130 [6]												FR	
Tanzania	Jul-Nov 1996	Bureau of Statistics, Planning Comm.	B	AW 15-49	8,120	2,256 Men 15-59	X			X	X					X	PR	
Togo	Feb-Apr 1998	Direction de la Statistique	B	AW 12-49	8,000	3,500 Men 12-59												
Uganda	Mar-Aug 1995	Dept. of Stat., Min. Fin. & Econ. Plan.	B	AW 15-49	7,070	1,996 Men 15-59	X	X		X	X					X	FR	Recode
Uganda (In-Depth)*	Oct-Jan 1995/96	Inst. Stat. & Applied Econ., Makerere U.	–	AW 20-44	1,750 [6]	1,356 Partners											FR	Raw
Zambia	Jul-Jan 1996/97	Central Statistics Office	B	AW 15-49	8,021	1,849 Men 15-59	X			X	X					X	PR	
Zimbabwe	Jul-Nov 1994	Central Statistical Office	A	AW 15-49	6,128	2,141 Men 15-54	X	X		X	X				X	X	FR	Recode
ASIA/NEAR EAST/NORTH AFRICA																		
DHS-I																		
Egypt	Oct-Jan 1988/89	National Population Council	A	EMW 15-49	8,911		X	X		X		X	X		X		FR	Recode
Indonesia	Sep-Dec 1987	Central Bureau of Statistics/NFPCB	A	EMW 15-[illegible]	11,884				X						X		FR	Recode
Mor[illegible]	May-Jul 1987	Ministère de la Santé Publique	A	EMW 15	5,982		X						X	X			FR	Recode
Nepa[illegible]P-GAP)	Feb-Apr 1987	New ERA	–	CMW 15-[illegible]	1,623												FR	Raw

Sri L[redacted]	Jan-Mar	1987	Dept. of Cen. & Stat., Min. of Plan Impl.	A	EMW 15-[redacted]	5,865			X									FR	Recode
Thai[redacted]	Mar-Jun	1987	Inst. of Pop. Studies, Chulalongkorn U.	A	EMW 15[redacted]	6,775			X	X					X			F[redacted]	Recode
Tunisia	Jun-Oct	1988	Office Nat. de la Fam. et de la Pop.	A	EMW 15-49	4,184			X	X					X			FR[redacted]	Recode
DHS-II																			
Egypt	Nov-Dec	1992	National Population Council	A	EMW 15-49	9,864	2,466 Husbands		X		X					X	X	FR	Recode
Indonesia	May-Jul	1991	Central Bureau of Stat./NFPCB/MOH	A	EMW 15-49	22,909					X					X		FR	Recode
Jordan	Sep-Dec	1990	Dept. of Statistics, Min. of Planning	A	EMW 15-49	6,461			X	X								FR	Recode
Morocco	Jan-Apr	1992	Ministère de la Santé Publique	A	AW 15-49	9,256	1,336 Men 20-70		X	X		X					X	FR	Recode
Pakistan	Dec-May	1990/91	Nat. Institute of Population Studies	B	EMW 15-49	6,611	1,354 Husbands		X									FR	Recode
Yemen	Nov-Jan	1991/92	Central Statistical Organization	–	EMW 15-49	5,687			X					X				FR	Raw
DHS-III																			
Bangladesh	Nov-Mar	1993/94	Mitra & Associates/NIPORT	A	EMW 10-49	9,640	3,284 Husbands			X	X					X		FR	Recode
Bangladesh	Nov-Mar	1996/97	Mitra & Associates/NIPORT	A	EMW 10-49	9,127	3,346 EMM		X		X						X	PR	
Egypt	Nov-Jan	1995/96	National Population Council	A	EMW 15-49	14,779			X								X	FR	
Egypt (In-Depth)*	Oct-Mar	1996/97	National Population Council	–	EMW 15-49	1,500 [6]													
India (Uttar Pradesh)	Apr-Jun	1998	To be determined	Special[7]	CMW 13-49	45,000													
Indonesia	Jul-Nov	1994	Central Bureau of Stat./NFPCB/MOH	A	EMW 15-49	28,168				X	X	X				X		FR	Recode
Indonesia	Sep-Nov	1997	Central Bureau of Stat./NFPCB/MOH	A	EMW 15-49	28,000													
Jordan	Jun-Aug	1997	Department of Statistics	A	EMW 15-49	6,000	2,000 Men		X			X					X		
Kazakstan	May-Aug	1995	Nat. Institute of Nutrition	B	AW 15-49	3,771			X								X	FR	Recode
Kyrgyzstan	Aug-Oct	1997	MOH/Inst. of Obst. & Ped.	B	AW 15-49	4,000			X								X		
Morocco (Panel)	Apr-May	1995	Ministère de la Santé Publique	A/B	AW 15-49	4,753												FR	Raw only
Nepal	Jan-Jun	1996	Ministry of Health/ New ERA	B	EMW 15-49	8,429			X			X					X	FR	Recode
Philippines	Apr-Jun	1993	National Statistics Office	A	AW 15-49	15,029				X		X						FR	Recode
Philippines	Feb-Apr	1998	National Statistics Office	A	AW 15-49	5,000													
Turkey	Aug-Oct	1993	General Directorate of MCH/FP, MOH	A	EMW <50	6,519			X								X	FR	Recode
Uzbekistan	Jun-Oct	1996	Research Inst. of Obst. & Gynec.	B	AW 15-49	4,415			X								X	PR	
Vietnam [1]	Aug-Oct	1997	General Statistical Office	A	AW 15-49	5,500				X									
Yemen	Sep-Nov	1997	Central Statistical Organization	B	EMW 15-49	10,000			X			X					X		
LATIN AMERICA & CARIBBEAN																			
DHS I																			
Bolivia	Feb-Jul	1989	Instituto Nacional de Estadística	A	AW 15-49	7,923			X			X		X				FR	Recode
Bolivia (Health)	Feb-Jul	1989	Instituto Nacional de Estadística	A	AW 15-49	7,923			X			X			X			FR	Recode
Brazil	May-Aug	1986	Soc. Civil Bem-Estar Fam. no Brasil	A	AW 15-44	5,892			X		X					X		FR	Recode
Colombia	Oct-Dec	1986	Corp. Cen. Reg. de Pob./Min. de Salud	A	AW 15-49	5,329			X	X	X					X	X	FR	Recode
Dominican Rep.	Sep-Dec	1986	Consejo Nac. de Población y Familia	A	AW 15-49	7,649			X	X						X		FR	Recode
Dominican Rep. (Exp.)	Sep-Dec	1986	Consejo Nac. de Población y Familia	–	AW 15-49	3,885				X						X		FR	Raw only
Ecuador	Jan-Mar	1987	Cen. de Estud. de Pob. y Pater. Res.	A	AW 15-49	4,713				X								FR	Recode
El Salvador	May-Jun	1985	Asociación Demográfica Salvadoreña	A	AW 15-49	5,207			X							X		FR	Recode
Guatemala	Oct-Dec	1987	Inst. de Nutrición de Cent. y Panamá	A	AW 15-44	5,160			X	X						X		FR	Recode
Mexico	Feb-May	1987	Dir. Gen. de Plan. Fam., Sec. de Salud	A	AW 15-49	9,310										X		FR	Recode
Peru	Sep-Dec	1986	Instituto Nacional de Estadística	A	AW 15-49	4,999												PR	Recode
Peru (Exp.)	Sep-Dec	1986	Instituto Nacional de Estadística	–	AW 15-49	2,534												FR	Raw only
Trinidad/Tobago	May-Aug	1987	Family Plan. Assoc. of Trinidad/Tobago	A	AW 15-49	3,806			X									FR	Recode
DHS-II																			
Brazil (NE)	Sep-Dec	1991	Soc. Civil Bem-Estar Fam. no Brasil	A	AW 15-49	6,222	1,266 Husbands					X				X		FR	Recode
Colombia	May-Aug	1990	PROFAMILIA	A	AW 15-49	8,644						X						FR	Recode
Dominican Rep.	Jul-Nov	1991	Asoc. Domin. Pro-Bienestar de la Fam.	A	AW 15-49	7,320			X	X						X	X	FR	Recode
Paraguay	May-Aug	1990	Cen. Paraguayo de Estudios de Pob.	A	AW 15-49	5,827			X	X								FR	Recode
Peru	Oct-Mar	1991/92	Instituto Nacional de Estadística	A	AW 15-49	15,882			X	X		X					X	FR	Recode
DHS-III																			
Bolivia	Nov-May	1993/94	Instituto Nacional de Estadística	A	AW 15-49	8,603 [8]			X	X		X	X					FR	Recode
Bolivia	Jul-Sep	1997	Instituto Nacional de Estadística	B	AW 15-49	7,000			X								X		
Brazil	Mar-Jun	1996	Soc. Civil Bem-Estar Fam. no Brasil	A	AW 15-49	12,612	2,949 Men 15-59		X			X	X			X	X	FR	Recode
Colombia	Mar-Jun	1995	PROFAMILIA	A	AW 15-49	11,140			X				X				X	FR	Recode
Dominican Republic	Sep-Dec	1996	Cen. Estud. Soc. y Dem./ PROFAMILIA	A	AW 15-49	8,422	2,279 Men 15-64		X								X	FR	
Guatemala	Jun-Dec	1995	Instituto Nacional de Estadística	A	AW 15-49	12,403			X			X	X			X		FR	Recode
Guatemala (In-Depth 1)*	Mar-Jun	1997	Instituto Nacional de Estadística	–	Households	4,000 [6]												FR	Recode
Guatemala (In-Depth 2)*	Feb-Jun	1997	Inst. de Nutrition de Cent. y Panamá	–	Facilities	400 [6]													
Haiti	Jul-Jan	1994/95	Institut Haïtien de l'Enfance	B	AW 15-49	5,356	1,610 Men 15-59		X	X			X		X		X	FR	Recode
Nicaragua	Nov-Jan	1997/98	To be determined	A	AW 15-49	15,000													
Peru	Aug-Nov	1996	Instituto Nac. de Estadística e Inform.	A	AW 15-49	28,951	2,487 Men 15-59		X			X					X	FR	

A = Questionnaire used in countries with high contraceptive prevalence
B = Questionnaire used in countries with low contraceptive prevalence

AW = All women
EMW = Ever-married women
CMM = Currently married men
KAP = Family planning knowledge, attitudes, and practices
FR = Final report
PR = Preliminary report
CMW = Currently married women

1 Funded by The World Bank
2 No birth history in questionnaire
3 Funded by UNFPA
4 No birth history or health section in the questionnaire
5 Funded directly by USAID/Mali
6 Sample covers selected area(s)
7 Seven questionnaires
8 Household questionnaire was administered in 26,144 households

* **Egypt:** Reasons for Nonuse in Upper Egypt, **Guatemala 1:** Health Expenditure Survey, **Guatemala 2:** Health Provider Survey, **Tanzania:** Estimation of Adult and Childhood Mortality in a High HIV/AIDS Population, **Uganda:** Negotiating Reproductive Outcomes.

Further Analysis Workshop in Kathmandu Targets Nepal Family Health Survey

Sixteen researchers from various institutions in Nepal attended the NFHS Further Analysis Workshop which was held in Kathmandu April 16 – May 8 1997. The main goals of the workshop were to conduct five, policy-relevant studies on key topics of interest in Nepal and to provide training in the analysis of the NFHS data. The first three days of the workshop were devoted to training all of the participants in the basic concepts and skills needed to utilize NFHS data using SPSS for Windows. Following these three days of basic training, the workshop participants split into two groups: researchers and data processors. The data processing group of six participants received two weeks of additional intensive training in data manipulation and tabulation while the research group focused on the production of analysis papers.

Sixteen Nepalese researchers recently attended the NFHS Further Analysis Workshop in Kathmandu where they received training in the latest methods of survey analysis. Participants included: Ms. Mangala Manandhar (Child Health Division, Ministry of Health (MOH)); Mr. Ajit Pradhan (Family Health Division, MOH); Mr. Tek Bahadur Dangi (Family Health Division, MOH); Mr. Laxmi Raman Ban (National Health Education, Information, and Communication Centre, MOH); Dr. Ram Hari Aryal (Parliamentary Secretariat); Mr. Badri Niroula (Central Bureau of Statistics); Dr. Prakash Pant (University Central Dept. Population Studies); Dr. Laxmi Acharya (University Central Dept. Population Studies); Dr. Gokarna Regmi (Consultant, New ERA); Mr. Bharat Ban (New ERA); Mr. Gautam (Management Information Systems Division, MOH); Mr. Mool (Evaluation and Planning Division, MOH); Mr. Rabi Kayastha (Central Bureau of Statistics); Mr. Govind Subedi (University Central Dept. Population Studies); Ms. Sarita Baidya (New ERA); Dr. Devendra Shrestha (University Dept. Economics). Also pictured in the above photo are the DHS staff who provided technical assistance for the workshop: Ann Blanc, Siân Curtis, Nicholas Hill, and Trevor Croft.

Two of the research papers focused on unmet need for family planning in Nepal. Approximately 1.2 million Nepalese women currently have an unmet need for family planning. The results of the analysis of attitudes towards family planning and reasons for nonuse among women with unmet need suggest that women may perceive family planning only as a way to limit births and do not readily think of family planning for spacing. A significant number of women with unmet need also cite fear of side effects as the main reason they are not using family planning or do not intend to use in the future. Almost a third of women with unmet need believe that their husband does not approve of family planning compared with fewer than 10 percent among current users. The second analysis focused on program options to meet unmet need. The findings suggest that reaching women with unmet need presents a challenge in Nepal. Only 40 percent of women with unmet need had visited a health facility in the 12 months before the survey and fewer than 20 percent of those who had visited a health facility had discussed family planning during their visit. Although the majority of women with unmet need had had a birth in the three years before the survey, integrating family planning services with delivery and postpartum services will miss many women because utilization of these services is very low. However, more than two-thirds of mothers with unmet need had had their last child immunized, so closer integration of family planning and immunization services could potentially provide an opportunity to reach women.

Another study focused on factors associated with early infant survival. It found that utilization of antenatal services significantly reduced the risk of both early and late neonatal mortality, while postpartum check-ups and tetanus toxoid immunization during pregnancy had a significant effect on late neonatal mortality. Use of medical care during delivery is very low in Nepal but there was evidence from this analysis that receiving care from a traditional birth attendant (TBA) as opposed to friends or relatives reduces the risk of early neonatal death. This is an important finding because nearly 23 percent of births are delivered by TBAs and there is an active TBA training program. A complementary analysis examined factors associated with health service utilization: antenatal services, delivery services, and childhood immunization services. Maternal education and urban residence are significantly associated with in-

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Further Analysis Workshop in Kathmandu...

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creased use of all three services. In contrast, maternal age primarily affects use of delivery services—younger women are more likely than older women to have received medical assistance during delivery. Use of antenatal services decreases as the birth order of the child increases but birth order does not affect use of delivery and immunization services. Use of antenatal services significantly increases use of subsequent delivery and immunization services suggesting that many of the same women use all three services while other women use none of them.

The final study examined the relationship between media exposure and reproductive behavior. Women who are exposed to the media, particularly those who have heard the specific radio programs on family planning issues that are broadcast in Nepal, are more likely to know methods of contraception, to know a source of family planning, to be current users of family planning, and, if not current users, to intend to use a method in the future. For example, 38 percent of nonusers who had heard the family planning radio programs intend to use a method in the next 12 months compared with 28 percent of nonusers who are exposed to the media but have not heard the family planning programs, and 26 percent of nonusers who are not exposed to the media. Media exposure is also associated with smaller ideal family sizes and greater discussion of family planning with others.

The reports from the workshop will be published later this year. For more information about the reports or the workshop, contact Siân Curtis at DHS. ■

Mass Media and Reproductive Behavior in Africa

There is a consistent and strong association between exposure to the mass media and various measures of family planning and reproductive attitudes, according to a recent analysis of DHS data for seven African countries (*Mass Media and Reproductive Behavior in Africa*, by Charles Westoff and Akinrinola Bankole, DHS Analytical Reports No. 2). Based on surveys conducted in the past few years in Burkina Faso, Ghana, Kenya, Madagascar, Namibia and Zambia, and in a panel study in Morocco, the authors conclude that exposure to radio, television, or newspapers and magazines in general is directly related to greater knowledge and use of contraception, intention to use contraception in the future, intention to stop childbearing, and preference for a smaller number of children. There is also some evidence that such exposure is related to older ages at marriage. These results from an analysis of married women were also observed among never-married women and among men in Ghana and Kenya.

The general theory is that mass media may expose audiences to modern ideas that can compete with traditional norms of marriage and childbearing. Such ideas can include the consumer culture, the autonomy of women, secular rather than religious values, the costs of children, individualism, and the value of education. These ideas can be communicated in advertising and music as well as in news stories, dramas and documentaries. Moreover, the evidence is accumulating that such ideas can penetrate without structural economic transformations, without changes in income, and even without changes in the status of women.

The assumption of this research is that the frequency or regularity of media exposure is a measure of its potential modernizing influence. The DHS data do not include information on the content of what is being transmitted, only its regularity. In addition to collecting such information, the DHS surveys also included direct questions on whether the woman had heard family planning messages on radio or television. This information was included in all of the analyses of exposure to mass media.

Radio exposure in general as well as explicit family planning messages on radio were most consistently related to reproductive behavior. The greater influence of radio compared with television likely reflects the fact that television is still in its infancy in many African countries. Contraceptive measures and age at marriage showed the strongest associations with media exposure. These relationships persist with a variety of covariates controlled, such as education, urban-rural residence, region, religion, age, number of children, husband's occupation, electricity in the house, and several indicators of wealth.

There is nonetheless a concern in these results about self-selection: women who use contraception, for example, might be more likely to hear or report hearing about messages about family planning on the radio or might be more likely to listen to the radio in general. However, the data from the Morocco panel study provided a control over the time sequences of media exposure and subsequent reproductive behavior and essentially confirmed the study findings.

Sample Designs and Sampling Errors

A recently published report in the DHS Analytical Reports series presents a detailed picture of a little discussed area of survey methodology—sample design and sampling errors. In their report, *An Analysis of Sample Designs and Sampling Errors of the Demographic and Health Surveys* (DHS Analytical Reports No. 3), Thanh Lê and Vijay Verma present a comparative analysis of sample designs and sampling errors for 48 DHS surveys. The primary focus of the report is an examination of the patterns of variation of the design effect across diverse variables, countries, and population subclasses. The document is supported by a large number of tables that offer the opportunity for further analysis.

Many Researchers Downloading DHS Data

Since January when DHS datasets first became available online, more than 350 researchers have signed up as registered users, which entitles them to download survey data from 48 countries via the DHS web site (http://www.macroint.com/dhs/).

Datasets for 66 DHS surveys from 1985 to the present are represented in the DHS online archive. Nearly 546 individual zipped data files in hierarchical, flat, and rectangular formats are available free of charge.

All DHS datasets continue to be available through the regular DHS data archive. Files can still be sent on Bernoulli cartridges, magnetic tape, or diskettes, according to the user's hardware and/or software capabilities. All data files are distributed with questionnaires, machine-readable data file descriptions, and associated documentation.

The cost for each dataset ordered through the regular DHS data archive service is $200; however, for institutions in developing countries or for researchers from these countries the cost is $50. To obtain DHS datasets, researchers should complete the standard data request form and send it with a description of the proposed analysis to the DHS Data Archive. Note: All orders must be prepaid. A data request form can be obtained by writing to DHS Data Archive, Macro International Inc., 11785 Beltsville Drive, Suite 300, Calverton, MD 20705, U.S.A. (telephone 301-572-0851; fax 301-572-0993). ■

Nepal Family Health Survey

Continued from page 4

Unplanned and unwanted births are often associated with increased mortality risks. More than half of all births in the five years before the NFHS had an increased risk of dying. At current mortality levels, one in eight children born in Nepal will die before the fifth birthday (118 per 1,000), with two of three deaths occurring during the first year of life (79 per 1,000).

In recent years there have been substantial improvements in maternal and child health in Nepal. The percentage of births for which antenatal care was received from a medical professional increased from 15 to 24 percent between 1991 and 1996 and the percentage of children fully vaccinated increased from 37 to 43 percent over the same period.

Despite these improvements, there are a number of challenges regarding women's and children's health. For the majority of births (56 percent), mothers did not receive any antenatal care and 92 percent of births took place at home. Only 9 percent of births were assisted by medical personnel. Use of health facilities to treat acute respiratory infection (ARI) and diarrhea in young children is low: four of five children with ARI were not taken to a health facility and one-third of children with diarrhea received no treatment. Finally, the level of malnutrition among young children is high, with 48 percent of children under three stunted.

The 1996 Nepal Family Health Survey was implemented by New ERA (a local research firm) under the aegis of the Nepal Ministry of Health. A total of 8,429 ever-married women age 15-49 were interviewed. The final report and summary report for the survey are available in English. ■

Fertility High in Guatemala

Continued from page 5

ization, relatively few use the pill (4 percent) or the IUD (3 percent). It is estimated that 24 percent of married women want to space or limit their births but are not using a contraceptive method.

The survey indicates that there have been improvements in most indicators of maternal and child health but many challenges remain. Only about half of women receive antenatal care and just one in three receives assistance at delivery from trained medical personnel. Less than half of children 12-23 months have received all the recommended vaccinations, and half of children under five are malnourished (stunted). At the same time, infant mortality has shown a steady decline. In the five-year period preceding the survey the infant mortality rate was 51 per 1,000 live births (under-five mortality was 68 per 1,000).

The ENSMI-95 was implemented by the Instituto Nacional de Estadística. A total of 12,403 women age 15-49 were interviewed. The final report and summary report are available in Spanish. ■

New Publications

Final reports are now available for DHS surveys in Benin (French), Brazil (Portuguese), Dominican Republic (Spanish) and Peru (Spanish).

DHS Analytical Reports

No. 2 *Mass Media and Reproductive Behavior in Africa* (Westoff and Bankole, 1997)

No. 3 *An Analysis of Sample Designs and Sampling Errors of the Demographic and Health Surveys* (Lê and Verma, 1997)

Other DHS publications

Fertility Trends, Women's Status, and Reproductive Expectations in Turkey (Hacettepe University and Macro International, 1997) ■

Laptop Computers To Be Used in Madagascar Pretest

Computer-aided personal interviewing (CAPI) using laptop or hand-held computers is becoming the de facto data collection method for population surveys and censuses in Europe and the U.S. CAPI gives flexibility to the interviewing process and increases the speed and consistency of data collection. However, its use in developing countries has hitherto been limited because of concerns about issues such as costs and adverse respondent and interviewer reaction to computers.

DHS is carrying out an experiment to test the feasibility of using computer-aided personal interviewing in its surveys. The study will be carried out in Madagascar during the preliminary testing of the MDHS questionnaire during summer 1997, and will involve interviewing approximately 150-200 women. About half the group will be interviewed using laptops, and the other half using conventional paper questionnaires. This approach will allow a comparison to be made between the CAPI and paper methods in areas such as data quality, speed of interviewing, and respondent/interviewer reaction. The results of the study will be used to direct future DHS strategies on the use of CAPI in surveys in developing countries. Earlier work by DHS in this area was carried out in 1987 in Guatemala. ■

DHS Publications

DHS publications are available through regional depositories and selected libraries. A list of those nearest you will be sent on request. A limited number of final reports, and other DHS publications, are available for distribution. To receive a catalogue of DHS publications, or to receive the *DHS Newsletter* write to: Tonya Gary, DHS, Macro International Inc., 11785 Beltsville Drive, Suite 300, Calverton, MD 20705, USA (tel: 301-572-0958; fax: 301-572-0993; e-mail: reports@macroint.com).

■ ***DHS Newsletter*** — Published twice a year, the *DHS Newsletter* provides information on the current status of DHS surveys.

■ ***Final Reports*** — DHS survey results are published in a final report approximately 8-12 months after completion of fieldwork. Currently, 82 final reports have been published, covering 74 standard DHS surveys and 8 other surveys (see pages 6-7).

■ ***Summary Reports*** — Summary reports are available for most DHS surveys. Published in the language of the country, these reports are designed for use by policymakers and planners in the survey countries. Summary reports have been published for 63 surveys.

■ ***Trend Reports*** — Trend reports are published for a few countries in which several DHS-type surveys have been completed.

■ ***DHS Basic Documentation*** — DHS survey methodology is described in the *DHS Basic Documentation* series. A list of the Basic Documentation for DHS-I, DHS-II, and DHS-III is available on request.

■ **Tables and graphs in *Studies in Family Planning*** — Key findings from DHS final reports are summarized in tables and graphs published in the journal *Studies in Family Planning* (The Population Council, New York).

■ ***DHS Further Analysis* Series** — The results of further analysis studies carried out during the first phase of the DHS program were published in 10 reports by the Population Council (which provided technical assistance for the projects). In DHS-II, further analysis studies were published by Macro International (limited distribution). In DHS-III, further analysis studies have been published for Egypt, Turkey, and Zimbabwe.

■ ***DHS Comparative Studies*** — Cross-national analyses of DHS data are presented in the *DHS Comparative Studies* series. Each report presents results on a particular topic. Twenty-two reports have been published in the series.

■ ***DHS Analytical Reports*** — Technical analyses of DHS data are presented in the *DHS Analytical Reports* series. Three reports have been published in this series.

■ ***DHS Methodological Reports*** — Methodological and technical issues pertaining to survey research in the fields of population and health are presented in the *DHS Methodological Reports*. Four reports have been published in this series.

■ ***DHS Working Papers*** — Selected papers utilizing DHS data are published in the *DHS Working Papers* series (limited distribution). Twenty-two papers have been published in the series. Some further analysis studies undertaken as part of the DHS-III project will be published as working papers.

Selected Statistics from DHS Surveys

	VITAL RATES			USE OF CONTRACEPTION (Currently Married Women 15-49)		MATERNAL CARE (Births in Last 5 Yrs.)		CHILD HEALTH INDICATORS		
	Total Fertility Rate[a]	Total Wanted Fertility Rate[a]	IMR/ Under-5 Mortality[b]	% Currently Using Any Method[c]	% Currently Using Any Modern Method[d]	% Women Receiving Antenatal Care[e]	% Women Receiving Assistance at Delivery from Professional[e]	Median Duration (Months) of Breast-feeding[f]	% Children 0-35 Months Stunted[g]	% Children Fully Immunized[h]
SUB-SAHARAN AFRICA										
Benin 1996	6.3 [b]	5.0 [b]	94/167	16	3	80 [i]	64 [i]	23	25	56
Botswana 1988	4.9	3.9	37/53	33	32	92	77	18	†	81
Burkina Faso 1993	6.9	6.0	94/187	8	4	59	42	25	25	35
Burundi 1987	6.9	5.8	75/152	7	1	79	19	24	47 [j]	44
Cameroon 1991	5.8	5.2	65/126	13	4	79	64	17	21	41
Central African Rep. 1994-95	5.1	4.7	97/157	15	3	67 [i]	46 [i]	21	34	37
Comoros 1996	5.1 [b]	3.7 [b]	77/104	21	11	85 [i]	52 [i]	20	34	55
Côte d'Ivoire 1994	5.7 [b]	4.7 [b]	89/150	11	4	83 [i]	45 [i]	20	24	41
Eritrea 1995	6.1	5.7	66/136	8	4	49 [i]	21 [i]	22	38	41
Ghana 1993	5.5 [b]	4.2	66/119	20	10	86 [i]	44 [i]	21	26	55
Kenya 1993	5.4	3.4	62/96	33	27	95	45	21	31	79
Liberia 1986	6.7	6.1	144/220	6	6	83	58	17	†	14
Madagascar 1992	6.1	5.2	93/163	17	5	78	57	19	45	43
Malawi 1992	6.7	5.7	134/234	22 [k]	14 [k]	90	55	21	41	74 [k]
Mali 1995-96	6.7	6.0	123/238	7	5	47 [i]	40 [i]	22	30	32
Namibia 1992	5.4	4.8	57/83	29	26	87	68	17	29	58
Niger 1992	7.4 [l]	7.1 [l]	123/318	4	2	30	15	21	27	17
Nigeria 1990	6.0	5.0	87/192	6	4	57	31	20	37	30
Rwanda 1992	6.2	4.2	85/150	21	13	94	26	28	41	87
Senegal 1997	5.7	††	68/139	13	8	82	47	††	††	†
Sudan 1989-90	4.7	4.2	70/123	9	6	70	69	19	†	52
Tanzania 1996	5.8	††	88/137	18	13	89	47	††	††	71
Togo 1988	6.4	5.0	81/158	12	3	82	46	22	31 [j]	†
Uganda 1995	6.9	5.6	81/147	15	8	91 [m]	38 [m]	20	38	47
Zambia 1996	6.1	††	109/197	26	14	92	46	††	††	78
Zimbabwe 1994	4.3	3.5	53/77	48	42	93 [i]	69 [i]	19	21	80
ASIA/NORTH AFRICA										
Bangladesh 1996-97	3.3	††	82/116	49 [n]	42 [n]	26	8	††	55 [o]	54
Egypt 1995	3.6	2.6	63/81	48	46	39	46	19	30	79
Indonesia 1994	2.9	2.4	57/81	55	52	82	37	24	†	50
Jordan 1990	5.6	3.9	34/39	35	27	80	87	12	18	88
Kazakstan 1995	2.5	2.3	40/46	59	46	93 [i]	100 [r]	14	16	†
Morocco 1995	3.3	2.2	62/80	50	42	45	40	15	21 [p]	85
Pakistan 1990-91	5.4 [l]	4.7 [l]	91/117 [l]	12	9	26	19	20	43	35
Nepal 1996	4.6	2.9	79/118	29	26	39 [i]	10 [i]	31	48	43
Philippines 1993	4.1	2.9	34/54	40	25	83	53	14	†	72
Sri Lanka 1987	2.7	2.2	25/35	62	41	97	87	20	27 [j]	65
Thailand 1987	2.2	1.8	35/45	66	64	77	66	15	22 [j]	37
Tunisia 1988	4.2	2.9	50/65	50	40	58	69	15	18 [j]	78
Turkey 1993	2.7 [q]	1.8 [q]	53/61	63	35	62	76	12	16	65
Uzbekistan 1996	3.3	3.1	49/59	56	51	95 [i]	98 [i]	17	31	85
Yemen 1991-92	7.7	6.0	83/122	10	6	26	16	16	†	45
LATIN AMERICA/CARIBBEAN										
Bolivia 1994	4.8	2.7	75/116	45	18	53 [i]	47 [i]	18	28 [j]	39
Brazil 1996	2.5	1.8	39/49	77	70	81 [r]	78 [r]	7	11 [o]	73
Colombia 1995	3.0	2.2	28/36	72	59	83	85	11	13	66
Dominican Republic 1996	3.2	2.5	47/57	64	59	98	96	8	11 [o]	39
Ecuador 1987	4.2	2.8	58/82	44	36	70	61	14	†	†
El Salvador 1985	4.2	4.0	71/98	47	45	†	86	15 [s]	†	52
Guatemala 1995	5.1	4.0	51/68	31	27	53	35	20	45	43
Mexico 1987	4.0	2.8	47/61	53	45	71	70	8	†	21
Haiti 1994-95	4.8	3.0	74/131	18	13	68	46	18	27	30
Paraguay 1990	4.7	3.5	34/43	48	35	84	66	11	17	33
Peru 1996	3.5	2.2	43/59	64	41	66	55	20	26 [o]	63
Trinidad & Tobago 1987	3.1	2.2	26/30	53	44	98	98	6	5 [j]	†

† = Not available from survey data
†† = Not available until publication of final report
a Based on 3 years preceding survey (women 15-49)
b Based on 5 years preceding survey
c Excludes prolonged abstinence
d Excludes periodic abstinence, withdrawal, and "other" methods
e Care provided by medically trained personnel
f Children <3 years (any breastfeeding)
g Height-for-age z-score is below –2 SD based on the NCHS/CDC/WHO reference population
h Children 12-23 months (BCG, measles, and 3 doses of DPT and polio)
i Based on births in the preceding 3 years
j Children 3-35 months
k From 1996 MKAPH
l Based on 6 years preceding survey
m Based on births in the preceding 4 years
n Currently married women 10-49
o Children 0-59 months
p From 1992 ENPS-II
q Based on 1 year preceding survey
r Care provided by doctor
s Last-born child only