

**Nauru  
Demographic and  
Health Survey  
2007**

**Preliminary  
Report**



This report summarizes the findings of the 2007 Nauru Demographic and Health Survey (NDHS) implemented by the Bureau of Statistics in conjunction with Department of Health. The Secretariat of the Pacific Community (SPC) was the executing agency for the project. The Government of Nauru provided financial assistance in terms of in-kind contribution of government staff time, office space, and logistical support. The project was funded jointly by the Asian Development Bank, Australian Aid (AusAID), and New Zealand Aid. SPC was responsible for the sample design, budget, and in providing data processing support to the implementing agency. Macro International Inc. in Calverton Maryland, USA, provided technical assistance in the areas of survey design, questionnaires and manuals adaptations, and data processing and tabulation programs as part of its contract with the Asia Development Bank. The opinions expressed in this report are those of the authors and do not necessarily reflect the views of the donor organizations.

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**NAURU**  
**DEMOGRAPHIC AND HEALTH SURVEY**  
**2007**

**PRELIMINARY REPORT**

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**Nauru**

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# **1 INTRODUCTION**

The 2007 Nauru Demographic and Health Survey (NDHS) was carried out by the Bureau of Statistics in conjunction with the Ministry of Health from 13<sup>th</sup> August to 5<sup>th</sup> October 2007, using a nationally representative sample of almost 400 households. All women age 15-49 years in these households were eligible to be individually interviewed, while men age 15 and over were also eligible for interview.

The 2007 NDHS was designed to provide data to monitor the population and health situation in Nauru. Specifically, the NDHS collected information on fertility levels, marriage, sexual activity, fertility preferences, awareness and use of family planning methods, breastfeeding practices, nutritional status of women and young children, childhood mortality, maternal and child health, awareness and behavior regarding HIV/AIDS and other sexually transmitted infections.

This preliminary report presents the results of some selected key indicators from the 2007 NDHS. A more comprehensive set of tables will be produced later. While considered provisional, the results presented here are not expected to differ significantly from those available later.

## **2 SURVEY IMPLEMENTATION**

### **2.1 Sample Design**

The NDHS sample was designed to provide reliable estimates of total fertility and infant mortality rates at the national level. The survey utilized a two-stage, stratified, probability sample design. The most recent census in 2002 provided the basic sample design information.

The primary sampling units (PSUs) consist of 14 census enumeration areas or Districts with inclusion of an area called Location due to its population density. A total of 15 PSUs were selected with balanced probability proportional to size, with size being the number of households according to the census. The number of households selected was distributed by district as follows:

Yaren—	26
Boe—	27
Aiwo—	40
Buad—	27
Denigomodu—	22
Nibok—	21
Uaboe—	19
Baitasi—	22
Ewa—	21
Anetan—	23
Anabar—	22
Ijuw—	18
Anibare—	16
Meneng—	46
Location—	50

A household listing operation was implemented immediately prior to the data collection. Teams of listers visited each PSU to list the households living there. These lists formed the frame for the second stage of selection. The secondary sample units (SSUs) consist of households. Households were selected in each PSU, for a total of 400 households selected.

All women age 15-49 who slept in the sampled household on the night prior to the date of interview were eligible for interview with the Woman's Questionnaire. Every second household was sub-selected for the male survey. All men age 15 or over in the sub-selected households were eligible for interview with the Men's Questionnaire.

### **2.2 Questionnaires**

Three questionnaires—a Household Questionnaire, a Woman's Questionnaire and a Man's Questionnaire—were used in the survey. The contents of these questionnaires were based on model questionnaires developed by the MEASURE DHS program at Macro International.

In consultation with the Ministry of Health, NDHS staff modified the DHS model questionnaires to reflect relevant issues in population, family planning, HIV/AIDS, and other health issues in Nauru. The questionnaires were also translated into Nauruan.

The household questionnaire was used to list all the usual members and visitors in the selected households. Some basic information was collected on the characteristics of each person listed, including age, sex, education, and relationship to the head of the household. The main purpose of the household questionnaire was to identify women and men who were eligible for the individual interview. The household questionnaire also collected information on characteristics of the

household's dwelling unit, such as the source of water, type of toilet facilities, materials used for the floor and roof of the house, and ownership of various durable goods. In addition, this questionnaire was also used to record the nutritional status of children under the age of 6 years through height and weight measurements.

The woman's questionnaire was used to collect information from all women age 15-49 years and covered the following topics:

- Background characteristics (education, residential history, media exposure, etc.)
- Reproductive history and child mortality
- Knowledge and use of family planning methods
- Fertility preferences
- Prenatal and delivery care
- Breastfeeding and infant feeding practices
- Vaccinations and childhood illnesses
- Marriage and sexual activity
- Woman's work and husband's background characteristics
- Infant and child feeding practices
- Awareness and behavior about AIDS and other sexually transmitted infections (STIs)
- Domestic violence

The man's questionnaire collected similar information contained in the woman's questionnaire, but was shorter because it did not contain questions on reproductive history, contraceptive calendar, maternal and child health, nutrition, and domestic violence.

The pretest was undertaken from 03<sup>rd</sup> to 14<sup>th</sup> July 2007. For the pretest, a total of 9 women and 2 men were recruited and trained for 2 weeks. The pretest training consists of classroom lecture, demonstration interviews, front-of class interviews, mock interviews, quizzes and tests, and 2 days of field practice interviewing.

There were 9 households used during the pretest field practice in which eligible women and men were picked up from these houses to be interviewed in the Nauru General Hospital. After the pretest training and field practice, the NDHS team reviewed the results and had meetings to discuss the experience and problems encountered during the pretest. The pretest resulted in revising translation of some questions and skip instructions.

## **2.3 Training**

The training for interviewing staff for the main enumeration was undertaken from 23 July to 11 August 2007. A total of seventeen female and two male candidates were trained, including one staff to act as Project Manager two staff who would act as team supervisors and four nurses to conduct the biometric measurements. Each team consisted of four female interviewers, one male interviewer, two biometric nurses, one field editor and one team supervisor. The training was mostly done by the SPC consultant to the project. Training consisted mainly of lectures followed by mock interviews between trainees. Towards the end of the training, participants conducted practice interviews in households close to the training site. Several quizzes were also administered, graded and reviewed. A separate training was conducted for the nurses and health technicians to be able to carry out anthropometrics test and measurement.

## **2.4 Fieldwork**

A total of two teams were organized for the data collection, each comprised of one supervisor, one field editor, four female interviewers, two male interviewers and four biometric nurses. The total number of 15 districts were divided among the two teams; 7 districts were interviewed by Team 1 while the other 8 districts were done by Team 2. Each team was assigned with one truck and a driver

to pick up respondents at their appointed time. One senior NDHS staff who was designated as DHS manager also acted as field coordinator. Data collection started on 13th August 2007 and was completed on 5<sup>th</sup> October 2007.

It was agreed that the main enumeration will be conducted at Nauru General Hospital (central location) mainly due to the objective of the survey and confidentiality issues. Prior to the survey, both team members visited selected households to inform them about their participation in the survey, explain the purpose and the importance of the survey and get their consent. All eligible household members were transported from their houses to the enumeration place at their appointed time. All refusal households were then replaced. Senior NDHS staff made periodic visits to the field teams to monitor the quality of the data collection. Problems during data collection consisted of unreliable rented vehicles for respondent pickup, prolong processing of funds from Treasury sometimes delaying expenses and rescheduling of respondent appointments to the central location.

## **2.5 Data Processing**

Completed questionnaires were returned periodically from the field to the central office. Data processing commenced on 27<sup>th</sup> August 2007 and was completed in the first week of December 2007. The data processing staff consisted of one supervisor from Bureau of Statistics, one questionnaire administrator/coding clerks, and three data entry operators. Data were entered using the CSPro computer package. All data were entered twice (100 percent verification). The concurrent processing of the data was a distinct advantage for data quality, since NDHS staff were able to advise field teams of errors detected during data entry. However, field check tables were not processed due to the late starting of data processing.

Upon completion of the data entry, final editing was undertaken in the second week of December 2007. Once the sampling weights became available, these were incorporated into the household and individual records and preliminary tables were generated.



### 3 RESULTS OF THE SURVEY INTERVIEWS

#### 3.1 Response Rates

Table 1 shows response rates for the 2007 NDHS. A total of 400 households were selected in the sample, of which 392 were found occupied at the time of the fieldwork. Of the existing households, 389 were successfully interviewed, yielding a household response rate of 99 percent.

In the households interviewed in the survey, a total of 655 eligible women aged 15-49 were identified, of whom 618 were successfully interviewed, yielding a response rate of 94 percent. With regard to the male survey results, 392 eligible men aged 15 and over were identified, of whom 354 were successfully interviewed, yielding a response rate of 90 percent. The lower response rate for men reflects relatively higher refusal and more frequent and longer absence of men from the households.

Result	Total
<b>Household interviews</b>	
Households selected	400
Households occupied	392
Households interviewed	389
Household response rate	99.2
<b>Individual interviews: women 15-49</b>	
Number of eligible women	655
Number of eligible women interviewed	618
Eligible women response rate	94.4
<b>Individual interviews: men 15+</b>	
Number of eligible men	392
Number of eligible men interviewed	354
Eligible men response rate	90.3

#### 3.2 Characteristics of Respondents

The distribution of women age 15-49 and men age 15 and above by background characteristics is shown in Table 2. The weighted and unweighted numbers are also shown. Unweighted numbers indicate the number of individuals actually interviewed in the particular category, while weighted numbers show the results so that they are in proportion for the national level. For example, in Aiwo, 48 women were interviewed; however, they represent 76 women in the whole country or 12 percent of the total. All subsequent tables show weighted numbers only.

Table 2 shows that the proportion of respondents generally declines with increasing age, reflecting the comparatively young age structure of the Nauru population. The slightly smaller proportion of women respondents age 15-19 than age 20-24 may be due in part to some interviewers intentionally displacing some eligible women to age 14 in order to avoid having to interview them, although the same pattern is not evident among men.

Over three-fifths of women and men are married or living in an informal marital union. Because men marry later in life than women, a higher proportion of men (34 percent) than women (30 percent) have never married, even though the men interviewed are older since they are age 15 and above.

The survey shows that more respondents live in Meneng than in any other region (14 percent of women and 17 percent of men), with Location and Aiwo each accounting for 11-13 percent of women and men. Ninety-eight percent of women aged 15-49 and 93 percent of men aged 15 and over have some secondary or higher education. Differences in the age groups of women and men make it difficult to make conclusions about gender differences in education.

The largest proportion of women and men say their religion is Nauru Congregational (42 percent of women and 35 percent of men), followed closely by Roman Catholics (35 percent of women and 30 percent of men). The third most common religion is Nauru Independence. Interestingly, a much higher proportion of men than women fall in the "other" religion category (21 of men vs. 3 percent of women). Regarding ethnic groups, the vast majority of the respondents are Nauruan (88-89 percent) or part Nauruan (5-7 percent).

**Table 2 Background characteristics of respondents**

Percent distribution of women aged 15-49 and men aged 15 and over by background characteristics, Nauru 2007

Background characteristic	Women 15-49			Men 15+		
	Weighted percent	Weighted number	Unweighted number	Weighted percent	Weighted number	Unweighted number
<b>Age</b>						
15-19	18.9	117	118	16.9	60	61
20-24	21.1	131	138	16.2	57	60
25-29	15.6	96	94	15.9	56	56
30-34	13.8	85	87	13.7	48	48
35-39	9.9	61	58	11.0	39	39
40-44	10.0	62	58	7.7	27	25
45-49	10.7	66	65	6.6	23	25
50-54	na	na	na	5.5	19	18
55-59	na	na	na	3.9	14	13
60-64	na	na	na	0.7	3	2
65+	na	na	na	2.0	7	7
<b>Marital status</b>						
Never married	30.1	186	188	34.3	122	122
Married	52.7	325	321	51.8	184	179
Living together	9.8	60	64	9.3	33	37
Divorced/separated	4.7	29	29	1.9	7	7
Widowed	2.7	17	16	2.7	9	9
<b>Region</b>						
Yaren	7.4	46	39	7.2	25	23
Boe	8.7	54	55	8.3	30	33
Aiwo	12.3	76	48	12.8	45	23
Buada	7.3	45	44	7.1	25	33
Denigomodu	5.5	34	37	5.1	18	22
Nibok	4.4	27	36	3.9	14	17
Uaboe	3.8	24	31	3.6	13	15
Baitsi	5.3	32	42	5.3	19	27
Ewa	3.9	24	30	3.9	14	16
Anetan	5.5	34	42	5.6	20	29
Anabar	4.3	27	36	4.2	15	21
Ijuw	2.5	16	29	2.7	10	21
Anibare	2.0	12	34	1.5	5	14
Meneng	14.3	88	70	17.2	61	32
Location	12.8	79	45	11.3	40	28
<b>Education</b>						
No education/Pre-school	0.2	1	1	0.2	1	1
Primary	1.9	12	14	6.8	24	27
Secondary	89.8	555	551	85.1	301	298
More than secondary	8.2	50	52	7.8	28	28
<b>Religion</b>						
Nauru Congregational	41.5	257	260	34.6	122	117
Roman Catholic	34.8	215	227	30.4	108	116
Nauru Independence	11.7	72	65	11.5	41	34
No religion	0.5	3	3	2.4	9	7
Assembly of God	8.5	53	45	0.0	0	0
Other	2.8	17	17	21.1	75	80
Missing	0.1	1	1	0.0	0	0
<b>Ethnic group</b>						
Nauruan	88.8	549	550	87.7	310	315
Part Nauruan	6.9	43	43	5.3	19	20
IKiribati	1.9	12	12	2.0	7	5
Tuvaluan	0.5	3	4	1.9	7	6
Other	1.8	11	9	3.2	11	8
Total	100.0	618	618	100.0	354	354

Note: Education categories refer to the highest level of education attended, whether or not that level was completed.  
na = Not applicable

### 3.3 Fertility

In the survey, the fertility data were collected by asking all women of reproductive age (15-49 years) to provide complete birth histories of all children born alive to them: those who were currently living with them, those who were living away, and those who had died. In addition, the following information was collected for each live birth: name, sex, date of birth, survival status, current age (if alive), and age at death (if dead). These data are used to calculate two of the most widely used measures of current fertility, the total fertility rate (TFR) and its component age-specific fertility rates.

As indicated in Table 3, the total fertility rate is 3.4. This means that on average, a Nauruan woman who is at the beginning of her childbearing years will give birth to 3.4 children by the end of her reproductive period, if fertility levels remain constant at the level observed in the three-year period before the survey (roughly 2005-07). This is lower than the rate calculated from the 2002 census (Table 4).

Selected fertility indicators from census, Nauru 2002	
Indicator	Total
Average annual number of births	241
Total fertility rate (TFR)	4.0
General fertility rate (GFR)	129
Crude birth rate (CBR)	32.9
Teenage fertility rate	78.0
Mean age at childbearing	28.0

Note: data refer to the average for 1997-2002

Age group	Total
15-19	69
20-24	200
25-29	155
30-34	141
35-39	56
40-44	50
45-49	18
TFR	3.4
GFR	120.0
CBR	30.8

Note: Rates for age group 45-49 may be slightly biased due to truncation.  
 TFR: Total fertility rate for ages 15-49, expressed per woman  
 GFR: General fertility rate (births divided by the number of women age 15-44), expressed per 1,000 women  
 CBR: Crude birth rate, expressed per 1,000 population

### 3.4 Family Planning

Information about knowledge and use of contraceptive methods was collected from women by asking them to mention any ways or methods by which a couple can delay or avoid a pregnancy. For each method known, the respondent was asked if she had ever used it. Women who reported they had ever used any method were asked if they or their partner were using a method at the time of the survey.

Table 5 shows the level and differentials in the current use of contraception by method as reported by currently married women. Contraceptive methods are grouped into two types in the table, namely modern and traditional methods. Modern methods include female sterilization, male sterilization, pill, IUD, injectables, male condom, and lactational amenorrhea (LAM). Traditional methods include periodic abstinence (rhythm method), withdrawal, and folk methods.

Over one-third of currently married women (36 percent) are currently using some method of contraception. One-quarter of married women are using a modern method of contraception, while 11 percent use a traditional method. Female sterilization is by far the most widely used method (used by 13 percent of married women), followed by periodic abstinence (5 percent), withdrawal (5 percent) and the IUD (4 percent).

As shown in Table 5 and Figure 1, some women in Nauru are more likely to use contraception than others. The proportion currently using any method of contraception rises with age from 19 percent of married women age 15-19 to 51 percent among those aged 40-44 before dropping to 36 percent

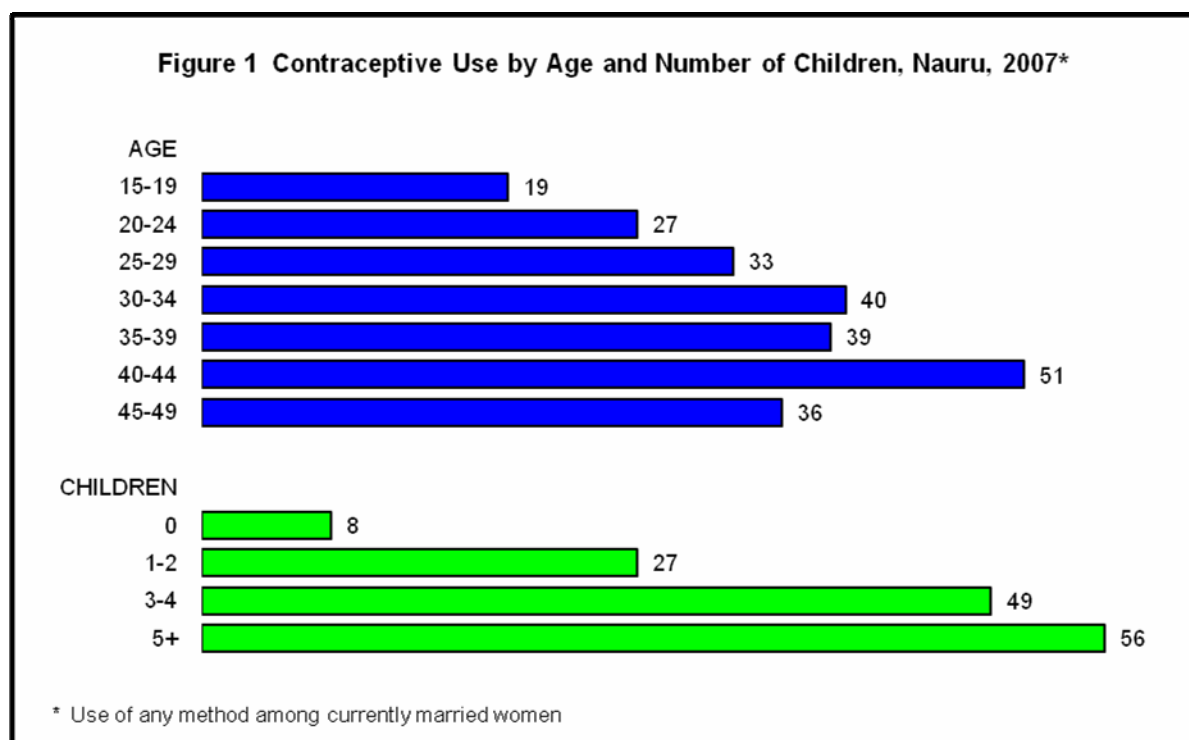
among women age 45-49. Use of female sterilization increases dramatically with age. It also increases dramatically with the number of living children.

**Table 5 Current use of contraception**

Percent distribution of currently married women by contraceptive method currently used, according to age and number of living children, Nauru 2007

Age/Number of living children	Any method	Any modern method	Modern method							Any traditional method	Traditional method			Not currently using	Total	Number of women
			Female sterilization	Male sterilization	Pill	IUD	Injectables	Male condom	LAM		Periodic abstinence	Withdrawal	Folk method			
<b>Age</b>																
15-19	(18.8)	(8.3)	(0.0)	(0.0)	(0.0)	(0.0)	(4.8)	(0.0)	(3.5)	(10.4)	(5.9)	(4.5)	(0.0)	(81.2)	100.0	21
20-24	27.0	12.7	0.0	0.0	1.2	0.0	5.4	4.7	1.4	14.4	6.1	8.3	0.0	73.0	100.0	76
25-29	33.1	22.2	5.9	0.0	2.3	1.1	0.0	7.8	5.1	10.9	1.1	6.7	3.0	66.9	100.0	69
30-34	39.8	27.0	18.3	1.1	0.0	1.7	2.2	0.8	2.9	12.8	6.8	6.0	0.0	60.2	100.0	71
35-39	38.6	30.1	15.9	0.0	0.0	11.9	2.4	0.0	0.0	8.4	6.6	0.0	1.8	61.4	100.0	54
40-44	51.0	42.1	28.1	0.0	0.0	7.5	1.9	2.7	1.9	8.9	2.7	2.5	3.7	49.0	100.0	47
45-49	35.7	31.5	25.7	0.0	0.0	5.8	0.0	0.0	0.0	4.2	4.2	0.0	0.0	64.3	100.0	48
<b>Living children</b>																
0	7.5	6.0	2.0	0.0	0.0	0.0	0.0	4.0	0.0	1.5	0.0	0.0	1.5	92.5	100.0	80
1-2	27.4	13.0	3.1	0.0	2.2	0.9	2.4	2.2	2.2	14.4	6.6	5.5	2.3	72.6	100.0	114
3-4	48.9	34.1	15.3	0.9	0.0	6.4	4.3	2.9	4.3	14.8	7.9	6.9	0.0	51.1	100.0	93
5+	55.5	46.3	32.2	0.0	0.0	7.8	2.2	2.3	1.7	9.1	3.4	4.7	1.0	44.5	100.0	98
Total	35.6	25.1	13.3	0.2	0.6	3.8	2.3	2.8	2.1	10.5	4.7	4.5	1.2	64.4	100.0	386

Note: If more than one method is used, only the most effective method is considered in this tabulation.  
LAM = Lactational amenorrhea method.



### 3.5 Fertility Preferences

Several questions were asked in the survey concerning women's fertility preferences. These questions included: a) whether the respondent wanted another child and b) if so, when she would like to have

the next child. The answers to these questions allow for the estimation of the potential demand for family planning services either to limit or space births.

Table 6 and Figure 2 show there is considerable desire among Nauruan women to control the timing and number of births. Among currently married women, 15 percent would like to wait for two years or more for the next birth, and 35 percent either do not want to have another or are sterilized. Almost one-quarter (24 percent) of married women would like to have a child soon (within two years). The remaining women are uncertain about their fertility desires or unable to get pregnant (infecund).

Fertility preferences are closely related to the number of children a woman has. A large proportion of married women without a child (59 percent) would like to have one soon, although 8 percent say they do not want any children and another 7 percent say they cannot have children. Women show greater interest in controlling the pace of childbearing once they have a child. One in three women with one child wants to delay her next birth or wants no more children. Interest in controlling the number of births grows rapidly as the number of children increases; the proportion wanting no more children or sterilized rises from 12 percent among married women with one child to 77 percent of women with five children, after which it drops to 66 percent of women with six or more children.

**Table 6 Fertility preferences by number of living children**

Percent distribution of currently married women by desire for children, according to number of living children, Nauru 2007

Desire for children	Number of living children <sup>1</sup>							Total
	0	1	2	3	4	5	6+	
Have another soon <sup>2</sup>	59.1	29.5	22.7	20.3	9.9	1.9	7.7	23.7
Have another later <sup>3</sup>	5.0	22.2	22.1	30.0	16.9	5.4	3.4	15.0
Have another, undecided when	13.1	10.3	8.5	3.5	5.5	0.0	1.4	6.5
Undecided	5.0	15.1	14.3	12.9	15.5	7.9	9.6	11.3
Want no more	7.8	11.7	24.1	13.8	23.3	46.0	34.9	21.9
Sterilized <sup>4</sup>	2.3	0.0	5.7	16.2	13.2	31.4	31.3	13.5
Declare infecund	6.8	11.3	2.5	2.0	5.5	4.4	6.5	5.6
Missing	0.8	0.0	0.0	1.3	10.0	2.9	5.3	2.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	68	53	62	58	43	43	58	386

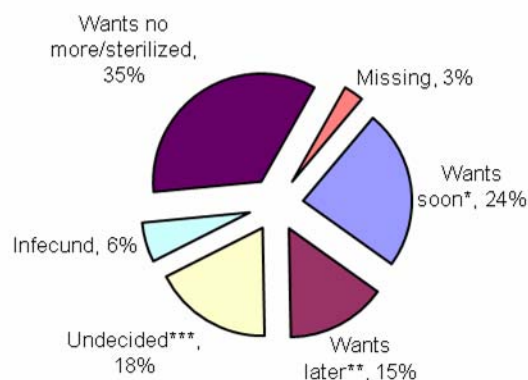
<sup>1</sup> Includes current pregnancy

<sup>2</sup> Wants next birth within 2 years

<sup>3</sup> Wants to delay next birth for 2 or more years

<sup>4</sup> Includes both male and female sterilization

**Figure 2. Married Women's Fertility Preferences, Nauru 2007**



\* Within the next 2 years

\*\* After 2 years

\*\*\* Wants more, undecided when or undecided if wants more

### 3.6 Maternity Care

Proper care during pregnancy and delivery are important for the health of both the mother and the baby. In the NDHS, women who had given birth in the five years preceding the survey were asked a number of questions about maternal and child health care. For the last live birth in that period, mothers were asked whether they had obtained prenatal care during the pregnancy and whether they had received tetanus toxoid injections while pregnant. For each birth in the same period, mothers were also asked what type of assistance they received at the time of delivery. Table 7 presents the results of key maternity care indicators.

#### *Prenatal Care*

Almost all mothers (95 percent) reported seeing a health professional—a doctor, nurse, or midwife—at least once for prenatal care for the most recent birth in the five-year period before the survey. Differences in prenatal care coverage by age of the mother are minimal.

<u>Table 7 Maternal care indicators</u>						
Percentage of women who had a live birth in the five years preceding the survey who received prenatal care from a health professional for the last live birth and whose last live birth was protected against neonatal tetanus, and among all live births in the five years before the survey, percentage delivered by a health professional and percentage delivered in a health facility, by mother's age at birth, Nauru 2007						
Mother's age at birth	Percentage with antenatal care from a health professional <sup>1</sup>	Percentage whose last live birth was protected against neonatal tetanus <sup>2</sup>	Number of women	Percentage delivered by a health professional <sup>1</sup>	Percentage delivered in a health facility	Number of births
<20	95.5	26.6	23	90.6	95.7	54
20-34	94.2	23.8	162	98.6	99.3	239
35+	95.7	22.7	21	100.0	100.0	28
Total	94.5	24.0	205	97.4	98.7	322

<sup>1</sup> Doctor, nurse, midwife, or auxiliary midwife  
<sup>2</sup> Includes mothers with two injections during the pregnancy of the last live birth, or two or more injections (the last within 3 years of the last live birth), or three or more injections (the last within 5 years of the last live birth), or four or more injections (the last within ten years of the last live birth), or five or more injections prior to the last live birth

#### *Tetanus Toxoid*

Tetanus toxoid injections are given during pregnancy to prevent neonatal tetanus which continues to be an important cause of infant deaths. Table 7 indicates that tetanus toxoid coverage is limited among pregnant women in Nauru, with less than one-quarter of babies fully protected against neonatal tetanus. Tetanus toxoid coverage is slightly higher among children born to younger mothers.

#### *Delivery Care*

Proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that could cause the death or serious illness of the mother and/or the baby. Table 7 shows that 97 percent of births in Nauru are delivered by a health professional and 99 percent of deliveries take place in health facilities. Older mothers are more likely to deliver in health facilities and to have assistance from health professionals.

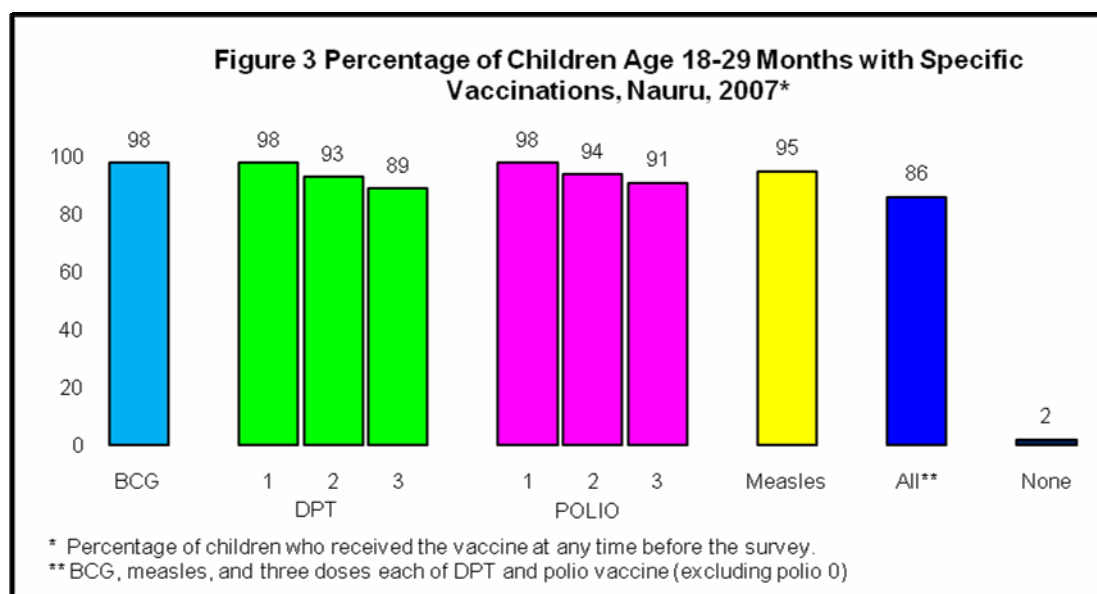
### 3.7 Child Health and Nutrition

#### *Vaccination of Children*

According to the World Health Organization, a child is considered fully vaccinated if he or she has received a BCG vaccination against tuberculosis; three doses of DPT vaccine to prevent diphtheria, pertussis, and tetanus (DPT); at least three doses of polio vaccine; and one dose of measles vaccine. These vaccinations should be received during the first year of life. The 2007 NDHS collected information on the coverage for these vaccinations among all children born in the five years preceding the survey.

The information on vaccination coverage in Nauru was obtained from health cards. All mothers were asked to show the interviewer the health cards used for the child's immunization. If the card was available, the interviewer copied the dates of each vaccination received. If a vaccination was not recorded on the card as being given, the mother was asked to recall whether that particular vaccination had been given.

Figure 3 presents information on vaccination coverage for children age 18-29 months, the age group that should be fully vaccinated against the six preventable childhood illnesses. The results are based on the health card record and supplemental information provided by the mother for any vaccinations not recorded on the card. Health cards were available for 96 percent of the children in this age group.



Overall, almost all (95 percent) children age 18-29 months are fully vaccinated with BCG, measles and three doses of DPT and polio. Looking at coverage for specific vaccines, 98 percent of children have received the BCG vaccination, the first DPT dose and the first polio dose (Polio 1). Coverage declines somewhat for subsequent doses, with 89 percent of children receiving the recommended three doses of DPT and 91 percent receiving all three doses of polio. Ninety-five percent of children receive the measles vaccine. Only 2 percent (1 in 50) have received no vaccinations at all.

Unfortunately, the small sample size makes it difficult to analyze differentials in coverage levels. Since there were only 63 children age 18-29 covered in the survey, any disaggregation by residence or sex would be based on too few cases to provide meaningful results.

## *Treatment of Childhood Illnesses*

Acute respiratory illness and dehydration caused by severe diarrhea are major causes of childhood mortality. Prompt medical attention when a child has the symptoms of these illnesses is, therefore, crucial in reducing child deaths. To obtain information on how childhood illnesses are treated, the mothers of each child under five years of age were asked whether the child had experienced the following symptoms in the two weeks before the survey: cough with short, rapid breathing (symptoms of an acute respiratory infection), fever and diarrhea. The number of children who were reported to have these symptoms was very small; for example, only 50 children were reported to have had a cough with short rapid breathing in the two weeks before the survey that was not just due to a blocked or runny nose. Consequently, no data broken down by background characteristics can be shown and caution should be taken in interpreting the results even at the national level due to the small number of cases.

Of the children with symptoms of ARI in the two weeks before the survey, 69 percent were taken to a health facility or provider for treatment (Table 8). Similarly, over half of children with fever in the two weeks before the survey were taken for treatment.

**Table 8 Treatment for acute respiratory infection, fever, and diarrhea**

Among children under five years who were sick with a cough accompanied by short, rapid breathing or with difficulty breathing due to chest congestion (symptoms of acute respiratory infection-ARI) or with fever, in the two weeks preceding the survey, percentage for whom treatment was sought from a health facility or provider<sup>1</sup>, and among children under five years who were sick with diarrhea during the two weeks preceding the survey, percentage for whom treatment was sought from a health facility or provider, percentage given a solution made from oral rehydration salt (ORS) packets or given prepackaged ORS liquids, and percentage given any oral rehydration therapy (ORT) by background characteristics, Nauru 2007

	Children with symptoms of ARI		Children with fever		Children with diarrhea			
	Percentage for whom treatment was sought	Number with ARI	Percentage for whom treatment was sought	Number with fever	Percentage for whom treatment was sought	Percentage given solution from ORS packet <sup>2</sup>	Percentage given any ORT <sup>3</sup>	Number with diarrhea
Total	68.8	50	50.6	109	34.3	23.3	52.0	65

<sup>1</sup> Excludes pharmacy, shop, and traditional practitioner

<sup>2</sup> Includes ORS from packets and prepackaged ORS liquids

<sup>3</sup> Includes ORS from packets, prepackaged ORS liquids, and recommended home fluid

Table 8 also looks at the treatment of diarrheal illness. The data indicate that just over one-third of children who were ill with diarrhea were taken to a health provider. Oral rehydration therapy (ORT), which involves giving either oral rehydration solution from a packet or a home-made sugar-salt solution, is a simple and effective response to diarrheal illness. Mothers reported that 52 percent of the children with diarrhea were treated with some form of oral rehydration therapy (ORT), with 23 percent given a solution prepared using a packet of oral rehydration salts (ORS).

## *Nutritional Status*

Malnutrition places children at increased risk of morbidity and mortality and has also been shown to be related to impaired mental development. Anthropometry provides one of the most important indicators of children's nutritional status. Height and weight measurements were obtained for children born in the five years before the survey. The height and weight data are used to compute three summary indices of nutritional status: height-for-age; weight-for-height; and weight-for-age. These three indices are expressed as standardized scores (z-scores) or standard deviation units from the median for the international reference population that was recently developed by the World Health Organization (WHO, 2006). Children who fall more than two standard deviations below the reference median are regarded as undernourished, while those who fall more than three standard deviations below the reference median are considered severely undernourished.



Children whose height-for-age is below minus two standard deviations from the median of the reference population are considered stunted or short for their age. Stunting is the outcome of failure to receive adequate nutrition over an extended period and is also affected by recurrent or chronic illness. According to the 2007 NDHS findings, almost one-quarter (24 percent) of Nauruan children are stunted, with 8 percent being severely stunted (Table 9). Stunting levels increase with age, from 16 percent of those under two years to a high of 31 percent among children age 24-35 months. Stunting levels are about the same for boys and girls.

Children whose weight-for-height is below minus two standard deviations from the median of the reference population are considered wasted (or thin). Wasting represents the failure to receive adequate nutrition in the period immediately before the survey and typically is the result of recent illness episodes, especially diarrhea, or of a rapid deterioration in food supplies. Table 8 shows that only 1 percent of Nauruan children are wasted, with virtually none being severely wasted.

Children whose weight-for-age is below minus two standard deviations (-2 SD) from the median of the reference population are considered underweight. The measure reflects the effects of both acute and chronic malnutrition. Only 5 percent of Nauruan children are underweight, with less than 1 percent classified as severely underweight. Boys are slightly more likely to be underweight than girls.

Table 9 Nutritional status of children

Percentage of children under five years classified as malnourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, by age and sex, Nauru 2007

Age/sex	Height-for-age		Weight-for-height		Weight-for-age		Number of children
	Percentage below -3 SD	Percentage below -2 SD	Percentage below -3 SD	Percentage below -2 SD	Percentage below -3 SD	Percentage below -2 SD	
<b>Age in months</b>							
<12	4.6	16.0	0.0	0.0	3.1	7.1	52
12-23	6.3	16.4	0.0	4.2	0.0	3.8	50
24-35	10.3	31.6	1.2	1.2	1.2	3.1	51
36-47	11.4	28.4	0.0	0.0	0.0	7.1	63
48-59	7.2	26.7	0.0	0.0	0.0	2.5	51
<b>Sex</b>							
Male	9.3	22.1	0.5	2.2	1.8	6.9	126
Female	7.0	25.8	0.0	0.0	0.0	2.9	141
Total	8.1	24.0	0.2	1.0	0.8	4.8	267

Note: Table is based on children who slept in the household the night before the interview. Each of the indices is expressed in standard deviation units (SD) from the median of the WHO Child Growth Standards adopted in 2006. The indices in this table are NOT comparable to those based on the previously used NCHS/CDC/WHO standards. Table is based on children with valid dates of birth (month and year) and valid measurement of both height and weight.

<sup>1</sup> Includes children who are below -3 standard deviations (SD) from the International Reference Population median

### 3.8 Anemia

Anemia, a low level of hemoglobin in the blood, decreases the amount of oxygen reaching the tissues and organs of the body and reduces their capacity to function. It is associated with impaired cognitive and motor development among children and spontaneous abortion, premature birth, and low birth weight among women. Although there are many causes of anemia, inadequate intake of iron, folate, vitamin B12, or other nutrients usually accounts for the majority of cases. Malaria accounts for a significant proportion of anemia in children under five in malaria endemic areas.

In the NDHS, anemia testing was implemented using the HemoCue method. After gaining consent of the woman and/or the parent/guardian in the case of children under five—the interviewer proceeded to take a finger-prick drop of blood which was placed in the portable HemoCue photometer. This device displays the result within minutes.

As shown in Table 10, over half of children aged 6-59 months in Nauru are anemic, with one-quarter being only mildly anemic and one-quarter being moderately anemic. Less than one percent of children are severely anemic. Among women aged 15-49, 29 percent are anemic, with the vast majority only mildly anemic.

**Table 10 Anemia among children and women**

Percentage of children age 6-59 months and women age 15-49 years classified as having iron-deficiency anemia, Nauru 2007

	Percentage with anemia				Number
	Any anemia	Mild anemia	Moderate anemia	Severe anemia	
Children 6-59 months	51.1	24.6	25.6	0.9	255
Women 15-49	29.1	20.8	7.2	1.1	604

Note: Table is based on children and women who stayed in the household the night before the interview. Prevalence is adjusted for altitude (for children and women) and smoking (for women) using CDC formulas (CDC, 1998). Women and children with <7.0 g/dl of hemoglobin have severe anemia, women and children with 7.0-9.9 g/dl have moderate anemia, and non-pregnant women with 10.0-11.9 g/dl and children and pregnant women with 10.0-10.9 g/dl have mild anemia.

### 3.9 HIV/AIDS Knowledge and Behavior

Knowledge about acquired immune deficiency syndrome (AIDS) is a prerequisite for adopting behaviors to reduce its spread. The NDHS included a series of questions about respondents' knowledge regarding AIDS and their awareness of modes of transmission of the human immunodeficiency virus (HIV) that causes AIDS. In addition, respondents were asked if they knew of behaviors that can prevent the spread of HIV.

Table 11 shows that 73 percent of women and 83 percent of men aged 15-49 have heard of HIV/AIDS. Knowledge is slightly lower among women and men who are in their teens (15-19). Knowledge is highest among women aged 40-49 and men aged 50 and over.

There are few differences in the level of awareness of AIDS according to marital status among women; however, men who are currently married are far more likely to have heard of AIDS than those who have never married.

**Table 11 Knowledge of AIDS**

Percentage of women and men who have heard of AIDS, by age and marital status, Nauru 2007

Age/marital status	Women		Men	
	Has heard of AIDS	Number	Has heard of AIDS	Number
<b>Age</b>				
15-24	68.6	247	72.0	117
..15-19	68.6	117	61.6	60
..20-24	68.6	131	82.8	57
25-29	66.2	96	90.2	56
30-39	78.5	146	94.1	87
40-49	80.8	128	82.3	51
<b>Marital status</b>				
Never married	73.3	186	71.8	119
..Ever had sex	73.3	122	77.9	98
..Never had sex	73.4	64	(43.1)	21
Married or living together	72.4	386	90.7	183
Divorced/separated/ widowed	77.9	46	*	9
Total 15-49	73.1	618	83.2	311
Men 50+	na	0	95.8	43
Total 15+	na	0	84.7	354

na: Not applicable

Note: Numbers in parentheses are based on 25-49 cases, while an asterisk denotes a figure based on fewer than 25 cases that has been suppressed.

Table 12 shows that 56 percent of women and 67 percent of men aged 15-49 know that consistent use of condoms is a means of preventing the spread of HIV. Fifty-five percent of women and 68 percent of men know that limiting sexual intercourse to one faithful and uninfected partner can reduce the chances of contracting HIV. Over half of women and two-thirds of men know that AIDS is a sexually-transmitted disease since they know that abstinence is a way of reducing the chances of getting HIV.

Knowledge about HIV/AIDS transmission is lower among younger women and men. Married men are more knowledgeable than other men about HIV transmission; however, differences by marital status are not strong among women.

**Table 12 Knowledge of HIV prevention methods**

Percentage of women and men age 15-49 who, in response to prompted questions, say that people can reduce the risk of getting the AIDS virus by using condoms every time they have sexual intercourse, by having one uninfected sex partner who has no other partners, and by abstaining from sexual intercourse, by age and marital status, Nauru 2007

Age/marital status	Women					Men				
	Using condoms	Limiting sexual intercourse to one uninfected partner	Using condoms and limiting sexual intercourse to one uninfected partner	Abstaining from sexual intercourse	Number	Using condoms	Limiting sexual intercourse to one uninfected partner	Using condoms and limiting sexual intercourse to one uninfected partner	Abstaining from sexual intercourse	Number
<b>Age</b>										
15-24	46.8	44.8	35.9	45.8	247	58.0	63.4	52.1	55.7	117
..15-19	40.1	40.4	29.9	38.1	117	48.5	56.1	45.1	46.4	60
..20-24	52.8	48.7	41.2	52.7	131	68.0	70.9	59.3	65.4	57
25-29	58.3	52.4	49.1	53.3	96	74.8	72.4	63.6	75.7	56
30-39	61.6	62.1	53.9	58.2	146	82.8	77.7	69.7	72.4	87
40-49	66.5	67.5	58.9	66.1	128	49.8	59.4	42.7	62.3	51
<b>Marital status</b>										
Never married	54.4	51.1	44.3	49.6	186	54.7	62.3	48.6	55.4	119
..Ever had sex	56.6	50.5	45.0	49.1	122	60.4	68.8	54.8	60.5	98
..Never had sex	50.1	52.3	43.0	50.4	64	*	*	*	*	21
Married or living together	56.0	56.3	48.3	55.8	386	74.4	71.7	62.9	71.2	183
Divorced/separated/ widowed	(64.9)	(56.5)	(46.8)	(58.2)	46	*	*	*	*	9
Total 15-49	56.2	54.8	47.0	54.1	618	66.7	68.4	57.6	65.1	311
Men 50+	na	na	na	na	0	(79.8)	(87.5)	(74.8)	(75.1)	43
Total 15+	na	na	na	na	0	68.3	70.7	59.7	66.3	354

na = Not applicable

<sup>1</sup> Using condoms every time they have sexual intercourse

<sup>2</sup> Partner who has no other partners

Respondents were also asked some detailed questions about their sexual behavior, including the number of partners they had had in the 12 months preceding the survey and whether they had sex with someone who was not a spouse or cohabiting partner. Women and men were also asked about condom use. Results are shown in Table 13.

Results show that only 11 percent of women who had sex in the 12 months before the survey report having more than one sexual partner in that time period. This is far lower than the level of 36 percent among men of the same age. Similarly, 24 percent of women, compared with 51 percent of men aged 15-49 report that they had sex in the previous 12 months with someone who was not a marital partner. Among those having higher-risk sex, only 9 percent of women and men say they used a condom at the last such sexual encounter.

Among both women and men, the proportion with two or more partners and the proportion having higher-risk sex in the last 12 months are higher for those who are younger and those who have never married. Data on condom use at the last higher-risk sexual encounter are hampered by small numbers.

**Table 13 Multiple sexual partners and higher-risk sexual intercourse in the past 12 months**

Among women and men age 15-49 who had sexual intercourse in the past 12 months, the percentage who had intercourse with more than one partner and the percentage who had higher-risk sexual intercourse in the past 12 months, and among those having higher-risk intercourse in the past 12 months, percentage reporting that a condom was used at last higher-risk intercourse, by age and marital status, Nauru 2007

Age/marital status	Among women/men who had sexual intercourse in the past 12 months		Number	Among women/men who had higher-risk sex in past 12 months <sup>1</sup>	
	Percentage who had 2+ partners in the past 12 months	Percentage who had higher-risk intercourse in the past 12 months <sup>1</sup>		Percentage who reported using a condom at last higher-risk intercourse	Number
<b>WOMEN</b>					
<b>Age</b>					
15-24	16.7	45.4	153	9.8	69
..15-19	28.5	70.2	54	(6.3)	38
..20-24	10.2	32.0	99	(13.9)	32
25-29	10.5	21.5	76	*	16
30-39	5.9	9.9	125	*	12
40-49	5.6	5.2	74	*	4
<b>Marital status</b>					
Never married	36.4	100.0	79	10.1	79
Married/living together	2.6	2.3	327	*	8
Divorced/separated/widowed	*	*	21	*	15
Total	10.5	23.9	427	8.7	102
<b>MEN</b>					
<b>Age</b>					
15-24	54.8	80.0 <sup>1</sup>	75	16.7	60
..15-19	(49.5)	(95.7)	30	(8.3)	29
..20-24	(58.3)	(69.5)	45	(24.5)	31
25-29	(20.3)	(38.7)	39	*	15
30-39	24.4	30.9	61	*	19
40-49	(34.8)	(36.8)	33	*	12
<b>Marital status</b>					
Never married	62.8	100.0	68	17.3	68
Married/living together	23.0	25.8	136	(7.7)	35
Divorced/separated/widowed	*	*	5	*	4
Total 15-49	36.2	51.0	209	13.5	107
Men 50+	(23.8)	(23.8)	22	*	5
Total 15+	35.1	48.4	231	14.2	112

<sup>1</sup> Sexual intercourse with a partner who neither was a spouse nor lived with the respondent

Note: Figures in parentheses are based on 25-49 cases. An asterisk represents a figure based on fewer than 25 cases that has been suppressed.

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