

# SAUDI ARABIA

	Year	Source		Year	Source
<b>1. BASIC INDICATORS</b>			<b>1.2.4 GNP/capita</b>		
<b>1.1 Demographic</b>			(US \$) 6 200 1987 (1914)		
<b>1.1.1 Population</b>			<b>1.2.5 Daily per capita calorie supply</b>		
Size (millions) 14.1 1990 (1915)			(as % of requirements) 125 1984-86 (1914)		
Rate of growth (%) 4.0 1985-90 (1915)					
<b>1.1.2 Life expectancy</b>			<b>2. HEALTH SERVICES</b>		
Female 65 1985-90 (1915)			<b>2.1 Health Expenditure</b>		
Male 62 1985-90 (1915)			<b>2.1.1 Expenditure on health</b>		
<b>1.1.3 Fertility</b>			(as % of GNP) 5 1986 (2033)		
Crude Birth Rate 42 1985-90 (1915)			<b>2.1.2 Expenditure on PHC</b>		
Total Fertility Rate 7.2 1985-90 (1915)			(as % of total health expenditure) 40 1982 (1888)		
<b>1.1.4 Mortality</b>			<b>2.2 Primary Health Care</b>		
Crude Death Rate 8 1985-90 (1915)			(Percentage of population covered by):		
Infant Mortality Rate 71 1985-90 (1915)			<b>2.2.1 Health services</b>		
Female			National 93 1987 (2033)		
Male			Urban		
1-4 years mortality rate			Rural		
Female			<b>2.2.2 Safe water</b>		
Male			National 93 1985 (2033)		
<b>1.2 Social and economic</b>			Urban 100 1985 (2033)		
<b>1.2.1 Adult literacy rate (%)</b>			Rural 68 1985 (2033)		
Female 31 1985 (1914)			<b>2.2.3 Adequate sanitary facilities</b>		
Male 71 1985 (1914)			National 86 1985 (2033)		
<b>1.2.2 Primary school enrolment rate (%)</b>			Urban 100 1985 (2033)		
Female 65 1986-88 (1914)			Rural 33 1985 (2033)		
Male 78 1986-88 (1914)			<b>2.2.4 Contraceptive prevalence rate</b>		
<b>1.2.3 Female mean age at first marriage</b>			(% )		
(years)					

## 2.3 Coverage of maternity care (%)

Area	Prenatal care	Trained attendant	Institutional deliveries	Postnatal care	Sample size	Year	Source
National		74				1983	(1888)
National	61					1985	(1888)
Rural areas		14			23 700	1977-9	(0640)
Al-Jubail	60				1 000	1983	(0691)
Asir Province	51		100		7 000	1976-9	(0322)
Riyadh			70			1983	(0129)
Riyadh district: rural			16			1987	(2772)
Tarut Island	17	54	10		725b	1983	(0024)
Madinal							

## 3. COMMUNITY STUDIES

## 4. HOSPITAL STUDIES

### 4.1 Riyadh Government Hospital, 1969-72 <sup>(0424)</sup>

**4.1.1 Rate**  
MMR (per 100 000 deliveries) 80

### 4.2 King Faisal Hospital, Asir Province, 1978-79 <sup>(0322)</sup>

**4.2.1 Rate**  
This was a review of 1 000 obstetric deliveries in the hospital. Complications were present in 20% of the cases and there was 1 death, a maternal mortality rate of 100 per 100 000 deliveries.

#### 4.2.2 Causes of maternal deaths.

The single maternal death during the study period was due to amniotic fluid embolism.

### 4.3 Maternity and Children Hospital, 1978-80 <sup>(0129)</sup>

**4.3.1 Rate**  
Births 55 428  
Maternal deaths 29  
MMR (per 100 000 births) 52

#### 4.3.2 Causes of maternal deaths

	Number	%
Haemorrhage	8	29
Embolisms	5	17
Abortion	3	10
Sepsis	2	7
Complications of anaesthesia	2	7
Ruptured uterus	1	3
Hypertensive disorders of pregnancy	1	3
<b>DIRECT CAUSES</b>	<b>22</b>	<b>76</b>
Hepatitis	2	7
Other infections	2	7
Others	3	10
<b>INDIRECT CAUSES</b>	<b>7</b>	<b>24</b>
<b>TOTAL</b>	<b>29</b>	<b>100</b>

### 4.3.3 Avoidable factors

Avoidable factors were present in 6 of the 8 haemorrhage deaths, and were due to a combination of factors involving the patient, clinical management and the administration. The women who died had not received prenatal care, there were difficulties in arranging for blood transfusion in the peripheral hospitals and the patients had to travel long distances to reach the referral hospital.

Mismatched blood transfusion was a factor in two deaths, one caused by haemorrhage and one resulting from septic abortion. Delays in decision-making by the health personnel occurred in two instances: in a case of uncontrollable haemorrhage during caesarean section, and in a patient with antepartum haemorrhage, where there was delay in deciding on definitive surgery. In one case the avoidable factor was clinical, combining major surgery with caesarean section in a peripheral hospital with limited facilities.

## 5. CIVIL REGISTRATION DATA/GOVERNMENT ESTIMATES

## 6. OTHER SOURCES/ ESTIMATES

## 7. SELECTED ANNOTATED BIBLIOGRAPHY

## 8. FURTHER READING

Sebei, Z. and Reinke, W. Anthropometric measurements among pre-school children in Wadi Turaba, Saudi Arabia. *Journal of Tropical Pediatrics*, 1981; 27: 150-154. WHE 0965

Serenius, F. et al. Characteristics of the obstetric population in a Saudi maternity hospital. *Acta Paediatrica Scandinavia*, 1988 Suppl 346: 29-43. WHE 2325

## 9. DATA SOURCES

WHE 0024 Bhatti, A. et al. A survey of mother and child care in the Saudi community in Rabaiyah, Tarut Island. *Saudi Medical Journal*, 1983; 4(1): 37-43.

WHE 0129 Chattopadhyay, S.K. et al. Maternal mortality in Riyadh, Saudi Arabia. *British Journal of Obstetrics and Gynaecology*, 1983; 90: 809-814.

WHE 0322 Hartley, W. One thousand obstetric deliveries in the Asir Province, Kingdom of Saudi Arabia. *Saudi Medical Journal*, 1980; 1: 187-196.

WHE 0424 Mahran, M. The extent of the problem of eclampsia in Arab countries. In: *WHO meeting on hypertensive diseases of pregnancy, childbirth and the puerperium*. (unpublished WHO document no. MCH/TP/77.5), Geneva, 1977.

WHE 0640 Sebai, Z.A. et al. A study of three health centres in rural Saudi Arabia. *Saudi Medical Journal*, 1980; 1(4): 197-202.

WHE 0691 Thabet, M.A. and Rahman, S.A. Evaluation of the first 1000 deliveries in Saudi Arabia. *Arab Medical Bulletin* 1983; 5(1,2): 35-51.

WHE 1888 World Health Organization, Eastern Mediterranean Regional Office, *Evaluation of the strategy for Health for All by the year 2000. Seventh report of the world health situation*. EMRO, Alexandria, 1987.

WHE 1914 United Nations Children's Fund (UNICEF). *The state of the world's children*, Oxford, Oxford University Press, various years.

WHE 1915 United Nations. Department of International Economic and Social Affairs. *World population prospects: estimates and projections*, Population Studies, New York, various years.

WHE 2033 World Health Organization. *Global strategy for health for all by the year 2000. Second report on monitoring progress*. WHO document EB83/2 Add. 1, 1988.

WHE 2772 Al-Sekait, M.A. The traditional midwife in Saudian villages. *Journal of the Royal Society of Health*, 1989; 4: 137.

**NOTES**

# SINGAPORE

	Year	Source		Year	Source
<b>1. BASIC INDICATORS</b>			<b>1.2.4 GNP/capita</b>		
<b>1.1 Demographic</b>			(US \$) 9 070 1988 (1914)		
<b>1.1.1. Population</b>			<b>1.2.5 Daily per capita calorie supply</b>		
Size (millions)	2.7	1990 (1915)	(as % of requirements) 124 1984-86 (1914)		
Rate of growth (%)	1.3	1985-90 (1915)	<b>2. HEALTH SERVICES</b>		
<b>1.1.2 Life expectancy</b>			<b>2.1 Health Expenditure</b>		
Female	76	1985-90 (1915)	<b>2.1.1 Expenditure on health</b>		
Male	71	1985-90 (1915)	(as % of GNP) 1.2 1983 (1488)		
<b>1.1.3 Fertility</b>			<b>2.1.2 Expenditure on PHC</b>		
Crude Birth Rate	18	1985-90 (1915)	(as % of total health expenditure) 10 1986 (2033)		
Total Fertility Rate	1.8	1985-90 (1915)	<b>2.2 Primary Health Care</b>		
<b>1.1.4 Mortality</b>			(Percentage of population covered by):		
Crude Death Rate	5	1985-90 (1915)	<b>2.2.1 Health services</b>		
Infant Mortality Rate	8	1985-90 (1915)	National 100 1984 (0834)		
Female	11	1979-81 (1917)	Urban		
Male	13	1979-81 (1917)	Rural		
1-4 years mortality rate			<b>2.2.2 Safe water</b>		
Female	1	1979-81 (1917)	National 100 1982 (0834)		
Male	1	1979-81 (1917)	Urban		
<b>1.2 Social and economic</b>			Rural		
<b>1.2.1 Adult literacy rate (%)</b>			<b>2.2.3 Adequate sanitary facilities</b>		
Female	79	1985 (1914)	National 85 1984 (0834)		
Male	93	1985 (1914)	Urban		
<b>1.2.2 Primary school enrolment rate (%)</b>			Rural		
Female	113	1986-88 (1914)	<b>2.2.4 Contraceptive prevalence rate</b>		
Male	118	1986-88 (1914)	(%) 71 1977 (1712)		
<b>1.2.3 Female mean age at first marriage</b>					
(years)	26.2	1980 (1918)			

## 2.3 Coverage of maternity care (%)

Area	Prenatal care	Trained attendant	Institutional deliveries	Postnatal care	Sample size	Year	Source
National		100	98			1981	(0659)
National	95	100		79		1984	(1488)
National			99			1987	(2434)

## 3. COMMUNITY STUDIES

## 4. HOSPITAL STUDIES

### 4.1 Kandang Kerabu Hospital and Thomson Road Hospital, 1964-70 <sup>(0137)</sup>

#### 4.1.1 Rate

Deliveries	262 74
Maternal deaths*	126
MMR (per 100 000 deliveries)	48

\* Obstetric deaths

#### 4.1.2 Causes of maternal deaths

Abortion accounted for 22% of the maternal deaths over the 7-year period.

### 4.2 Alexandra Hospital, Singapore 1978-88 <sup>(2445)</sup>

#### 4.2.1 Rate

Maternal deaths	14
MMR (per 100 000 births)	30

#### 4.2.2 Causes of maternal deaths

	Number
Hypertensive disorders of pregnancy	3
Haemorrhage	3
Embolism	3
Associated causes	4
Other	1
Total	14

#### 4.2.3 Avoidable factors

The three women who died from hypertensive disorders all developed cardiac failure due to severe preeclampsia. All were unbooked cases and none had received any prenatal care. They were in severe congestive cardiac failure with uncontrolled hypertension on admission.

## 5. CIVIL REGISTRATION DATA/GOVERNMENT ESTIMATES

### 5.1 National, 1957-75 and 1985-88 <sup>(0537, 2434, 2722)</sup>

#### 5.1.1 Rate

	MMR (per 100 000 live births)
1957	90
1960	40
1965	40
1970	30
1975	30
1985	5
1986	13
1987	7
1988	10

## 6. OTHER SOURCES/ ESTIMATES

## 7. SELECTED ANNOTATED BIBLIOGRAPHY

## 8. FURTHER READING

Kurup, A. et al. Pregnancy outcome in unmarried teenage nulligravidae in Singapore. *International Journal of Gynecology and Obstetrics*, 1989; 30: 305-311. WHE 2870

Lee, S.T. et al. Obstetric outcome of the unwed adolescents. *Singapore Medical Journal*, 1990; 31: 553-557. WHE 2739.

## 9. DATA SOURCES

WHE 0137 Cheng, M.C.E. et al. Changing trends in mortality and morbidity from abortion in Singapore (1964 to 1970). *Singapore Medical Journal*, 1971; 12(5): 256-258.

WHE 0537 Phoon, W.O. The implications on behavioural patterns of health and social changes. *Tropical Doctor*, 1980; 10: 32-37.

WHE 0659 Singapore, Registrar General of Births and Deaths. *Report on registration of births and deaths 1981*. Singapore, 1981.

WHE 0834 World Health Organization *World health statistics annual – vital statistics and causes of death*. Geneva, various years.

WHE 1488 World Health Organization. Regional Office for the Western Pacific. *Evaluation of the strategy for health for all by the year 2000*. Seventh report on the world health situation. WHO/WPRO, Manila, 1980.

WHE 1712 Mauldin W.P. and Segal, S.J., *Prevalence of contraceptive use in developing countries. A chart book*. Rockefeller Foundation, New York 1986.

WHE 1914 United Nations Children's Fund (UNICEF). *The state of the world's children*, Oxford, Oxford University Press, various years.

WHE 1915 United Nations. Department of International Economic and Social Affairs. *World population prospects: estimates and projections*, Population Studies, New York, various years.

WHE 1917 United Nations. Department of International Economic and Social Affairs. *Age structure of mortality in developing countries. A database for cross-sectional and time-series research*. New York 1986.

WHE 1918 United Nations. Department of International Economic and Social Affairs. *First marriage: patterns and determinants*. New York 1988.

WHE 2033 World Health Organization. *Global strategy for health for all by the year 2000. Second report on monitoring progress*. WHO document EB83/2 Add. 1, 1988.

WHE 2434 Hwa Tay, V.L. *Singapore country report*. Paper presented at the Regional Workshop on risk approach in mother and child health care, Manila, December 1989.

WHE 2445 Vengadasalam, D. Maternal mortality – a review at the Department of Obstetrics and Gynaecology, Alexandra Hospital, Singapore. *Singapore Medical Journal*, 1989; 30(6): 561-564.

WHE 2722 World Health Organization, *Maternal deaths and maternal mortality rates* (unpublished) 1990.

**NOTES**

# SRI LANKA

	Year	Source		Year	Source
<b>1. BASIC INDICATORS</b>			<b>1.2.4 GNP/capita</b>		
<b>1.1 Demographic</b>			(US \$) 420 1988 (1914)		
<b>1.1.1 Population</b>			<b>1.2.5 Daily per capita calorie supply</b>		
Size (millions)	17.2	1990 (1915)	(as % of requirements) 110 1985 (1914)		
Rate of growth (%)	1.3	1985-90 (1915)	<b>2. HEALTH SERVICES</b>		
<b>1.1.2 Life expectancy</b>			<b>2.1 Health expenditure</b>		
Female	73	1985-90 (1915)	<b>2.1.1 Expenditure on health</b>		
Male	68	1985-90 (1915)	(as % of GNP) 1.6 1986 (2033)		
<b>1.1.3 Fertility</b>			<b>2.1.2 Expenditure on PHC</b>		
Crude Birth Rate	23	1985-90 (1915)	(as % of total health expenditure) 48 1986 (2033)		
Total Fertility Rate	2.7	1985-90 (1915)	<b>2.2 Primary Health Care</b>		
<b>1.1.4 Mortality</b>			(Percentage of population covered by):		
Crude Death Rate	6	1985-90 (1915)	<b>2.2.1 Health services</b>		
Infant Mortality Rate	28	1985-90 (1915)	National 90 1987 (2033)		
Female	20	1982-87 (2873)	Urban		
Male	31	1982-87 (2873)	Rural		
1-4 years mortality rate			<b>2.2.2 Safe water</b>		
Female	9	1982-87 (2873)	National 37 1983 (0834)		
Male	10	1982-87 (2873)	Urban 82 1987 (2033)		
<b>1.2 Social and economic</b>			Rural 35 1987 (2033)		
<b>1.2.1 Adult literacy rate (%)</b>			<b>2.2.3 Adequate sanitary facilities</b>		
Female	83	1985 (1914)	National 66 1983 (0834)		
Male	91	1985 (1914)	Urban 69 1987 (2033)		
<b>1.2.2 Primary school enrolment rate (%)</b>			Rural 41 1987 (2033)		
Female	102	1986-88 (1914)	<b>2.2.4 Contraceptive prevalence rate</b>		
Male	105	1986-88 (1914)	(%) 57 1982 (1712)		
<b>1.2.3 Female mean age at first marriage</b>					
(years)	24.4	1981 (1918)			

### 2.3 Coverage of maternity care (%)

Area	Prenatal care	Trained attendant	Institutional deliveries	Postnatal care	Sample size	Year	Source
National			76			1981-3	(1526)
National	68	87				1982-3	(1489)
National	97	94			3 906	1983-87	(2873)
National: urban			80			1987	(2317)
rural			87			1981-3	(1526)
			78			1981-3	(1526)
Colombo	96	99			307	1983-87	(2873)
Other urban	99	97			235	1983-87	(2873)
Rural	97	94			3 094	1983-87	(2873)
Estates	95	82			270	1983-87	(2873)

### 3. COMMUNITY STUDIES

### 4. HOSPITAL STUDIES

### 5. CIVIL REGISTRATION DATA/GOVERNMENT ESTIMATES

#### 5.1 National, 1941-87 (0476, 0671, 0910, 0935, 1111, 1344, 1526, 2257, 2317, 2874)

##### 5.1.1 Rate

MMR (per 100 000 live births)

1941	1 530
1946	1 550
1951	580
1956	380
1961	260
1966	220
1971	120
1974	100
1975	100
1976	90
1977	100
1978	80
1979	80
1980	90
1985	60
1986	72
1987	80

**5.1.2 Causes of maternal deaths, 1974-78, 1979 and 1983**

	1974-78		1979		1983	
	No.	%	No.	%	No.	%
Haemorrhage	644	35	115	36	95	36
Hypertensive disorders of pregnancy	492	27	77	24	51	19
Abortion	142	8	35	11	21	8
Sepsis	122	7	10	3	6	2
Embolisms	31	2	—	—	—	—
Ruptured uterus	28	1	—	—	—	—
Obstructed labour	16	1	—	—	—	—
Ectopic pregnancy	15	1	—	—	—	—
Anaemia	60	3	—	—	—	—
Other	289	16	80	25	92	35
TOTAL	1 839	100	317	100	265	100

**5.1.3 Avoidable factors****5.1.4 High risk groups***Age*

	MMR (per 100 000 live births)		
	1973	1978	1979
15-19	80	90	80
20-24	100	60	70
25-29	100	70	60
30-34	120	90	70
35-39	210	170	120
40-44	300	140	180
45-49	520	520	780

**5.2 All Districts, 1979 (0910)****5.2.1 Rate**

	MMR (per 100 000 live births)
Nuwara Eliya	170
Mannar	140
Batticaloa	130
Amparai	120
Kandy	120
Moneragala	120
Vavuniya	120
Matara	110
Ratnapura	100
Badulla	90
Galle	90
Trincomalee	90
Polonnaruwa	70
Anuradhapura	60
Kegalle	60
Kurunegala	60
Matale	60
Puttalam	50
Colombo	50
Kalutara	50
Hambantota	40
Gempaha	30
Jaffna	20
Mullaitivu	0

**5.3 National, 1985 (0834)****5.3.1 Rate**

Live births	384 581
Maternal deaths	197
MMR (per 100 000 live births)	51

**5.3.2 Causes of maternal deaths**

	Number	%
Haemorrhage	63	32
Hypertensive disorders of pregnancy	45	23
Abortion	34	17
Complications of the puerperium	13	7
Other direct causes	30	15
DIRECT CAUSES	185	94
INDIRECT CAUSES	12	6
TOTAL	197	100

**6. OTHER SOURCES/  
ESTIMATES****6.1 Colombo, 1982 (0527)****6.1.1 Rate**

According to a paper presented at a UNICEF/WHO meeting on Primary Health Care in urban areas, the maternal mortality rate in Colombo was 25 per 100 000 live births in 1982.

**7. SELECTED ANNOTATED  
BIBLIOGRAPHY****8. FURTHER READING**

Langford, C.M. Sex differentials in mortality in Sri Lanka: changes since the 1920s. *Journal of Biosocial Science*, 1984; 16: 399-410. WHE 1113.

Wanigasundara, M. Sri Lanka abortions cause concern. *People*, 1984; 11(2): 37. WHE 0887.

## 9. DATA SOURCES

- WHE 0476 Nadarajah, T. The transition from higher female to higher male mortality in Sri Lanka. *Population and Development Review*, 1983; 9(2): 317-325.
- WHE 0527 Peries, T. *Health services provided by the Colombo Medical Council*. In: Joint UNICEF/WHO Meeting on Primary Health Care in Urban Areas. (unpublished), Geneva, 1983.
- WHE 0671 Sri Lanka, Ministry of Plan Implementation. *Bulletin of vital statistics, 1979*. Department of Census and Statistics, Colombo, 1981.
- WHE 0834 World Health Organization *World health statistics annual – vital statistics and causes of death*. Geneva, various years.
- WHE 0910 Sri Lanka, Ministry of Health. *Annual Health Bulletin Sri Lanka 1983*. Colombo, 1984.
- WHE 0935 Sri Lanka, Ministry of Health. *Family health impact survey*, Family Health Bureau, Colombo, 1984.
- WHE 1111 Pollack, M.P. *Health problems in Sri Lanka, Part II, an analysis of morbidity and mortality data*. US Agency for International Development, 1984.
- WHE 1344 Sri Lanka, Ministry of Health. *Medium term plan. Family health programme 1985-89*. Family Health Bureau, Colombo, 1984.
- WHE 1489 World Health Organization. Regional Office for Southeast Asia. *Evaluation of the strategy of Health for All by the year 2000*. Seventh Report on the World Health Situation. New Delhi, 1986.
- WHE 1526 Vidyasagara, N.W. *Maternal services in Sri Lanka*. Paper presented to the Tenth Asian and Oceanic Congress of Obstetrics and Gynaecology, Colombo, 4-10 September 1985.
- WHE 1712 Mauldin W.P. and Segal, S.J. *Prevalence of contraceptive use in developing countries. A chart book*. Rockefeller Foundation, New York 1986.
- WHE 1914 United Nations Children's Fund (UNICEF). *The state of the world's children*, Oxford, Oxford University Press, various years.
- WHE 1915 United Nations. Department of International Economic and Social Affairs. *World population prospects: estimates and projections*, Population Studies, New York, various years.
- WHE 1918 United Nations. Department of International Economic and Social Affairs. *First marriage: patterns and determinants*. New York 1988.
- WHE 2033 World Health Organization. *Global strategy for health for all by the year 2000. Second report on monitoring progress*. WHO document EB83/2 Add. 1, 1988.
- WHE 2257 Asian Parasite Control/Family Planning Conference. *IP – A strategy for maternal and child health*, Proceedings of the 14th Asian Parasite Control/Family Planning Conference, Dhaka, Bangladesh, 26-30 October 1987.
- WHE 2317 Sri Lanka, Ministry of Health. *Maternal mortality statistics 1987*.
- WHE 2722 World Health Organization. *Maternal deaths and maternal mortality rates* (unpublished) 1990.
- WHE 2873 Demographic and Health Surveys. *Sri Lanka demographic and health survey 1987*. Department of Census and Statistics/Institute for Resource Development/Westinghouse, 1988.
- WHE 2874 Jayasena, K. *Assessment of needs for research in reproductive health in Sri Lanka*. Coordinating Committee for Research in Reproductive Health in Sri Lanka. Report of a WHO Special Programme of Research, Development and Research Training in Human Reproduction Workshop, Colombo, 15-16 November 1989.

# SYRIAN ARAB REPUBLIC

	Year	Source		Year	Source
<b>1. BASIC INDICATORS</b>					
<b>1.1. Demographic</b>					
<b>1.1.1 Population</b>					
Size (millions)	12.5	1990			(1915)
Rate of growth (%)	3.6	1985-90			(1915)
<b>1.1.2 Life expectancy</b>					
Female	67	1985-90			(1915)
Male	63	1985-90			(1915)
<b>1.1.3 Fertility</b>					
Crude Birth Rate	44	1985-90			(1915)
Total Fertility Rate	6.8	1985-90			(1915)
<b>1.1.4 Mortality</b>					
Crude Death Rate	7	1985-90			(1915)
Infant Mortality Rate	48	1985-90			(1915)
Female	81	1976-78			(1917)
Male	91	1976-78			(1917)
1-4 years mortality rate					
Female	8	1976-78			(1917)
Male	8	1976-78			(1917)
<b>1.2 Social and economic</b>					
<b>1.2.1 Adult literacy rate (%)</b>					
Female	43	1985			(1914)
Male	76	1985			(1914)
<b>1.2.2 Primary school enrolment rate (%)</b>					
Female	104	1986-88			(1914)
Male	115	1986-88			(1914)
<b>1.2.3 Female mean age at first marriage (years)</b>					
	20.7	1970			(1918)
<b>1.2.4 GNP/capita (US \$)</b>					
	1 640	1987			(1914)
<b>1.2.5 Daily per capita calorie supply (as % of requirements)</b>					
	131	1985			(1914)
<b>2. HEALTH SERVICES</b>					
<b>2.1 Health Expenditure</b>					
<b>2.1.1 Expenditure on health (as % of GNP)</b>					
	4	1983			(1888)
<b>2.1.2 Expenditure on PHC (as % of total health expenditure)</b>					
	47	1986			(2033)
<b>2.2 Primary Health Care (Percentage of population covered by):</b>					
<b>2.2.1 Health services</b>					
National	83	1987			(2033)
Urban					
Rural					
<b>2.2.2 Safe water</b>					
National					
Urban	91	1987			(2033)
Rural	68	1987			(2033)
<b>2.2.3 Adequate sanitary facilities</b>					
National					
Urban	72	1987			(2033)
Rural	55	1987			(2033)
<b>2.2.4 Contraceptive prevalence rate (%)</b>					
	20	1978			(1712)

## 2.3 Coverage of maternity care (%)

Area	Prenatal care	Trained attendant	Institutional deliveries	Postnatal care	Sample size	Year	Source
National	21	37				1979	(1888)
National			43		6762	1981	(0813)
National	60	61				1987	(2033)
National: urban	35	63	17			1979	(0216)
rural	9	12	3			1979	(0216)
Refugee camps	62*		31*		6 758d*	1986	(1628)

\* Percentages calculated on basis of expected deliveries as determined by birth rates.

## 3. COMMUNITY STUDIES

### 3.1 National, (1990) (2781)

A sample survey was undertaken among 20,845 ever-married women of reproductive age (15-49 years), living in both urban and rural areas. The "sisterhood method" was used to derive estimates of maternal mortality. The respondents reported a total of 47,071 ever married sisters of which 698 had died. It was estimated that 183 of these deaths were maternity-related. The lifetime risk of dying from pregnancy-related causes was calculated as 1 in 110.

#### 3.1.1 Rate

Maternal deaths	183
MMR (per 100 000 live births)	143

## 4. HOSPITAL STUDIES

### 4.1 Damascus University Maternity Hospital, Damascus, 1963, 1973 and 1981 (0216)

#### 4.1.1 Rate

	1963	1973	1981
Deliveries	2356	3786	4345
Maternal deaths	7	21	6
MMR (per 100 000 deliveries)	297	555	138

### 4.1.2 Causes of maternal deaths (1963 and 1973)

	Number	%
Haemorrhage	7	25
Sepsis	6	21
Ruptured uterus	5	18
Hypertensive disorders of pregnancy	5	18
Abortion	2	7
Cardiac diseases	2	7
Others	1	4
Total	28	100

A study conducted in 1967-68 found an incidence of ruptured uterus of 1 in 106 deliveries with 10 deaths out of 49 cases.

### 4.2 Aleppo Maternity Hospital, 1977-78 and 1981 (0216)

#### 4.2.1 Rate

	1977-78	1981
Deliveries	3 107	4 253
Maternal deaths	22	20
MMR (per 100 000 deliveries)	708	470

#### 4.2.2 Causes of maternal deaths (1977-78)

	Number	%
Haemorrhage	7	32
Ruptured uterus	7	32
Sepsis	5	23
Hypertensive disorders of pregnancy	2	9
Cardiac diseases	1	4
Total	22	100

A study on ruptured uterus in Aleppo Hospital in 1976-78, found 112 cases of ruptured uterus out of a total of 9 689 deliveries, an incidence rate of 1 in 87. Twenty-two of the 112 died, a case fatality rate of 20%.

**4.3 El-Zahrawy Hospital, Damascus, 1981<sup>(0216)</sup>****4.3.1 Rate**

Deliveries	7 095
Maternal deaths	9
MMR (per 100 000 deliveries)	127

**5. CIVIL REGISTRATION DATA/GOVERNMENT ESTIMATES****6. OTHER SOURCES/ ESTIMATES****6.1 National, 1973, 1980 and 1985<sup>(0834, 2722)</sup>****6.1.1 Rate**

The maternal mortality as reported to WHO was as follows:

	MMR (per 100 000 live births)
1973	6
1980	7
1985*	6

\* Reporting areas only

**6.2 National, 1979<sup>(0685)</sup>****6.2.1 Rate**

A UNICEF and Government of Syria joint publication quotes a maternal mortality rate for the country of between 300-400 per 100 000 live births in 1979.

**6.3 National<sup>(1414)</sup>****6.3.1 Rate**

The report of Second Mission on Needs Assessment for Population Assistance published in 1984 gives a maternal mortality rate of 280 per 100 000 deliveries.

**7. SELECTED ANNOTATED BIBLIOGRAPHY****8. FURTHER READING****9. DATA SOURCES**

WHE 0216 Fathalla, M.F. *Maternal health – Syria*. (unpublished WHO document no. EM/MCH/171), 1982.

WHE 0685 Syrian Arab Republic, Central Bureau of Statistics and UNICEF. *Services for the child in the Syrian Arab Republic: a community study*, Arab Book Printers, Damascus, 1979.

WHE 0813 World Health Organization. Eastern Mediterranean Regional Office. *Report of the EMR/SEAR meeting on the prevention of neonatal tetanus*. (WHO document no. EM/IMZ/27, EM/BD/14, EM-SEA/MTG.PREV.NNL.TTN/8), Lahore, 1982.

WHE 0834 World Health Organization *World health statistics annual – vital statistics and causes of death*. Geneva, various years.

WHE 1414 United Nations Fund for Population Activities. *Syrian Arab Republic: report of second mission on needs assessment for population assistance*. UNFPA, New York, 1985.

WHE 1628 United Nations Relief and Works Agency for Palestine Refugees in the Near East. *Annual report of the director of health 1986*, Vienna, 1987.

WHE 1712 Mauldin W.P. and Segal, S.J., *Prevalence of contraceptive use in developing countries. A chart book*. Rockefeller Foundation, New York, 1986.

WHE 1888 World Health Organization, Eastern Mediterranean Regional Office, *Evaluation of the strategy for Health for All by the year 2000*. Seventh report of the world health situation. EMRO, Alexandria, 1987.

WHE 1914 United Nations Children's Fund (UNICEF). *The state of the world's children*, Oxford, Oxford University Press, various years.

WHE 1915 United Nations. Department of International Economic and Social Affairs. *World population prospects: estimates and projections*, Population Studies, New York, various years.

WHE 1917 United Nations. Department of International Economic and Social Affairs. *Age structure of mortality in developing countries. A database for cross-sectional and time-series research*. New York, 1986.

WHE 1918 United Nations. Department of International Economic and Social Affairs. *First marriage: patterns and determinants*. New York, 1988.

WHE 2033 World Health Organization. *Global strategy for health for all by the year 2000. Second report on monitoring progress*. WHO document EB83/2 Add. 1, 1988.

WHE 2722 World Health Organization, *Maternal deaths and maternal mortality rates* (unpublished), 1990.

WHE 2781 Alloush, K. *Maternal mortality in the Syrian Arab Republic, 1990*. Ministry of Health/UNICEF/WHO, 1990

# THAILAND

	Year	Source		Year	Source
<b>1. BASIC INDICATORS</b>			<b>1.2.4 GNP/capita</b>		
<b>1.1. Demographic</b>			(US \$) 850 1987 (1914)		
<b>1.1.1 Population</b>			<b>1.2.5 Daily per capita calorie supply</b>		
Size (millions)	55.7	1990 (1915)	(as % of requirements) 105 1984-86 (1914)		
Rate of growth (%)	1.5	1985-90 (1915)	<b>2. HEALTH SERVICES</b>		
<b>1.1.2 Life expectancy</b>			<b>2.1 Health expenditure</b>		
Female	67	1985-90 (1915)	<b>2.1.1 Expenditure on health</b>		
Male	63	1985-90 (1915)	(as % of GNP) 5 1985 (2033)		
<b>1.1.3 Fertility</b>			<b>2.1.2 Expenditure on PHC</b>		
Crude Birth Rate	22	1985-90 (1915)	(as % of total health expenditure) 39 1985 (2033)		
Total Fertility Rate	2.6	1985-90 (1915)	<b>2.2 Primary Health Care</b>		
<b>1.1.4 Mortality</b>			(Percentage of population covered by):		
Crude Death Rate	7	1985-90 (1915)	<b>2.2.1 Health services</b>		
Infant Mortality Rate	39	1985-90 (1915)	National 93 1987 (2033)		
Female	62	1969-71 (1917)	Urban		
Male	86	1969-71 (1917)	Rural		
1-4 years mortality rate			<b>2.2.2 Safe water</b>		
Female	10	1969-71 (1917)	National		
Male	9	1969-71 (1917)	Urban 57 1987 (2033)		
<b>1.2 Social and economic</b>			Rural 78 1987 (2033)		
<b>1.2.1 Adult literacy rate (%)</b>			<b>2.2.3 Adequate sanitary facilities</b>		
Female	88	1985 (1914)	National		
Male	94	1985 (1914)	Urban 81 1987 (2033)		
<b>1.2.2 Primary school enrolment rate (%)</b>			Rural 57 1987 (2033)		
Female			<b>2.2.4 Contraceptive prevalence rate</b>		
Male			(% ) 65 1984 (1712)		
<b>1.2.3 Female mean age at first marriage</b>					
(years)	22.7	1980 (2799)			

## 2.3 Coverage of maternity care (%)

Area	Prenatal care	Trained attendant	Institutional deliveries	Postnatal care	Sample size	Year	Source
National		40	40		13 659	1980	(0813)
National		33				1983	(0834)
National	57	52				1987	(2033)
National	65	71		84		1988	(2375)
Bang Pa-In	93	94	85		1 128w	1983-84	(1487)
Buriram Province	62	47	36			1982	(0803)
Chang Mai Province			40		263w	1974	(0472)
Chumporn Province	74	85	78			1982	(0803)
Lampang Province		75		10		1975	(0158)
Uthaithani Province	67	79	74		637w	1982	(0803)

## 3. COMMUNITY STUDIES

### 3.1 140 villages, Bang Pa-In district, Ayuthaya Province, 1977-83 <sup>(1487)</sup>

In 1981 the risk approach was adopted in maternal health care. The subsequent improvement in maternal health care provision resulted in the fall in the numbers of maternal deaths.

#### 3.1.1 Rate

	Live Births	Maternal deaths	MMR (per 100 000 births)
1977-78	1 119	6	536
1979-80	996	2	201
1981-83	1 836	1	55

## 4. HOSPITAL STUDIES

### 4.1 Provincial hospitals, 1979 <sup>(0955)</sup>

#### 4.1.1 Rate

Live births	155 975
Maternal deaths	240
MMR (per 100 000 live births)	154

#### 4.1.2 Causes of maternal deaths

	Number	%
Abortion	65	28
Haemorrhage	45	19
Sepsis	25	11
Hypertensive disorders of pregnancy	20	8
Ectopic/molar pregnancy	15	6
Obstructed labour	10	4
Infective and parasitic conditions	20	8
Other	40	17
Total	240	100

### 4.2 Three regional MCH centres, 1968-71 <sup>(0614)</sup>

#### 4.2.1 Rate

Deliveries	24 000
Maternal deaths	23
MMR (per 100 000 deliveries)	96

### 4.3 Ramathibodi Hospital, Bangkok, 1969-82 <sup>(1503)</sup>

#### 4.3.1 Rate

	Live Births	Maternal deaths	MMR (per 100 000 births)
1969-75	27 628	12	43
1976-82	45 244	14	31
1969-82	72 872	26	36

#### 4.3.2 Causes of maternal deaths

	Number
Abortion	10
Sepsis	3
Hypertensive disorders of pregnancy	3
Embolisms	3
Ruptured uterus	1
Hepatitis	3
Other	3
Total	26

#### 4.3.3 Avoidable factors

#### 4.3.4 High risk groups

##### Age

	MMR (per 100 000 live births)
< 19 years	80
20-34	20
35+	60

### 4.4 Siriraj, Rajvithi and Chulalongkorn Hospitals, Bangkok, 1973-77 <sup>(0602)</sup>

A case-control study was undertaken in three hospitals. Controls were unmatched apart from having delivered and survived over the same period of time as mothers who died.

#### 4.4.1 Rate

	Siriraj Hospital	Rajvithi Hospital	Chulalongkorn Hospital
Deliveries	102 478	113 084	77 225
Maternal deaths	84	92	61
MMR (per 100 000 deliveries)	82	81	80

#### 4.4.2 Causes of maternal deaths (for 212 deaths)

	Number	%
Abortion	62	30
Hypertensive disorders of pregnancy	32	15
Haemorrhage	28	13
Sepsis	20	9
Ruptured uterus	11	5
Embolisms	10	5
Ectopic/molar pregnancy	6	3
DIRECT CAUSES	169	80
Cardiovascular disease	17	8
Pulmonary disease	7	3
Anaemia/blood disease	5	2
Hepatitis	2	1
Malaria	2	1
INDIRECT CAUSES	33	16
Other	10	4
TOTAL	212	100

#### 4.4.3 Avoidable factors

##### Prenatal care (for 212 deaths)

Number of prenatal visits	Maternal deaths (No.)	Controls (No.)	Relative risk (5+ visits = 1)
none	147	62	87
one	37	190	7
two	9	33	10
three	5	184	1
four	6	77	3
five and over	8	204	1

Women who commenced prenatal visits during the first or second trimesters of pregnancy had lower mortality rates than those who attended only during the last trimester.

##### Birth interval (for 132 deaths)

	Maternal deaths (No.)	Controls (No.)	Relative risk (24-35 months = 1)
<24 months	80	101	12
24-35 months	13	190	1
36-47 months	6	60	2
48-59 months	13	36	5
60-71 months	7	26	4
71+ months	13	43	4

**4.4.4 High risk groups***Age*

	Deliveries	Maternal deaths	MMR (per 100 000 births)
15-19	38 468	29	75
20-24	97 791	63	64
25-29	93 399	38	41
30-34	39 526	49	124
35-39	16 396	28	171
40+	7 027	30	427

*Parity*

	Deliveries	Maternal deaths	MMR (per 100 000 births)
0	118 286	89	75
1	76 125	42	55
2	42 942	27	63
3	20 690	20	97
4	15 615	21	134
5+	19 129	39	204

**4.4.5 Other findings***Complications during previous pregnancies*

Women who had experienced complications during previous pregnancies were significantly more at risk of death. The most frequent previous complications were abortion, haemorrhage, hypertensive disorders, heart disease and cervical dystocia. The relative risk of maternal death increased with the number of previous abortions. Women whose previous deliveries were not spontaneous vaginal deliveries were also at greater risk.

*Abortion*

Over 25% of all maternal deaths were due to illegal abortions mainly among nulliparous women aged under 20 years and those over 35 with four or more children.

**5. CIVIL REGISTRATION DATA/GOVERNMENT ESTIMATES****5.1 National, 1981<sup>(0918)</sup>**

<b>5.1.1 Rate</b>	MMR (per 100 000 live births)	110
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**5.2 National, 1986<sup>(2375)</sup>**

<b>5.2.1 Rate</b>	MMR (per 100 000 live births)	30
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**6. OTHER SOURCES/ESTIMATES****6.1 National, 1960-1981<sup>(1522)</sup>**

<b>6.1.1 Rate</b>	MMR (per 100 000 live births)
1960	420
1965	310
1970	230
1975	170
1981	80*

\* A community survey found a maternal mortality rate of 540 per 100 000 live births. No further information is provided.

**6.2 National, 1983<sup>(1241)</sup>**

<b>6.2.1 Rate</b>	A paper presented at an ASEAN workshop quoted a maternal mortality rate of 270 per 100 000 live births.
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**6.3 National, 1985-87<sup>(2722)</sup>**

<b>6.3.1 Rate</b>	Data provided to the World Health Organization databank indicated a maternal mortality rate of 37 per 100 000 live births in 1987.
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	Maternal deaths	MMR (per 100 000 births)
1985	409	42
1986	326	35
1987	329	37

## 7. SELECTED ANNOTATED BIBLIOGRAPHY

Chamrathirong, A. et al. The effect of reduced family size on maternal and child health: the case of Thailand. *World Health Statistics Quarterly*, 1987; 40: 54-62. WHE 2548

A study on the effect of reduced family size on maternal and child health was undertaken during 1985. Women with smaller families had a higher haematocrit level than those with larger families. However, health status as measured by parasitic infection, malnutrition (percentage underweight) and incidence of illness during the previous month, were not found to be any worse among women with large families. The percentage of last pregnancy with certain complications was found to be lower among women with smaller families. Pregnancy wastage, infant and child mortality were found to be less frequent among women with smaller families.

Chaturachinda, K. *Personal communication*. Bangkok, 1989. WHE 2179

From 1969-1989 there were 113,365 deliveries at the Ramathibodi Hospital, Bangkok, Thailand, no cases of vesico-vaginal fistula, and one case of recto-vaginal fistula. Additional information shows three cases of urinary fistula from Northeast Thailand caused by obstetric intervention, and two recto-vaginal fistulae from mismanaged labour at another hospital in Bangkok.

World Health Organization. International Collaborative Study of Hypertensive Disorders of Pregnancy. Geographic variation in the incidence of hypertension in pregnancy *American Journal of Obstetrics and Gynecology*, 1988; 158(1): 80-83. WHE 2552.

Prospectively collected information on blood pressure and proteinuria was available for 3,111 primigravidas in urban Ubon and 1,015 in rural Bang Pa-In. Clinical diagnosis of hypertensive disorders of pregnancy was made in 1.1% of the women and proteinuric preeclampsia occurred in 7.5% but only 0.93% developed eclampsia. There were marked differences in the incidence of hypertensive disorders and eclampsia in the different countries participating in the study, Burma, China, Thailand and Viet Nam but there is no satisfactory explanation for these variations (see relevant country profiles).

## 8. FURTHER READING

Chaturachinda, K. et al. Abortion: an epidemiological study at Ramathibodi Hospital, Bangkok. *Studies in Family Planning*, 1981; 12(6/7): 257-262. WHE 2229

Israngura Na Ayudhya, N. and Chaturachinda, K. The use of antenatal beds in Ramathibodi Hospital. *Journal of the Medical Association of Thailand*, 1988; 71(2): 78-81. WHE 2199

## 9. DATA SOURCES

WHE 0158 Coombs, P.H. *The Lamang Health Development Project*. Case study No. 8, International Council for Educational Development, Essex, Conn. U.S.A., 1979.

WHE 0472 Muecke, M.E. Health care systems as socializing agents: childbearing the North Thai and Western way. *Social Science and Medicine*, 1976; 10(7/8): 377-383.

WHE 0602 Rattanaporn, P. *The internal factors affecting maternal mortality*. Mahidol University (thesis), Bangkok, 1980.

WHE 0614 Rosenfield, A.G. and Asavasena, W. Rural-oriented maternity services. *American Journal of Obstetrics and Gynecology*, 1973; 115(7): 1013-1020.

WHE 0803 World Health Organization. Expanded Programme on Immunization. Programme review. *Weekly Epidemiological Record*, 1982; 57: 385-387.

WHE 0813 World Health Organization. Eastern Mediterranean Regional Office. *Report of the EMR/SEAR meeting on prevention of neonatal tetanus* (WHO document no. EM/IMZ/27, EM/BD/14, EM-SEA/MTG.PREV.NNL.TTN./8), Lahore, 1982.

WHE 0834 World Health Organization *World health statistics annual - vital statistics and causes of death*. Geneva, various years.

WHE 0918 World Health Organization. Southeast Asia Regional Office. *Country paper - Thailand*. In: Joint National/WHO/UNFPA Workshop, New Delhi, 1984.

- WHE 0955 Thailand, Ministry of Public Health. *Statistical Report 1979*, Department of Medical Services, Bangkok, 1980.
- WHE 1241 Pensri, K. Perinatal morbidity and mortality in Thailand. In: Abdul Kader, H. (ed.) *Proceedings of the ASEAN Pediatrics Federation Workshop on Perinatal Morbidity and Mortality: Asian perinatal health issues.*, Kuala Lumpur, 1983.
- WHE 1487 Khanjanasthiti, P. et al. *Report on the risk approach strategy in MCH service research, Thailand May 1981 – January 1984.*, Ramathibodi Faculty of Medicine, Mahidol University, Bangkok, 1985.
- WHE 1503 Winit, P. et al. Maternal mortality in Ramathibodi Hospital: a 14-year review. *Journal of the Medical Association of Thailand*, 1985; 68(12): 654-658.
- WHE 1522 World Health Organization. Southeast Asia Regional Office. *Bulletin of regional health information*, WHO/SEARO, New Delhi, 1986.
- WHE 1712 Mauldin W.P. and Segal, S.J., *Prevalence of contraceptive use in developing countries. A chart book*. Rockefeller Foundation, New York 1986.
- WHE 1914 United Nations Children's Fund (UNICEF). *The state of the world's children*, Oxford, Oxford University Press, various years.
- WHE 1915 United Nations. Department of International Economic and Social Affairs. *World population prospects: estimates and projections*, Population Studies, New York, various years.
- WHE 1917 United Nations. Department of International Economic and Social Affairs. *Age structure of mortality in developing countries. A database for cross-sectional and time-series research*. New York 1986.
- WHE 2033 World Health Organization. *Global strategy for health for all by the year 2000. Second report on monitoring progress*. WHO document EB83/2 Add. 1, 1988.
- WHE 2375 Niyomwan, V. *Maternal care – mortality assessment process and its results in Thailand*, Paper presented at workshop on the Safe Motherhood Initiative, New Delhi, 6-10 November, 1989.
- WHE 2722 World Health Organization, *Maternal deaths and maternal mortality rates* (unpublished) 1990.
- WHE 2799 United Nations. Department of International Economic and Social Affairs. *Patterns of first marriage: timing and prevalence*. New York, 1990.
- WHE 3122 Chongsuvivatwong, V. et al. Traditional society, health status and international migration of Muslim villagers in the lower part of Southern Thailand. *Southeast Asian Journal of Tropical Medicine and Public Health*, 1990; 21(3): 442-446.

# TURKEY

	Year	Source		Year	Source
<b>1. BASIC INDICATORS</b>			<b>1.2.4 GNP/capita</b>		
<b>1.1 Demographic</b>			(US \$) 1 280 1985 (1914)		
<b>1.1.1 Population</b>			<b>1.2.5 Daily per capita calorie supply</b>		
Size (millions)	55.9	1990 (1915)	(as % of requirements) 125 1985 (1914)		
Rate of growth (%)	2.1	1985-90 (1915)	<b>2. HEALTH SERVICES</b>		
<b>1.1.2 Life expectancy</b>			<b>2.1 Health Expenditure</b>		
Female	66	1985-90 (1915)	<b>2.1.1 Expenditure on health</b>		
Male	63	1985-90 (1915)	(as % of GNP) 2.7 1987 (2033)		
<b>1.1.3 Fertility</b>			<b>2.1.2 Expenditure on PHC</b>		
Crude Birth Rate	29	1985-90 (1915)	(as % of total health expenditure) 27 1987 (2033)		
Total Fertility Rate	3.7	1985-90 (1915)	<b>2.2 Primary Health Care</b>		
<b>1.1.4 Mortality</b>			(Percentage of population covered by):		
Crude Death Rate	8	1985-90 (1915)	<b>2.2.1 Health services</b>		
Infant Mortality Rate	76	1985-90 (1915)	National		
Female			Urban		
Male			Rural		
1-4 years mortality rate			<b>2.2.2 Safe water</b>		
Female			National 67 1980 (0834)		
Male			Urban 100 1985 (2033)		
<b>1.2 Social and economic</b>			Rural 70 1985 (2033)		
<b>1.2.1 Adult literacy rate (%)</b>			<b>2.2.3 Adequate sanitary facilities</b>		
Female	64	1985 (1914)	National 90 1982 (0834)		
Male	88	1985 (1914)	Urban 95 1985 (2033)		
<b>1.2.2 Primary school enrolment rate (%)</b>			Rural 90 1985 (2033)		
Female	113	1986-88 (1914)	<b>2.2.4 Contraceptive prevalence rate</b>		
Male	121	1986-88 (1914)	(% ) 40 1978 (1712)		
<b>1.2.3 Female mean age at first marriage</b>					
(years)	20.6	1980 (1918)			

## 2.3 Coverage of maternity care (%)

Area	Prenatal care	Trained attendant	Institutional deliveries	Postnatal care	Sample size	Year	Source
National			50			1986	(1387)
National:	43	76	61			1983-88	(3144)
urban	56	86	72			1983-86	(3144)
rural	27	65	47			1983-86	(3144)
9 provinces		38	20		2 035	1985	(1524)
Centre	42	80	65			1983-86	(3144)
Cubuk district		61	47			1980	(0299)
Cubuk		80	67		1 313d	1984	(1265)
Eastern region			20			1986	(1387)
East	22	58	37			1983-86	(3144)
North	37	84	76			1983-86	(3144)
South	37	70	55			1983-86	(3144)
West	62	87	72			1983-86	(3144)

## 3. COMMUNITY STUDIES

### 3.1 National, (1989) <sup>(2565)</sup>

The "sisterhood method" was used to estimate maternal mortality in the context of a demographic survey undertaken by the national government. The total sample size was 4,594 women of reproductive age who were asked about the deaths of ever married sisters. The life time risk of dying from pregnancy related causes was estimated as 1 in 159.

#### 3.1.1 Rate

Maternal deaths	376
MMR (per 100 000 live births)	146

### 3.2 Adiyaman and K. Maras, Eastern Provinces, 1986 <sup>(1689)</sup>

#### 3.2.1 Rate

MMR (per 100 000 live births)

Adiyaman province	91
K. Maras province	284

A study done in the Eastern provinces of Turkey in 1986 found a maternal mortality rate of 284 per 100,000 live births.

### 3.3 Etimesgut and Cubuk rural areas, 1975-83 <sup>(1265, 1689)</sup>

#### 3.3.1 Rate

Deliveries	31 051
Maternal deaths	37
MMR (per 100 000 deliveries)	119

**3.3.2 Causes of maternal deaths**

	Number	%
Haemorrhage	14	38
Hypertensive disorders of pregnancy	4	11
Embolism	4	11
Sepsis	2	5
DIRECT CAUSES	24	65
INDIRECT CAUSES	13	35
TOTAL	37	100

**3.3.3 Avoidable factors**

Over half of the deaths were considered preventable with existing local health care facilities and a further 24% could have been prevented given improved health facilities.

**4. HOSPITAL STUDIES****4.1 Health centres in Cubuk area, 1977-83 (1265)****4.1.1 Rate**

	MMR (per 100 000 live births)
Central health centre	163
Villages Group health centre*	207
Akyurt health centre	73
Yenice health centre	154
Y. Cav health centre	152
Kislacik health centre*	341

\* Rural areas.

**4.2 University of Hacettepe, Ankara, 1971-81 (2307)****4.2.1 Rate**

Deliveries	20 291
Maternal deaths	13
MMR (per 100 000 deliveries)	64

**4.3 All hospitals, 1986 (3144)****4.3.1 Rate**

Admissions for pregnancy and childbirth	791 000
Maternal deaths	624
MMR (per 100 000 admissions)	79

**4.3.2 Causes of maternal deaths,**

	Number	%
Hypertensive disorders of pregnancy	256	41
Abortion	77	12
Normal delivery	53	8
Haemorrhage	47	8
Sepsis	13	2
Other infections	21	3
Complications of the puerperium	157	25
TOTAL	624	100

**5. CIVIL REGISTRATION DATA/GOVERNMENT ESTIMATES****5.1 Urban areas, 1960-82 (1265)****5.1.1 Rate**

	Maternal deaths	MMR (per 100 000 live births)
1960-66	3 299	145
1967-74	2 183	76
1975-82	735	22

There is thought to be considerable underreporting of maternal deaths.

**6. OTHER SOURCES/ ESTIMATES****6.1 National (0934, 1265, 1387)****6.1.1 Rate**

Several sources give a maternal mortality rate for the country as a whole of 208 per 100 000 live births.

## 7. SELECTED ANNOTATED BIBLIOGRAPHY

Kafkas, S.K. and Taner, C.E. Ruptured uterus.  
*International Journal of Gynecology and Obstetrics*,  
1990; 34: 41-44. WHE 2738.

In a total of 3,962 deliveries at the Dicle University Medical School between 1983 and 1988, there were 41 cases of ruptured uterus, an incidence rate of 1 in 97 deliveries or 1%. All the cases occurred among poor uneducated women who had had no prenatal care. Delay in admission to hospital ranged from 9-72 hours and the uterus of each patient

except one had ruptured prior to admission. There were no uterine ruptures in primigravidae and high parities of 5 and more accounted for over 60% of the cases. In 31 cases the rupture was due to cephalopelvic disproportion. Three of the patients died, a case fatality rate of 7.3%. Three patients developed vesico-vaginal fistulae and there were two cases of ruptured bladder.

## 8. FURTHER READING

## 9. DATA SOURCES

WHE 0299 Bertan, M. Integration of family planning in primary health care. *ICMR/WHO Workshop on Service and Psychosocial Research in Family Planning*, Trivandrum, December 1982.

WHE 0834 World Health Organization *World health statistics annual – vital statistics and causes of death*. Geneva, various years.

WHE 0934 Yener, S. *Women and health in Turkey*. Regional workshop in Women, Health and Development. Damascus, Syria, 11-15 November, 1984. (Unpublished).

WHE 1265 Dervisoglu, A.A. *Maternal mortality in Turkey*. (unpublished), Ankara, 1985.

WHE 1387 Fincancioglu, N. Turkey launches new drive. *People*, 1986; 13: 28-29.

WHE 1524 Dervisoglu, A.A. *Strengthening integrated FP/MCH services in 17 provinces*. Report of a baseline study carried out in 9 provinces. WHO/EURO Document no. TUR/MCH 501, 1985.

WHE 1689 Dervisoglu, A.A. *Maternal mortality in Turkey and its prevention*. (unpublished), 1988.

WHE 1712 Mauldin W.P. and Segal, S.J. *Prevalence of contraceptive use in developing countries. A chart book*. Rockefeller Foundation, New York, 1986.

WHE 1914 United Nations Children's Fund (UNICEF). *The state of the world's children*, Oxford, Oxford University Press, various years.

WHE 1915 United Nations. Department of International Economic and Social Affairs. *World population prospects: estimates and projections*, Population Studies, New York, various years.

WHE 1918 United Nations. Department of International Economic and Social Affairs. *First marriage: patterns and determinants*. New York, 1988.

WHE 2033 World Health Organization. *Global strategy for health for all by the year 2000. Second report on monitoring progress*. WHO document EB83/2 Add. 1, 1988.

WHE 2307 Ayhan, A. et al. Analysis of 20,291 deliveries in a Turkish institution. *International Journal of Gynecology and Obstetrics*, 1989; 29: 131-134.

WHE 2565 Graham, W. *Results of the application of the sisterhood method for estimating maternal mortality*. London School of Hygiene and Tropical Medicine (Unpublished) 1990

WHE 3144 Turkey, Government of, *The situation analysis of mothers and children in Turkey*. UNICEF/Government of Turkey, Ankara, 1991.

# UNITED ARAB EMIRATES

	Year	Source		Year	Source
<b>1. BASIC INDICATORS</b>			<b>1.2.4 GNP/capita</b>		
			(US \$)		
			15 770	1988	(1914)
<b>1.1 Demographic</b>			<b>1.2.5 Daily per capita calorie supply</b>		
			(as % of requirements)		
<b>1.1.1 Population</b>					
Size (millions)			1.6	1990	(1915)
Rate of growth (%)			3.2	1985-90	(1915)
<b>1.1.2 Life expectancy</b>					
Female			73	1985-90	(1915)
Male			69	1985-90	(1915)
<b>1.1.3 Fertility</b>					
Crude Birth Rate			23	1985-90	(1915)
Total Fertility Rate			4.8	1985-90	(1915)
<b>1.1.4 Mortality</b>					
Crude Death Rate			4	1985-90	(1915)
Infant Mortality Rate			26	1985-90	(1915)
Female					
Male					
1-4 years mortality rate					
Female					
Male					
<b>1.2 Social and economic</b>			<b>2. HEALTH SERVICES</b>		
<b>1.2.1 Adult literacy rate (%)</b>			<b>2.1 Health Expenditure</b>		
Female					
Male					
7					
24					
1970					
1970					
(1914)					
(1914)					
<b>1.2.2 Primary school enrolment rate (%)</b>			<b>2.1.1 Expenditure on health</b>		
Female			(as % of GNP)		
Male			9.0	1987	(2033)
100					
98					
1986-88					
1986-88					
(1914)					
(1914)					
<b>1.2.3 Female mean age at first marriage</b>			<b>2.1.2 Expenditure on PHC</b>		
(years)			(as % of total health expenditure)		
18.0					
1975					
(2799)					
			<b>2.2 Primary Health Care</b>		
			(Percentage of population covered by):		
			<b>2.2.1 Health services</b>		
			National	100	1987
			Urban	100	1987
			Rural	100	1987
					(2033)
					(2033)
					(2033)
			<b>2.2.2 Safe Water</b>		
			National	100	1987
			Urban	100	1987
			Rural	100	1987
					(2033)
					(2033)
					(2033)
			<b>2.2.3 Adequate sanitary facilities</b>		
			National		
			Urban	100	1987
			Rural	77	1987
					(2033)
					(2033)
			<b>2.2.4 Contraceptive prevalence rate</b>		
			(% )		

**2.3 Coverage of maternity care (%)**

Area	Prenatal care	Trained attendant	Institutional deliveries	Postnatal care	Sample size	Year	Source
National			85			1980	(0807)
National	98	99				1987	(2033)

**3. COMMUNITY STUDIES****4. HOSPITAL STUDIES****5. CIVIL REGISTRATION DATA/GOVERNMENT ESTIMATES****6. OTHER SOURCES/ ESTIMATES****7. SELECTED ANNOTATED BIBLIOGRAPHY****8. FURTHER READING****9. DATA SOURCES**

WHE 0807 World Health Organization. Expanded Programme on Immunization. *Programme review, United Arab Emirates*, (unpublished WHO document no. EM/IMZ/18), 1981.

WHE 1914 United Nations Children's Fund (UNICEF). *The state of the world's children*, Oxford, Oxford University Press, various years.

WHE 1915 United Nations. Department of International Economic and Social Affairs. *World population prospects: estimates and projections*, Population Studies, New York, various years.

WHE 2033 World Health Organization. *Global strategy for health for all by the year 2000. Second report on monitoring progress*. WHO document EB83/2 Add. 1, 1988.

WHE 2799 United Nations. Department of International Economic and Social Affairs. *Patterns of first marriage: timing and prevalence*. New York, 1990.

# VIET NAM

	Year	Source		Year	Source
<b>1. BASIC INDICATORS</b>					
<b>1.1 Demographic</b>					
<b>1.1.1 Population</b>					
Size (millions)	67.1	1990			(1915)
Rate of growth (%)	2.2	1985-90			(1915)
<b>1.1.2 Life expectancy</b>					
Female	64	1985-90			(1915)
Male	59	1985-90			(1915)
<b>1.1.3 Fertility</b>					
Crude Birth Rate	32	1985-90			(1915)
Total Fertility Rate	4.1	1985-90			(1915)
<b>1.1.4 Mortality</b>					
Crude Death Rate	10	1985-90			(1915)
Infant Mortality Rate	64	1985-90			(1915)
Female					
Male					
1-4 years mortality rate					
Female					
Male					
<b>1.2 Social and economic</b>					
<b>1.2.1 Adult literacy rate (%)</b>					
Female	80	1985			(1914)
Male	88	1985			(1914)
<b>1.2.2 Primary school enrolment rate (%)</b>					
Female	94	1986-88			(1914)
Male	107	1986-88			(1914)
<b>1.2.3 Female mean age at first marriage (years)</b>					
<b>1.2.4 GNP/capita (US \$)</b>					
<b>1.2.5 Daily per capita calorie supply (as % of requirements)</b>					
	105	1984-86			(1914)
<b>2. HEALTH SERVICES</b>					
<b>2.1 Health Expenditure</b>					
<b>2.1.1 Expenditure on health (as % of GNP)</b>					
	3.0	1990			(3153)
<b>2.1.2 Expenditure on PHC (as % of total health expenditure)</b>					
	80	1988			(3153)
<b>2.2 Primary Health Care (Percentage of population covered by):</b>					
<b>2.2.1 Health services</b>					
National	97	1987			(2033)
Urban					
Rural					
<b>2.2.2 Safe water</b>					
National					
Urban	70	1987			(2033)
Rural	39	1987			(2033)
<b>2.2.3 Adequate sanitary facilities</b>					
National	30	1983			(0834)
Urban					
Rural					
<b>2.2.4 Contraceptive prevalence rate (%)</b>					
	20	1982			(1712)

## 2.3 Coverage of maternity care (%)

Area	Prenatal care	Trained attendant	Institutional deliveries	Postnatal care	Sample size	Year	Source
National	99		99			1982	(0900)
National		100				1982	(0834)
National	93	90				1987	(2033)
National	73					1990	(3153)

## 3. COMMUNITY STUDIES

## 4. HOSPITAL STUDIES

### 4.1 Six provincial and district hospitals and the Institute for the Protection of the Mothers and the Newborn, 1984-85 (0997)

#### 4.1.1 Rate

Province	Deliveries	Maternal deaths	MMR (per 100 000 births)
Bac Thai	2 759	15	544
Ha Bac	2 255	18	798
Hai Hung	1 517	9	593
Ha Nam Ninh	2 662	18	676
Ha Son Binh	2 229	20	897
7 districts of Thai Binh	3 730	17	456
Vinh Phu	2 959	21	710
Institute	4 079	10	245
Total	22 190	128	576

#### 4.1.2 Causes of maternal deaths\*

	Number	%
<i>Primary causes</i>		
Haemorrhage	38	29
Sepsis	20	16
Ectopic pregnancy	8	6
Abortions	8	6
Ruptured uterus	8	6
Hypertensive disorders of pregnancy	5	4
Others	36	29
<i>Associated causes</i>		
Haemorrhage	31	24
Anaemia	20	16
Sepsis	16	13
Renal failure	8	6
Heart failure	8	6
Traditional herb	2	2
Other	27	21

\* categories not mutually exclusive.

#### 4.1.3 Avoidable factors\*

35% of the deaths were considered definitely preventable, 53% possibly preventable and 10% non-preventable.

	Number	%
Delay in treatment	80	63
Delay in referral	77	60
Delay in diagnosis	68	53
Wrong treatment	47	37
Lack of blood	46	36
Lack of transport	29	23
Wrong diagnosis	28	22
Lack of drugs	26	20
Patient not presented	22	17
Lack of equipment	14	11
Patient non compliance	13	10
Use of traditional medicine	6	5
Lack of staff	4	3
Wrong referral	1	8
Others	16	12

\* Categories not mutually exclusive.

#### 4.1.4 High risk groups

For each maternal death identified during the study period the next five pregnant or delivered women were selected as controls for comparative purposes. Prior to the data analysis two of the five controls were matched to the cases for place of residence. No other matching criteria were used. It was found that women aged less than 20 years old and primiparous together with older women (over 30 years old) and those of para 4 and higher were at greatest risk of death. Women who had no prenatal care were also at greater risk of death. Only 34% of the women who died had received prenatal care compared with 74% of the women in the control group.

## 4.2 Provincial Hospital, Quang Ngai, South Vietnam, 1967-69 <sup>(0862)</sup>

### 4.2.1 Rate

Live births	5 371
Maternal deaths	51
MMR (per 100 000 live births)	1 060

### 4.2.2 Causes of maternal deaths

The number of deaths associated with caesarean sections was very high, constituting 35% of all maternal deaths. This high fatality rate was because caesarean section was performed as a last resort. The second most frequent cause of death was ruptured uterus, and the fact that no blood was available for transfusion no doubt greatly contributed to a number of deaths. Although severe anaemia was a direct cause of death in only eight cases, it was common among the pregnant women.

	Number	%
Associated with caesarean section	18	35
Ruptured uterus	8	16
Hypertensive disorders of pregnancy	7	14
Anaemia	7	14
Haemorrhage	7	14
Sepsis	3	5
Cardiac diseases	1	2
Total	51	100

### 4.2.3 Avoidable factors

### 4.2.4 High risk groups

### 4.2.5 Other findings

There were 284 admissions for complications of abortion during the three year period, of which slightly less than half were septic abortions. 25 women died.

## 5. CIVIL REGISTRATION DATA/GOVERNMENT ESTIMATES

### 5.1 National, 1985-87 <sup>(1920, 2774)</sup>

#### 5.1.1 Rate

	MMR (per 100 000 live births)
1981	100
1983	110
1984	125
1985	140
1986	140
1987	130

## 6. OTHER SOURCES/ ESTIMATES

### 6.1 National, 1983 <sup>(1417)</sup>

#### 6.1.1 Rate

According to the WHO regional data bank, the maternal mortality rate for the country in 1983 was 110 per 100,000 live births.

### 6.2 National, 1982 <sup>(0917)</sup>

#### 6.2.1 Rate

A UNICEF publication quotes a maternal mortality rate of 100 per 100,000 live births in 1982.

### 6.3 National, 1989 <sup>(3153)</sup>

#### 6.3.1 Rate

MMR (per 100 000 live births) 120

## 7. SELECTED ANNOTATED BIBLIOGRAPHY

Le Diem Huong and Hoang Kim Phung, *Country report - Viet Nam*. Paper presented at a regional workshop on the risk approach in mother and child health care. (unpublished) Regional Office for the Western Pacific, Manila, 1990. WHE 2774

A survey carried out to assess the health status of forestry workers and peasant women in two provinces, Ha Tuyen and Vinh Phu found that there were important differences in the utilization of prenatal care, trained assistance during delivery and institutional deliveries both between the two provinces and for the two groups of women.

	Prenatal visits %	Trained assistance at delivery %	Institutional delivery %
<i>Ha Tuyen Province</i>			
Forestry workers	67	88	43
Peasants	43	49	15
<i>Vinh Phu Province</i>			
Forestry workers	86	87	62
Peasants	69	73	44

World Health Organization. International Collaborative Study of Hypertensive Disorders of Pregnancy. Geographic variation in the incidence of hypertension in pregnancy *American Journal of Obstetrics and Gynecology*, 1988; 158(1): 80-83. WHE 2552.

Prospectively collected information on blood pressure and proteinuria was available for 3 046 primigravidas in part of the city of Hanoi and 1 374 primigravidas in rural areas near Hanoi. Clinical diagnosis of hypertensive disorders of pregnancy

was made in 1.2% of the women and proteinuric preeclampsia occurred in 1.5% but only 0.34% developed eclampsia. There were marked differences in the incidence of hypertensive disorders and eclampsia in the different countries participating in the study, Burma, China, Thailand and Viet Nam but there is no satisfactory explanation for these variations (see relevant country profiles).

## 8. FURTHER READING

## 9. DATA SOURCES

WHE 0834 World Health Organization *World health statistics annual – vital statistics and causes of death*. Geneva, various years.

WHE 0862 Vennema, A. Perinatal mortality and maternal mortality at the Provincial Hospital, Quang Ngai, South Vietnam, 1967-70. *Tropical and Geographic Medicine*, 1975; 27: 34-38.

WHE 0900 United Nations. Secretariat of the Decade for Women. *Country response to the questionnaire on the review and appraisal of the UN decade for women: equality, development and peace*, Part II (B), Health and nutrition, (unpublished documents), 1984.

WHE 0917 United Nations Economic and Social Commission for Asia and the Pacific. *The Asian and Pacific atlas of children in national development*. UNICEF, 1984.

WHE 0997 Viet Nam, Institute for the protection of mother and newborn. Maternal mortality in selected areas of Viet Nam. In: *Interregional Meeting for the Prevention of Maternal Mortality*, Geneva, 11-15 November, 1985.

WHE 1417 World Health Organization. Regional Office for the Western Pacific, *Databank on socioeconomic and health indicators*, 1985.

WHE 1712 Mauldin W.P. and Segal, *Prevalence of contraceptive use in developing countries. A chart book*. Rockefeller Foundation, New York 1986.

WHE 1914 United Nations Children's Fund (UNICEF). *The state of the world's children*, Oxford, Oxford University Press, various years.

WHE 1915 United Nations. Department of International Economic and Social Affairs. *World population prospects: estimates and projections*, Population Studies, New York, various years.

WHE 1920 Deodato, G. *Report on a field visit to the Socialist Republic of Vietnam*, Manila, 10-24 July, 1987.

WHE 2033 World Health Organization. *Global strategy for health for all by the year 2000. Second report on monitoring progress*. WHO document EB83/2 Add. 1, 1988.

WHE 2774 Le Diem Huong and Hoang Kim Phung, *Country report – Vietnam*. Paper presented to the regional workshop on risk approach in mother and child health care, Manila, 1990.

WHE 3153 World Health Organization. Western Pacific Regional Office. *Country data sheets*. (unpublished), 1991.

# YEMEN

	Year	Source
<b>1. BASIC INDICATORS</b>		
<b>1.1 Demographic</b>		
<b>1.1.1 Population</b>		
Size (millions)	10.5	1990 (1915)
Rate of growth (%)	3.0	1985-90 (1915)
<b>1.1.2 Life expectancy</b>		
Female	52	1985-90 (1915)
Male	49	1985-90 (1915)
<b>1.1.3 Fertility</b>		
Crude Birth Rate	48	1985-90 (1915)
Total Fertility Rate	6.8	1985-90 (1915)
<b>1.1.4 Mortality</b>		
Crude Death Rate	16	1985-90 (1915)
Infant Mortality Rate	117	1985-90 (1915)
Female		
Male		
1-4 years mortality rate		
Female		
Male		
<b>1.2 Social and economic</b>		
<b>1.2.1 Adult literacy rate* (%)</b>		
Female	11	1985 (1914)
Male	49	1985 (1914)
<b>1.2.2 Primary school enrolment rate* (%)</b>		
Female	39	1986-88 (1914)
Male	130	1986-88 (1914)
<b>1.2.3 Female mean age at first marriage (years)</b>		

	Year	Source
<b>1.2.4 GNP/capita*</b>		
(US \$)	550	1987 (1914)
<b>1.2.5 Daily per capita calorie supply as % of requirements</b>		
	94	1984-86 (1914)
<b>2. HEALTH SERVICES</b>		
<b>2.1 Health Expenditure</b>		
<b>2.1.1 Expenditure on health (as % of GNP)</b>		
<b>2.1.2 Expenditure on PHC (as % of total health expenditure)</b>		
<b>2.2 Primary Health Care (Percentage of population covered by):</b>		
<b>2.2.1 Health services*</b>		
National	48	1985 (2033)
Urban		
Rural		
<b>2.2.2 Safe water</b>		
National		
Urban	89	1985 (2033)
Rural	31	1985 (2033)
<b>2.2.3 Adequate sanitary facilities</b>		
National		
Urban	67	1985 (2033)
Rural		
<b>2.2.4 Contraceptive prevalence rate (%)</b>		

\* Estimated

## 2.3 Coverage of maternity care (%)

Area	Prenatal care	Trained attendant	Institutional deliveries	Postnatal care	Sample size	Year	Source
National	10	10				1982	(0834)
Aden			70			(1990)	(2712)

## 3. COMMUNITY STUDIES

### 3.1 North-eastern area, 1985 <sup>(2711)</sup>

A small retrospective community-based study found a maternal mortality rate of 1 040 per 100 000 live births.

## 4. HOSPITAL STUDIES

### 4.1 All institutions, 1985 <sup>(2711)</sup>

MMR (per 100 000 live births) 330

### 4.2 Aboud Maternity Hospital, Aden, 1977-86 <sup>(1676)</sup>

#### 4.2.1 Rate

	1977-81	1982-86
Live births	18 087	23 477
Maternal deaths	231	60
MMR (per 100 000 live births)	1 277	256

The rates dropped from 2 327 per 100 000 live births in 1977 to 632 per 100 000 live births in 1981, and to 268 in 1986.

#### 4.2.2 Causes of maternal deaths, 1982-86

	Number	%
Haemorrhage	22	37
Sepsis	11	18
Hypertensive disorders of pregnancy	9	15
Embolisms	6	10
Abortion	4	7
Ectopic pregnancy	1	2
Other	2	3
DIRECT CAUSES	55	92
Malaria	2	3
Hepatitis	1	2
Other indirect causes	2	3
INDIRECT CAUSES	5	8
TOTAL	60	100

Sepsis accounted for 23% of deaths including abortion deaths and was present in 38% of the cases. Many of the women were severely anaemic with average haemoglobin levels ranging from 4-8 gms. Preeclampsia was a complication in a large number of the cases.

#### 4.2.3 Avoidable factors

#### 4.2.4 High risk groups

#### 4.2.5 Other findings

Of the women who died, 10% were dead on admission and another 15% died within an hour.

## 5. CIVIL REGISTRATION DATA/GOVERNMENT ESTIMATES

### 5.1 National (1984) <sup>(0303)</sup>

#### 5.1.1 Rate

A report by the Ministry of Public Health to a regional workshop held in 1984 quotes a maternal mortality rate of 100 per 100 000 births.

## 6. OTHER SOURCES/ ESTIMATES

### 6.1 National (1979) <sup>(0650)</sup>

#### 6.1.1 Rate

A WHO assignment report published in 1979 quotes a maternal mortality rate of 1 000 per 100 000 births.

## 7. SELECTED ANNOTATED BIBLIOGRAPHY

## 8. FURTHER READING

## 9. DATA SOURCES

WHE 0303 Democratic Yemen, Ministry of Public Health. Aden country study on women health and development. *Paper presented to the regional workshop*, (unpublished document) Damascus, 1984.

WHE 0650 Shakir, A. *Child health, Democratic Yemen*, (unpublished assignment report), April 1979.

WHE 0834 World Health Organization *World health statistics annual – vital statistics and causes of death*. Geneva, various years.

WHE 1676 Ahmed Ali, A. *A review of maternal mortality at Abood Maternity Hospital (Aden) from 1982-86*. (unpublished document), 1987.

WHE 1914 United Nations Children's Fund (UNICEF). *The state of the world's children*, Oxford, Oxford University Press, various years.

WHE 1915 United Nations. Department of International Economic and Social Affairs. *World population prospects: estimates and projections*, Population Studies, New York, various years.

WHE 2033 World Health Organization. *Global strategy for health for all by the year 2000. Second report on monitoring progress*. WHO document EB83/2 Add. 1, 1988.

WHE 2711 Abdulghani, N.A. *Risk factors for maternal mortality among women using hospitals in Yemen Arab Republic*. (unpublished), 1990.

WHE 2712 El Serour, G.A. *Infant mortality rate and maternal mortality rate survey*. WHO consultant assignment report, 1990.

**NOTES**