



NATIONAL OBSTETRIC INFORMATION SYSTEM (NOIS)

MALTA

ANNUAL REPORT 2006

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NATIONAL OBSTETRIC INFORMATION SYSTEMS (NOIS)

A national obstetric information system was launched in the beginning of 1999 and now covers practically all deliveries taking place on the islands of Malta and Gozo.

Data collection and Sources of Information

Systematic data collection for NOIS commences once the mother delivers her baby. Information regarding the course and outcome of each pregnancy is recorded by the relevant staff at each centre on a standard NOIS sheet. Once the data are recorded, the sheets are forwarded to the DHI on a regular basis. At the DHI the relevant sheets are processed and entered into the NOIS database.

The maternity centres actively participating in this information system are: St. Lukes Hospital, Gozo General Hospital, St James Hospital Sliema and Zabbar and St. Philip's Hospital. Home deliveries which are not subsequently referred to a hospital are not captured by this system.

Report

This report analyses the national deliveries and infant/fetal births reported to the Registry that occurred in 2006 and compares it to the figures reported for last year. The data in this report describes statistics for all deliveries and births reported to and registered into the system.

Data is sent to the Registry from all hospitals on the Maltese Islands. Accuracy and completeness of data sent on the NOIS reporting sheets is the responsibility of the hospital providing data.

ANALYSIS OF REPORTED DATA

There were a total of 3822 deliveries reported and registered for the Maltese Islands in 2006. These resulted in a total of 3891 infant/fetal births. The table below gives the number of deliveries and births in Malta and Gozo and registered in NOIS since 1999.

Year	Deliveries	Total Births*
1999	4311	4382
2000	4311	4377
2001	3918	3955
2002	3873	3927
2003	3995	4054
2004	3838	3902
2005	3804	3865
2006	3822	3891

* Total births include all reported live and still births

Of the registered 3822 deliveries (3891 births), 3552 deliveries (3617 births) occurred in Malta and 270 deliveries (274 births) occurred in Gozo.

DELIVERIES

MATERNAL AGE, MARITAL STATUS, NATIONALITY AND PARITY

Maternal Age:

The maternities have been grouped into 5-year age groups and the frequency distribution of deliveries according to maternal age group is given. In 2006, the greatest number of deliveries - 1353 (35%), occurred in the age group 25 to 29 years whilst the least number of deliveries 3 (<1%) occurred in the oldest age group 45+ years. There were 4 deliveries in the youngest age group less than 15 years. The minimum age at delivery of the mothers was 13 years while the maximum age was 46 years. The most frequent maternal age at delivery was 30 years and average maternal age was 28 years.

The frequency distribution of deliveries in 2006 according to maternal age group is given in the following table.

Deliveries according to maternal age groups:

<i>Age group (years)</i>	<i>2006</i>		<i>2005</i>	
	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>
<15	4	<1	4	<1
15-19	233	6	224	6
20-24	645	17	654	17
25-29	1353	35	1410	37
30-34	1137	30	1105	29
35-39	374	10	321	8
40-44	65	2	78	2
45+	3	<1	6	<1
Unspecified	8	<1	2	<1

Marital Status:

This year, 806 (21%) of all deliveries occurred to mothers who were never married (single); while 2916 (76%) of all deliveries occurred to mothers who were reported as married, and 96 (2.5%) were reported as being widowed, separated or divorced. For the remaining 4 deliveries the mother had no marital status specified.

In 2006, according to the data registered in NOIS, only one mother was reported as 'not having support at home to raise the infant.

Nationality:

91.3% (3491) of all deliveries this year, occurred to women of Maltese nationality while 7.5% (288) were Non-Maltese. In the remaining 1.1% (43) nationality was not specified.

Parity:

There were 53% of mothers who were primiparas while 47% were multiparas in 2006. The following table gives a breakdown of mothers by age and parity.

Parity of mothers by maternal age group:

Mother's Age Group	Delivery order*							
	1 st	2 nd	3 rd	4 th	5 th	>5 th	Unknown	Total
Under 20	211	25	1	0	0	0	0	237
20-24	448	160	31	6	0	0	0	645
25-29	827	397	98	19	9	3	0	1353
30-34	419	509	150	42	11	6	0	1137
35-39	90	146	91	28	8	11	0	374
40-44	13	15	22	10	3	2	0	65
45-49	0	0	0	1	1	1	0	3
Unknown	3	0	3	1	0	1	0	8
Total	2011	1252	396	107	32	24	0	3822

*Both previous livebirths and still births are included

MATERNAL LIFESTYLES

There were 105 (2.7%) of mothers who were reported to smoke one or more cigarettes during pregnancy this year. Two mothers were reported to drink alcohol regularly during pregnancy and 9 (0.2%) were reported as being drug abusers.

The following table gives the reported smoking, alcohol and drug habits of mothers for 2006 and 2005.

<i>Maternal Lifestyles</i>	<i>2006</i>	<i>2005</i>
	<i>No.</i>	<i>No.</i>
<i>Cigarette smoking during pregnancy:</i>		
1 to 3/day	22	36
>than 3/day	83	167
Do not smoke	3605	3574
Unspecified	112	27
<i>Alcohol consumption during pregnancy:</i>		
Up to 1 unit/day	1	0
>than 1 unit/day	1	0
None	3708	3777
Unspecified	112	27
<i>Drug Abuse during pregnancy</i>		
Yes	9	12
No	3701	3765
Unspecified	112	27

PATHOLOGY DURING PREGNANCY

In 2006 there were 38 mothers registered as having made use of assisted reproduction (ART), this includes all forms of ART namely ovulation stimulation, IVF and ICSI.

The table below gives the number of mothers for this year and last year that were reported with specific obstetric pathology during pregnancy. The most frequently reported was gestational hypertension, with 5% of mothers registered as having gestational hypertension.

<i>Pathology during pregnancy</i>	<i>2006</i>			<i>2005</i>		
	<i>Yes</i>	<i>No</i>	<i>Unspec.</i>	<i>Yes</i>	<i>No</i>	<i>Unspec.</i>
Antepartum Haemorrhage	23	3799	0	34	3768	2
Gestational hypertension	202	3620	0	261	3540	3
Pre-eclampsia	21	3801	0	15	3788	1
Eclampsia	0	3822	0	0	3802	2
Placenta praevia	34	3788	0	19	3784	1
Abruption of placenta	9	3813	0	5	3798	1
Suspected IUGR*	153	3669	0	206	3596	2
Cardiovascular disease	6	3815	1	3	3797	4

**IUGR – intrauterine growth retardation*

DIABETES IN PREGNANCY

In 2006 there were 9 mothers who were reported as being Insulin Dependent Diabetic before this pregnancy while there were 2 mothers reported with Non-Insulin Dependent diabetes prior to pregnancy. In addition, there were a total of 49 mothers registered with gestational diabetes who were controlled without the use of insulin, and 4 mothers registered as having gestational diabetes treated with insulin.

CATEGORY OF MATERNITY ACCORDING TO DELIVERY

For this year, there were a total of 3756 (98%) singleton and 63 (2%) twin deliveries, 3 triplet and no quadruplet deliveries.

<i>Category</i>	<i>2006</i>	<i>2005</i>
Singleton	3756	3746
Twin	63	55
Triplet	3	3
Quadruplet	0	0

SITE AND ONSET OF DELIVERY

In 2006 of the total 3822 deliveries registered by NOIS, 3815 (98.8%) occurred in a hospital while there were 4 deliveries that occurred at home but were later referred to a hospital and another 3 that occurred at another site before being referred to hospital. Two of the hospital deliveries were reported as being underwater.

In 2006, of the total 3822 deliveries, 45% (1737) were reported as spontaneous onset of contractions, 37% (1427) were induced by drugs or artificial rupture of membranes and 17% (658) were planned caesarian sections.

INFANT/FETAL BIRTHS

METHOD OF BIRTH

In 2006 there were a total of 3891 infant/fetal births. Of these 2322 (60%) were delivered as a vertex delivery, 1395 (36%) by emergency or elective Caesarean Section and 174 (4.5%) by assisted vaginal delivery (includes forceps, ventouse and breech).

<i>Method of Birth*</i>	2006	2005
Infants/fetuses delivered by:		
Vertex delivery	2322	2480
Elective/emergency Caesarean Section	1395	1222
Forceps	6	5
Ventouse	167	153
Breech deliveries	1	5

**Data analysed according to total infant/fetal births*

For 2006 there were 1395 infants/fetuses delivered by caesarian section but 1329 caesarian operations performed, this due to the fact that a number of caesarians are done in multiple birth deliveries. The Caesarean section operation rate in 2006 was 34.8% of the total 3822 maternal deliveries.

GENDER DISTRIBUTION OF BIRTHS

The gender distribution of births is given in the table below. As usually seen, there were more male infants/fetuses delivered than female.

<i>Gender</i>	2005		2004	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Male	2057	53	2000	52
Female	1834	47	1865	48

BIRTHWEIGHT OF INFANTS/FETUSES

In 2006, there were 3631 (93%) of the total births that occurred in the birth weight range of 2500g to 4999g. 226 (6%) of the total births were in the low birth weight range of 1500g to 2499g, while 29 (1%) of births were of very low birth weight 500g to 1499g. This year there were 17 babies of birth weight 4500g and over. In 4 babies, the birth weight was not recorded. The lowest birthweight recorded this year was 350g and was a fetal death of one of a twin delivery, the highest birth weight recorded was 4960g. The average birth weight was 3205g.

Birthweights	2006		2005	
	Number	%	Number	%
<500g *	1	<0.1	0	0
500-999g	11	0.3	14	0.4
1000-1499g	18	0.5	12	0.3
1500-1999g	45	1.2	39	1.0
2000-2499g	181	4.7	191	4.9
2500-2999g	907	23.3	836	21.6
3000-3499g	1688	43.4	1685	43.6
3500-3999g	859	22.1	908	23.5
4000-4499g	160	4.1	157	4.1
4500-4999g	17	0.4	18	0.5
5000+	0	0	1	<0.1
Unspecified	4	0.1	4	0.1

* According to WHO definition births of babies <500g are not to be included in perinatal statistics, however the registered baby was one of a pair of twins born at 29 weeks of gestation – hence this fetal death was reported to the Registry.

OUTCOME OF BIRTH

The number of live births in 2006 was 3880 which accounted for 99.7% of the total births at a national level. The remaining 11 births were reported as stillbirths. Of the livebirths, there were 4 cases of early neonatal deaths and 5 cases of late neonatal deaths (see tables below).

<i>Outcome of Birth</i>	2006	2005
Livebirths	3880	3857
Stillbirths*	11*	8

*This figure includes the 350g still birth delivered as one of a pair of twins born at 29 weeks of gestation and reported to the Registry.

<i>Neonatal deaths</i>	2006	2005
Early Neonatal deaths	4	13
Late Neonatal deaths	5	4

INFANT FEEDING METHODS AT DISCHARGE

Infant feeding habits are recorded by hospital staff at the time of discharge, little can be said on the actual infant feeding habits as these may change soon after discharge from the birthing facilities.

<i>Infant feeding methods at time of discharge</i>	2006	2005
Breast only	2384	2332
Bottle only	1032	1098
Mixed (Breast & Bottle)	415	397
Other*	57	31
Unspecified	3	9

* 'Other' - include babies who are still at hospital after 28 days and those who die before discharge

MATERNAL, FETAL, PERINATAL AND NEONATAL MORTALITY STATISTICS
(Compiled in conjunction with the National Mortality Register of the Department of Health Information)

Maternal, fetal, perinatal and neonatal mortality statistics are good indicators of the quality of health care and these statistics are presented since 1999 when the NOIS database was started in the format it is today.

Definitions of the various rates presented are given below and follow the definitions suggested by WHO ICD-10 (International Statistical Classification of Diseases and Related Health Problems – Tenth Revision).

Maternal deaths since 1999

Year	Maternal Deaths
1999	1
2000	0
2001	2
2002	0
2003	0
2004	0
2005	0
2006	0

Fetal death rates since 1999

Year	Fetal death rate 500g and over		Fetal death rate – 1000g and over	
	Number	Rate/1000 total births	Number	Rate/1000 total births
1999	27	6.2	18	4.2
2000	16	3.6	12	2.8
2001	20	5.1	17	4.3
2002	20	5.1	13	3.3
2003	16	3.9	8	2.0
2004	15	3.8	15	3.8
2005	8	2.1	7	1.8
2006	10	2.6	7	1.8

Early Neonatal mortality rates since 1999

Year	Early neonatal mortality rate 500g and over		Early neonatal mortality rate – 1000g and over	
	Number	Rate/1000 live births	Number	Rate/1000 live births
1999	16	3.7	9	2.1
2000	16	3.6	7	1.6
2001	10	2.5	3	0.8
2002	16	4.1	13	3.3
2003	18	4.5	11	2.7
2004	12	3.1	8	2.1
2005	13	3.4	5	1.3
2006	4	1.0	0	-

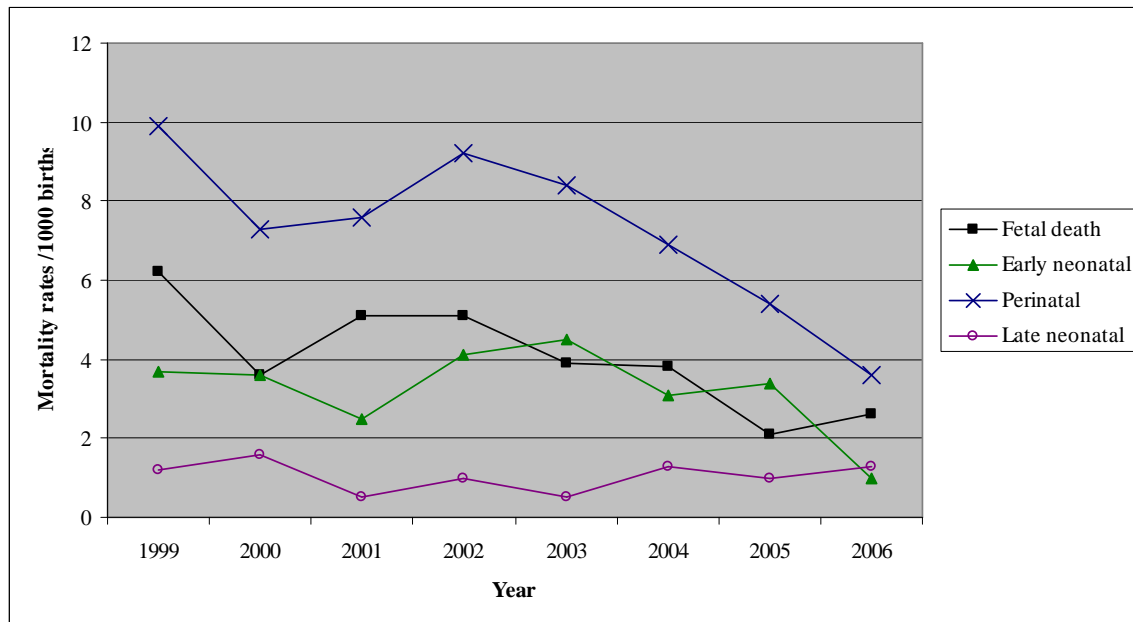
Perinatal mortality rates since 1999

Year	Perinatal mortality rate 500g and over		Perinatal mortality rate – 1000g and over	
	Number	Rate/1000 total births	Number	Rate/1000 total births
1999	43	9.9	27	6.2
2000	32	7.3	19	4.4
2001	30	7.6	20	5.1
2002	36	9.2	26	6.6
2003	34	8.4	19	4.7
2004	27	6.9	23	5.9
2005	21	5.4	12	3.1
2006	14	3.6	7	1.8

Late Neonatal mortality rates since 1999

Year	Late neonatal mortality rate 500g and over		Late neonatal mortality rate – 1000g and over	
	Number	Rate/1000 live births	Number	Rate/1000 live births
1999	5	1.2	3	0.7
2000	7	1.6	4	0.9
2001	2	0.5	1	0.3
2002	4	1.0	3	0.8
2003	2	0.5	2	0.5
2004	5	1.3	5	1.3
2005	4	1.0	3	0.8
2006	5	1.3	5	1.3

Fetal, Perinatal and Neonatal mortality rates 1999-2006 (for infants/fetuses of birth weight 500g and over)



Fetal, early neonatal and perinatal mortality show a decreasing trend since 1999.

DEFINITIONS (Following the International Statistical Classification of Diseases and Related Health Problems – Tenth Revision, Volume II ICD-10, WHO, Geneva)

Reporting criteria of this classification recommend that “all fetuses and infants weighing at least 500g at birth, whether alive or dead, should be included in the statistics. When information on birth weight is unavailable, the corresponding criteria for gestational age (22 completed weeks) or body length (25 cm crown – heel) should be used. The criteria for deciding whether an event has taken place within the perinatal period should be applied in the order: (1) birth weight, (2) gestational age, (3) crown heel length.”

Maternal Death

A maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

Birth Weight

The first weight of the fetus or newborn obtained after birth.

Low birth weight is less than 2500g (up to and including 2499g).

Very low birth weight is less than 1500g (up to and including 1499g).

Extremely low birth weight is less than 1000g (up to and including 999g)

Gestational Age

The duration of gestation is measured from the first day of the last menstrual period. Gestational age is expressed in complete days or completed weeks.

For the purposes of calculation of gestational age from the date of the first day of the last normal menstrual period to the date of delivery, it should be borne in mind that the first day is day zero and not day one; days 0-6 therefore correspond to completed week zero;

Fetal Death

Fetal death is the death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy; the death is indicated by the fact that after such separation, the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.

Fetal Death Rate

The number of fetal deaths in a year expressed as a proportion of the total number of births (live births plus fetal deaths) in the same year. All fetuses with a birth weight of 500g and over are considered. Rates are usually expressed per 1000 total births.

$$\text{Fetal death rate} = \frac{\text{no. of fetal deaths in a year weighing 500g or more}}{\text{Number of live births plus fetal deaths in that year weighing 500g or more}} * 1000$$

$$\text{Fetal death rate} = \frac{\text{no. of fetal deaths in a year weighing 1000g or more}}{\text{Number of live births plus fetal deaths in that year weighing 1000g or more}} * 1000$$

(weight specific)

Live Birth

Live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after separation, breathes or shows any evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of the voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered live born.

Neonatal Period

The neonatal period commences at birth and ends 28 completed days after birth. Neonatal deaths (deaths among live births during the first 28 completed days of life) may be subdivided into early neonatal deaths, occurring during the first seven days of life, and late neonatal deaths, occurring after the seventh day but before 28 completed days of life.

Age at death during the first day of life (day 0) should be recorded in units of completed minutes or hours of life. For the second (day 1), third (day 2) and through 27 completed days of life, age at death should be recorded in days.

Neonatal Mortality Rate

The number of deaths during the neonatal period in that year expressed as a proportion of the total number of live births in the same year. Rates are expressed per 1000 live births.

$$\text{Neonatal mortality rate} = \frac{\text{no. of neonatal deaths in a year} * 1000}{\text{no. of live births in that year}}$$

$$\text{Neonatal mortality rate (weight specific)} = \frac{\text{no. of neonatal deaths in a year (1000g or over)} * 1000}{\text{no. of live births in that year (1000g or over)}}$$

Early Neonatal Mortality Rate

The number of deaths during the early neonatal period (during first 7 days of life) in that year expressed as a proportion of the total number of live births in the same year. Rates are expressed per 1000 live births.

$$\text{Early Neonatal mortality rate} = \frac{\text{no. of early neonatal deaths in a year} * 1000}{\text{no. of live births in that year}}$$

$$\text{Early Neonatal mortality rate (weight specific)} = \frac{\text{no. of early neonatal deaths in a year (1000g or over)} * 1000}{\text{no. of live births in that year (1000g or over)}}$$

Late Neonatal Mortality Rate

The number of deaths during the late neonatal period (occurring after the seventh day but before 28 completed days of life) in that year expressed as a proportion of the total number of live births in the same year. Rates are expressed per 1000 live births.

$$\text{Late Neonatal mortality rate} = \frac{\text{no. of early neonatal deaths in a year} * 1000}{\text{no. of live births in that year}}$$

$$\text{Late Neonatal mortality rate (weight specific)} = \frac{\text{no. of early neonatal deaths in a year (1000g or over)} * 1000}{\text{no. of live births in that year (1000g or over)}}$$

Perinatal Period

The perinatal period commences at 22 completed weeks (154 days) of gestation (the time when birth weight is normally 500g) and ends at seven completed days after birth.

Perinatal Mortality Rate

The number of deaths during the perinatal period in a year expressed as a proportion of the total number of births (live births plus fetal deaths) in the same year.

$$\text{Perinatal mortality rate} = \frac{\text{no. of perinatal deaths in a year}}{\text{no. of live births plus fetal deaths in that year}} * 1000$$

$$\text{Perinatal mortality rate (weight specific)} = \frac{\text{no. of perinatal deaths in a year (weight 1000g or over)}}{\text{no. of live births plus fetal deaths in that year (weight 1000g or over)}} * 1000$$

CONTRIBUTING HOSPITALS

This report would not have been possible without the collaboration of the various contributing hospitals:

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Gozo General Hospital (GGH), Victoria
St. James Hospital, Sliema
St. James Hospital, Zabbar
St. Philip's Hospital, Sta Venera.

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