



NATIONAL OBSTETRIC INFORMATION SYSTEM (NOIS)

MALTA

NATIONAL BIRTH STATISTICS IN REVIEW: 1995 to 2001
NOIS ANNUAL REPORT 2001

Compiled by

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SECTION 1

NATIONAL BIRTH STATISTICS IN REVIEW

1995 to 2001

SOURCE: WHO-OBSQID-PAD (1995-1998), NOIS (1999-2001)
DEPARTMENT OF HEALTH INFORMATION, MALTA

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INTRODUCTION

The National Obstetric Information System (NOIS) in collaboration with the WHO-OBSQID project was launched at a case-based level in the beginning of 1999. Over the last three years NOIS has become a nationally and internationally recognised hospital information system that regularly reports on obstetric activity in the Maltese islands.

The success of NOIS is largely due to the proactive and responsible approach of the midwives and other staff that work with the system on a daily basis.

National Obstetric and Perinatal data at an *aggregated* level is available to NOIS since 1995 and at a *case-based* level since 1999. This report analyses data that is available to the system according to the different data levels for the period under review and includes all births registered to Maltese and Non-Maltese mothers.

Over the seven-year period, it appears that the total number of deliveries and births at a national level has declined. In fact, over the period of 1995 to 2001, the total deliveries and births have declined by 1123 and 1162 respectively (see table below).

<i>Year</i>	<i>Population Covered</i>	<i>Total Fertility Rate</i>	<i>Total No. Deliveries</i>	<i>Total Births</i>
1995	370791	1.8	5041	5117
1996	373044	2.0	4959	5038
1997	375236	2.0	4776	4834
1998	278518	1.8	4596	4653
1999	380239	1.7	4311	4382
2000	391415	1.7	4311	4377
2001	393447*	n.a	3918	3955

Note: *: Provisional (NSO)

Source: DHI-WHO-OBSQID-PAD & NOIS & WHO-HFA Data & NSO

RATE OF DELIVERY ACCORDING TO PUBLIC AND PRIVATE HOSPITALS

In 1995 the distribution of Public and Private deliveries were at 95% and 5% respectively. Over the next 3 years (1996 to 1998) there was a shift in the rates of distribution of deliveries by 2% and since 1999 the rate of distribution of deliveries have remained the same (see table below).

<i>Year</i>	<i>Birthing Facilities</i>	
	<i>Public</i>	<i>Private</i>
	Rate of Deliveries (%)	Rate of Deliveries (%)
1995	95	5
1996	92	8
1997	90	10
1998	88	12
1999	90	10
2000	90	10
2001	90	10

Source: DHI-NOIS-WHO-OBSQID-PAD

METHOD OF BIRTH

For the period under review one can see that the national births by normal vaginal delivery decreased by 8% from 1995 to 2001, although the assisted vaginal delivery remained almost the same. However the rate of caesarean section increased by 8% from 1995 to 2001 (see table below).

Year	<i>Rate of Method of Births</i>		
	<i>Vaginal Delivery</i>	<i>Vaginal Delivery assisted by Instrumentation (Forceps/Ventouse)</i>	<i>Caesarean Section (Emergency/Elective)</i>
	(%)	(%)	(%)
1995	80.2	3.4	16.4
1996	79.0	4.0	17.0
1997	77.0	4.0	19.0
1998	75.0	4.0	21.0
1999	73.0	4.0	23.0
2000	72.0	4.0	24.0
2001	72.5	3.3	24.2

Source: DHI-NOIS-WHO-OBSQID-PAD

WOMEN WITH MULTIPLE PREGNANCY

Multiple gestations contributed to 1% of the total delivery rate in the period under review. Although the rate was constant it is interesting to note that the number of multiple deliveries have decreased by half from 1995 to 2001.

Year	Twins	Triplet	Quadruplet	Women with Multiple Pregnancy
1995	67	3	1	71
1996	70	3	1	74
1997	53	1	1	55
1998	55	3	1	59
1999	63	4	-	67
2000	64	1	-	65
2001	35	1	-	36

Multiple Birth order according to deliveries

MATERNAL AGE

In this report Maternal age at a national level has been analysed for deliveries in 1999 and thereafter. Prior to this date, maternal age is not available to the said sources of information at a national level. The mean age of delivery for years 1999, 2000 and 2001 are 28.11, 28.05 and 27.85 years respectively.

TEENAGE DELIVERY (less than 20 years)

When analysing maternal age for the years 1999 to 2001, one can see that the rate of teenage delivery have increased from 5.5% in 1999, to 5.7% in 2000 and to 6.3% in 2001. When looking at the number of deliveries to teenage mothers, one can see that deliveries to 'less than 15 year olds' have decreased by half, while the deliveries to '15 and 16 year olds' are on the increase (see table below).

	1999	2000	2001
	<i>Total No. of Deliveries</i>		
<15	4	4	2
15	8	13	14
16	23	20	29
17	51	41	39
18	67	65	79
19	83	97	84

DELIVERY TO MOTHERS (20 years and over)

The maternities in this group of mothers have been grouped according to the standard age groupings and the frequency distribution of delivery according to maternal age has been analysed. It appears that the rate of delivery to mothers in the age group category of 35 to 39 are on the decrease while in the age group category of 20 to 24, 40 to 44 and 45+ are almost the same (see table below).

Age grp. (yr.)	1999		2000		2001	
	Frequency	%	Frequency	%	Frequency	%
20-24	919	21	881	20	774	20
25-29	1560	36	1553	36	1510	38
30-34	989	23	1060	25	921	24
35-39	469	11	434	10	349	9
40-44	128	3	109	3	100	3
45+	4	<1	4	<1	4	<1
Unspecified	6	<1	30	1	13	<1

PRETERM BIRTHS

Preterm births are births that have occurred before term. The International Classification of Diseases version 10 (ICD10), classifies preterm births as births that have occurred at a gestational age of less than 37 completed weeks of pregnancy. For the period under review (1995-2001), of the total births (32356), 6% (2007) were preterm (<37 completed weeks) births. Of these preterm births (2007), 19% (391) were extreme preterm births (<32 completed weeks).

OUTCOME OF BIRTH

NOIS data pertaining to the period of 1995 to 2001 was analysed together owing to the small number of stillbirths and neonatal deaths for each of the above years. For the period under review (1995 to 2001) the total births were 32356.

Of these the Live Birth Rate was 994 per 1000 total births while the Stillbirth Rate was 5.5 per 1000 total births.

The Perinatal Mortality Rate was at 9.8 per 1000 total births for the period under review. The Neo-Natal Mortality Rate was 5.3 per 1000 live birth.

The table below gives the frequency distribution of the stillbirths and neonatal deaths for 1995 to 2001. One can see that the stillbirths and early neo-natal deaths are decreasing while the late neonatal deaths are more or less the same.

	1995	1996	1997	1998	1999	2000	2001
<i>Perinatal & late Neonatal Deaths</i>	<i>Frequency</i>						
Still births*	25	38	28	24	30	15	18
Early Neonatal deaths (0-6 days)	25	36	23	13	16	19	9
Late Neonatal deaths (7-27 days)	4	5	5	3	4	6	4

*Note: *: stillbirths at a gestational age of 22 or more completed weeks*

OBSTETRIC DEATHS WITHIN 42 DAYS OF DELIVERY (ICD10-O95)

NOIS being an event orientated information system only includes those mothers who have delivered a baby. Consequently, obstetric deaths occurring during pregnancy, labour, delivery or the puerperium is included. From the table below one can see that the obstetric deaths within 42 days of delivery were not more than one while for the period of 2000 and 2001 there were none.

<i>Year</i>	<i>Obstetric Deaths</i>
1995	1
1996	1
1997	-
1998	1
1999	1
2000	-
2001	-

CONCLUSION

Following the success of this national event orientated information system that has proved to be reliable and readily available, both at international and national level, the Department of Health Information has applied to the National Statistics Office (NSO), Malta to incorporate NOIS into the Statistics Act, Malta.

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- Lastly, I would like to thank in person and bid farewell to Ms. L. Said, data entry clerk at the DHI who has played an important role in computerising Obstetrics statistics in the last 13 years. Also I would like to introduce Ms. C. Ghirxi, clerk at the DHI who has taken over from Ms. L. Said and who is diligently working with the collection and data entry of NOIS data in 2002.

DEFINITIONS

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 other evidence of life, such as beating of heart, pulsation of 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.

STILLBIRTH (Fetal Death)

Stillbirth is 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 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 movements of voluntary muscles.

STILLBIRTH RATE (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 500g and over are considered. Rates are usually expressed per 1000 total births.

NEONATAL PERIOD

The neonatal period commences at birth and ends 27 completed days after birth. Neonatal deaths (deaths among live births during the first 27 completed days of life) may be subdivided into early neonatal deaths, occurring in the first six days of life, and late neonatal deaths, occurring from the seventh day but before the 28 completed days of life.

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.

PERINATAL PERIOD

The perinatal period commences at 22 completed weeks of gestation and ends at six completed days after birth.

PERINATAL MORTALITY RATE

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

SECTION 2
ANNUAL NATIONAL OBSTETRIC REPORT
2001

SOURCE: NOIS (2000-2001)
DEPARTMENT OF HEALTH INFORMATION, MALTA

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ANALYSIS

This report analyses, the **national deliveries and births** that occurred in 2001 and compares it to the same period in 2000, where possible (published summary annual report 2000).

The data in this report relates to the birth for all maternities (Maltese and non-Maltese) registered into the system.

In 2001, there were a total of 3918 deliveries registered in the Maltese islands, which resulted in a total of 3955 births.

When comparing these figures to the same period last year one can see that the number of deliveries and consequently the births decreased by 393 and 422 respectively (*deliveries: 4311, births: 4377-'00*).

MATERNAL AGE, MARITAL STATUS, NATIONALITY and PARITY

The maternities have been grouped according to the standard age groupings and the frequency distribution of deliveries according to maternal age at delivery has been analysed. In 2001, the greatest number of deliveries (39%), occurred in the age group 25 to 29 years while the lowest number of deliveries (<1%) occurred in the less than 15 and 45+ age group. The minimum age of the mothers was 14 years while the maximum age was 44 years. The most frequent age at delivery was 28 years.

The grouped frequency distribution of deliveries according to maternal age are given in the table below

<i>Age grp.(yrs)</i>	<i>2001</i>	
	<i>Frequency</i>	<i>%</i>
<15	2	<1
15-19	245	6
20-24	774	20
25-29	1510	39
30-34	921	23
35-39	349	9
40-44	100	3
45+	4	<1
Unspecified	13	<1

In 2001, there were 12% (483) of all deliveries that occurred to mothers who were never married (single) while 88% (3427) of deliveries occurred to mothers who were married once (married, widowed, separated). The remaining 8 (<1%) deliveries had no marital status specified.

According to the data registered in NOIS, of the 12% (483) mothers who have never been married, 93% (449) received 'Support at home to raise the infant' while 6% (31) did not have 'support at home'. The remaining 3 mothers were unspecified.

In 2001, 95% (3737) of all deliveries occurred to women of Maltese nationality while 5% (178) were Non-Maltese. In the remaining 3 deliveries the nationality was not specified.

There were 49% (1932) of mothers who were primiparas while 51% (1986) were multiparas in 2001. For the same period in 2000 the primipara and multipara rate were 46%(2033) and 54% (2278) respectively.

MATERNAL LIFESTYLES

There were 8% (317) of mothers who smoked either 1 to 3 cigarettes or more during pregnancy in 2001. When comparing these figures to 2000, it can be seen that the smoking habits of mothers decreased by 1% in 2001(9% (383)-'00).

The table below gives the smoking, alcohol and drug habits of mothers for 2001 and 2000.

<i>4th Quarters</i>	<i>2001</i>	<i>2000</i>
	No.	No.
<i>Cigarette smoking during pregnancy:</i>		
➤ 1 to 3/day	87	69
➤ >than 3/day	230	314
➤ Do not smoke	3592	3905
➤ Unspecified	9	23
<i>Alcohol consumption during pregnancy:</i>		
➤ Up to 1unit/day	2	3
➤ >than 1unit/day	3	2
➤ None	3908	4295
➤ Unspecified	5	11
<i>Drug Abuse during pregnancy</i>		
➤ Yes	7	13
➤ No	3906	4285
Unspecified	5	13

PATHOLOGY DURING PREGANANCY

The table below gives the number of mothers in 2001 and 2000, recorded with a specific obstetric pathology during pregnancy. There were 5% of mothers who had gestational hypertention in 2001 while for the same period in 2000 this rate was at 7%.

<i>Pathology recorded during pregnancy</i>	<i>2001</i>			<i>2000</i>		
	<i>No</i>	<i>Yes</i>	<i>Unspec.</i>	<i>No</i>	<i>Yes</i>	<i>Unspec.</i>
	No.	No.	No.	No.	No.	No.
Antepartum Haemorrhage:	3872	46	-	4225	79	7
Gestational hypertention:	3707	208	3	4019	283	9
Pre-eclampsia:	3898	20	-	4284	21	6
Placenta praevia:	3901	17	-	4281	23	7
Abruption of plcenta:	3900	15	3	4287	16	8
Assisted fertilisation (ART):	3896	22	-	4264	39	8
Cardiovascular disease:	3908	2	8	4276	9	26

Diabetes in pregnancy

Diabetes in pregnancy is recorded into the standard NOIS sheet according to the data recorded in the 'Booking Sheet', 'The Baby Book' and the entry note by the doctor in the personal file of the mother.

In 2001, there were 7 mothers who were registered as being Insulin Dependent Diabetic before this pregnancy while there were 3 mothers recorded with Non-Insulin Dependent diabetes. In addition, there were a total of 56 mothers registered with gestational diabetes who were controlled with (2) and without (54) the use of insulin.

ULTRASONOGRAPHY

According to NOIS in 2001, there were 33% (1308) of mothers who had two ultrasounds carried out during pregnancy while 7% (262) had more than five scans. The table below gives the number and rate of ultrasound scan carried out during pregnancy.

2001		
No of Scans*	No.	%
1	721	18
2	1308	33
3	883	23
4	446	11
>5	262	7
Unspecified	296	8

Note: In addition there were 2 mothers who had no pre-natal visits registered before birth

CATEGORY OF MATERNITY ACCORDING TO DELIVERY

For 2001, there were a total of 3882 (99%) singleton, 35 (1%) twin deliveries and 1 triplet (<1%) delivery. When comparing these figures to 2000, it appears that the women with multiple gestation are on the decline (see table below).

	2001	2000
Category	No.	No.
Singleton	3882	4246
Twin	35	64
Triplet	1	1
Quadruplet	-	-

SITE AND ONSET OF DELIVERY

In 2001, of the total deliveries (3918), 99.9% (3914) occurred in hospital while 0.1% (4) were home deliveries. In 2001, of the total deliveries (3918), 47.5% (1861) were spontaneous deliveries, 40% (1565) were induced by drugs or Artificial Rupture of Membranes (ARM), 11.5% (449) were planned Caesarean sections and 1% (43) had no onset of delivery registered.

METHOD OF BIRTH

In 2001, there were 72% (2863) of births that were delivered by vertex delivery, 24% (957) by emergency or elective Caesarean section and 3% (131) by assisted vaginal delivery (includes forceps & ventouse) and <1% (4) were breech deliveries.

When comparing the method of birth to the same period of 2000, it can be seen that the rate of the method of birth remained almost the same (2000: vertex: 3149(72%), C section: 1045(24%), assisted vaginal delivery: 183(4%).

	2001	2000
Method of Birth*	No.	No.
Infants delivered by vertex delivery	2863	3149
Infants delivered by elective CS before labour	472	439
Infants delivered by emergency CS before labour	71	56
Infants delivered by elective CS during labour	26	20
Infants delivered by emergency CS during labour	388	530
Infants delivered by forceps	16	24
Infants delivered by ventouse	115	149
Breech deliveries	4	10

Note: Data analysed according to total birth

BIRTHWEIGHTS AND GENDER OF BIRTHS

In 2001, of the total births (3955), 94% (3700) occurred in the birth weight range of 2500g to 4999g, 5% (209) in the low birth weight range of 1500g to 2499g and 1% (36) in the very low birth weight range of 500g to 1499g. In addition there was 1 birth that had a birth weight of more than 5000g and 9 births had no birth weight registered, see table below.

Birthweight(g)	2001	2000
	Frequency of births	
<500g	-	4
500-1499g	36	29
1500-2499g	209	232
2500-4999g	3700	4105
5000+	1	-
Unspecified	9	7
Average Birthweight	3254	3263

The male and female distribution of births in the 2001 was 2045 and 1910 respectively.

OUTCOME OF BIRTH

The number of live births in 2001 and 2000 were 3935 and 4361 respectively which accounted for 99.5% of the total birth rate at a national level. The remaining 0.5 % accounted for the stillbirths (see table below).

Outcome of Birth	2001	2000
Babies alive after 28 days	3922	4336
Early Neonatal deaths	9	19
Late Neonatal deaths	4	6
Stillbirths*	20*	16

Note: *: Includes all births irrespective of gestational age

NATIONAL BIRTHS ANALYSED ACCORDING TO GESTATIONAL AGE

In 2001, of the total births (3955), 6% (241) were preterm births (<37 completed weeks) and 94% (3714) were term births (>= 37 completed weeks). Of the preterm births (241), 17% (40) were births of extreme prematurity (<32 completed weeks). The table below compares the number and rate of a few obstetric and perinatal characteristics according to preterm and term births.

YEAR 2001	Preterm Births (<37 wks)	Term Birth (>= 37 wks)
	No. (%)	No. (%)
<i>Outcome of Birth</i>		
Live Births	232(96)	3703(100)
Stillbirth	9(4)	11(<1)
<i>Birthweight (g)</i>		
Very Low Birthweight (<1500g)	32(13)	4(<1)
Low Birthweight (1500-2499g)	87(36)	122(3)
Appropriate Birthweight (2500+g)	122(51)	3579(96)
Unspecified	-	9(<1)
<i>Method of Birth</i>		
Vaginal Delivery	117(48)	2750(74)
Assisted Vaginal Delivery (forceps/ventouse)	7(3)	124(3)
Caesarean Section (emergency/elective)	117(49)	840(23)

BREAST FEEDING WITHIN 30 MINUTES OF DELIVERY

In 2001, there were 36% of infants that were breast fed 'within 30 minutes of birth' while 64% were not breast fed during the same time period. When comparing these figures to same period in 2000, one can see that there was a 5% decrease in the number of infants who were breast fed 'within 30 minutes of birth' in 2001 (2000: 41% breast fed, 59% not breast fed).

Breast feeding within 30mins. of delivery	2001	2000
	<i>No.</i>	<i>No.</i>
Infants breast fed	1432	1803
Infants not breast fed	2510	2571
Unspecified	13	3

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 from the numbers given below as these may change soon after discharge from the birthing facilities.

Infant feeding methods at time of discharge	2001	2000
	<i>No.</i>	<i>No.</i>
Breast only	1881	2305
Bottle only	1469	1503
Mixed (Breast & Bottle)	508	479
Other	29	25
Unspecified	68	65

MOTHERS LENGTH OF STAY AT HOSPITAL AFTER DELIVERY

In 2001, according to the data registered in NOIS, of the 3914 hospital deliveries, the length of stay (LOS) of these mothers varied from a minimum stay of less than one day to maximum stay of 30days, after delivery. 69% of mothers had a hospital stay of 1 or 2 days, 30% of mother's stay at hospital after delivery ranged from 3 to 6+ days and <1% of mothers stayed 0 days. The table below gives the mothers stay in days after the delivery had occurred.

2001	
<i>LOS after Delivery (days)</i>	<i>No. of Mothers</i>
0 (discharge at request)	21
1	456
2	2263
3	246
4	207
5	594
6+	127

Note: Includes hospital deliveries