



# NOIS

National Obstetric Information System

## Annual Report 2019

DIRECTORATE FOR HEALTH INFORMATION AND RESEARCH



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The accuracy of information contained in this document may be limited by factors beyond the authors' control. Some data in this document may be subject to interpretation.

Data presented in this report is based on data which has been made available to the Department of Health Information and Research from the collaborating hospitals. Accuracy and completeness of data is the responsibility of the hospital providing data.

Users should always acknowledge the source in all works based on information supplied in this document.

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## General Information

**4379** deliveries

**4455** total births

**4439** live birth

**16** still births

**70** twin and **3** triplet deliveries

**99.7%** of deliveries occurred in hospital

**124** Mothers registered as having made use of assisted reproduction

## Mothers

### Maternal Age

Commonest Age group: **30 to 34 years (37.3%)**

Range: **14 - 47 years**

Mode: **32 years**

Mean (Average): **30.6 years**

Mean age in primiparae: **29.1 years**

### Nationality

**72.2% mothers** reported to be of **Maltese** Nationality

**27.7% mothers** reported to be of **non-Maltese** Nationality

### Education

**42.4% of mothers** reported having **Tertiary Level of Education**

## Infants

### Gender Distribution

**52.1%** - Male, **47.9%** - Female

### Birth weight

**7** (0.2%) babies born weighing <500g but 22 weeks gestation

**45** (1.0%) babies born in very low birth weight range 500-1499g

**276** (6.2%) babies born in low birth weight range of 1500-2499g

**14** (0.3%) babies born weighing 4500g and over

**Commonest birth weight range: 3000 to 3499g** – 1939 (43.5%)

**Mean** birth weight: **3203.8g**

### Maturity

**337 babies (7.6%) born preterm:** <37 weeks gestational age

**52 babies (1.2%) born very or extremely preterm:** < 32 weeks gestational age

### Mortality (500g and over)

**Fetal Mortality:** 2.9/1,000 total births

**Neonatal Mortality:** 3.8/1,000 live births

**Early Neonatal Mortality:** 3.2/1,000 live births

**Late Neonatal Mortality:** 0.7/1,000 live births

**Perinatal Mortality Rate:** 6.7/1,000 total births



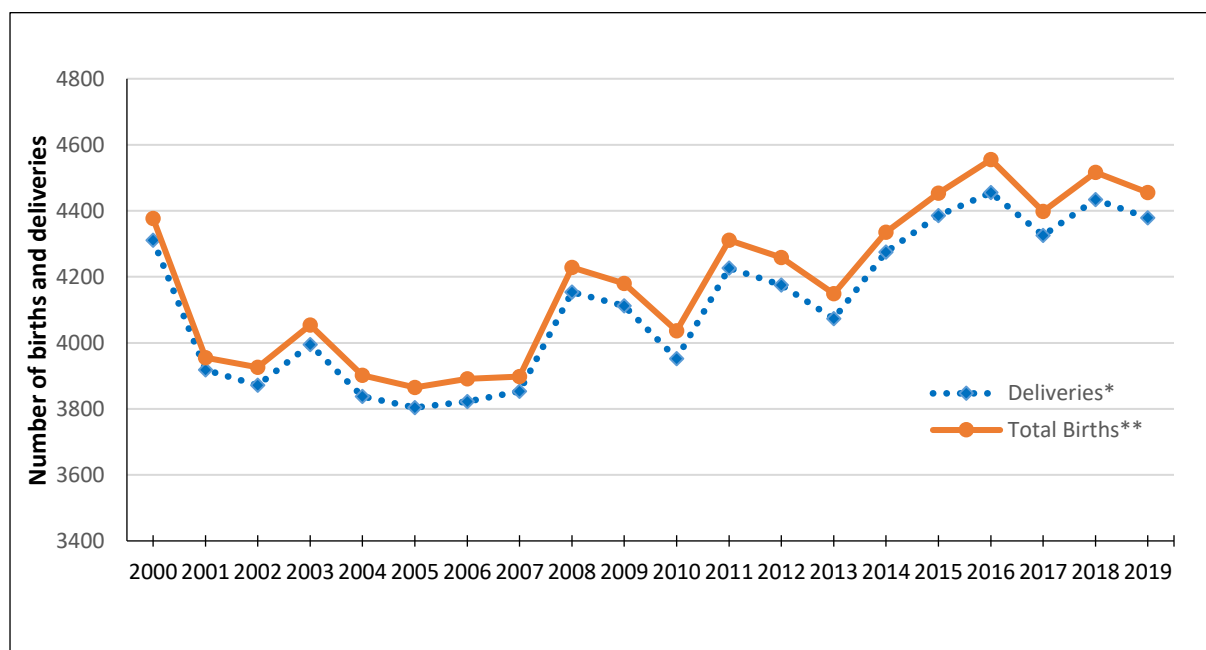
## COMMENTARY

For over twenty years, the National Obstetric Information System (NOIS) has systematically gathered and analysed data related to all births that occur in both public and private hospitals in Malta and Gozo. This obstetric and perinatal data is compiled using a case-based approach whereby a comprehensive questionnaire with relevant medical information is filled in by the hospital for every birth that occurs. Data is then coded and analysed at the Directorate for Health Information and Research (DHIR) with the aim of describing the epidemiology and analysing trends in maternal and infant health.

The aim of the commentary is to bring to light some salient and relevant findings from the data reported.

### Key facts

In 2019 there were a total of 4379 deliveries in the Maltese Islands with a total of 4455 births, of which 4439 were live births and 16 stillbirths. There was a decrease in the number of births from 2018 to 2019 (4516 vs 4455). Figure 1 shows the trend in births and deliveries since 2000.



**Figure 1: Number of births and deliveries throughout the years**

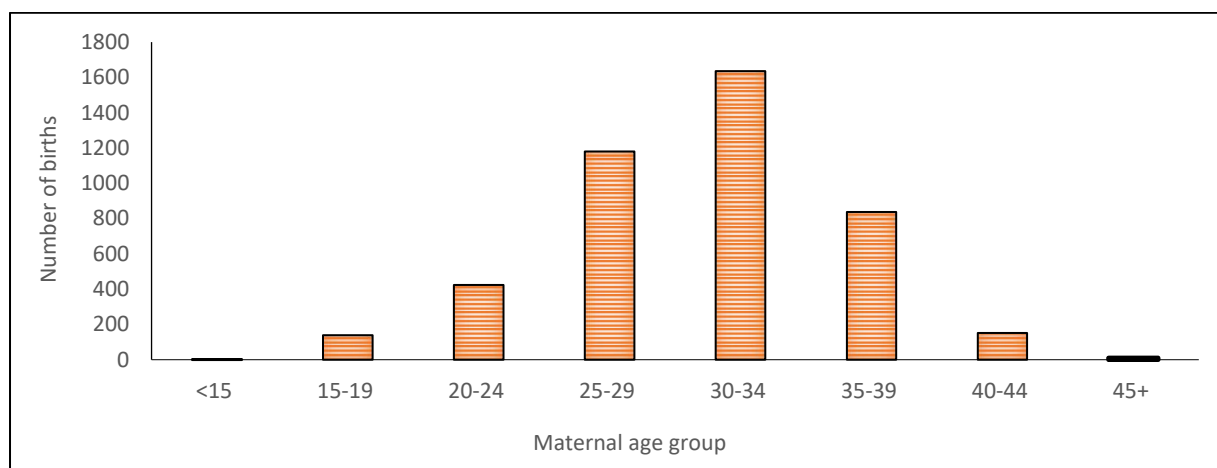
In 2019, there were a total of 4306 singleton deliveries (98.3% of all deliveries), 70 (1.6%) twin deliveries, and 3 (0.01%) triplet deliveries.

A total of 124 mothers were registered as having utilised a form of assisted reproduction (ART).

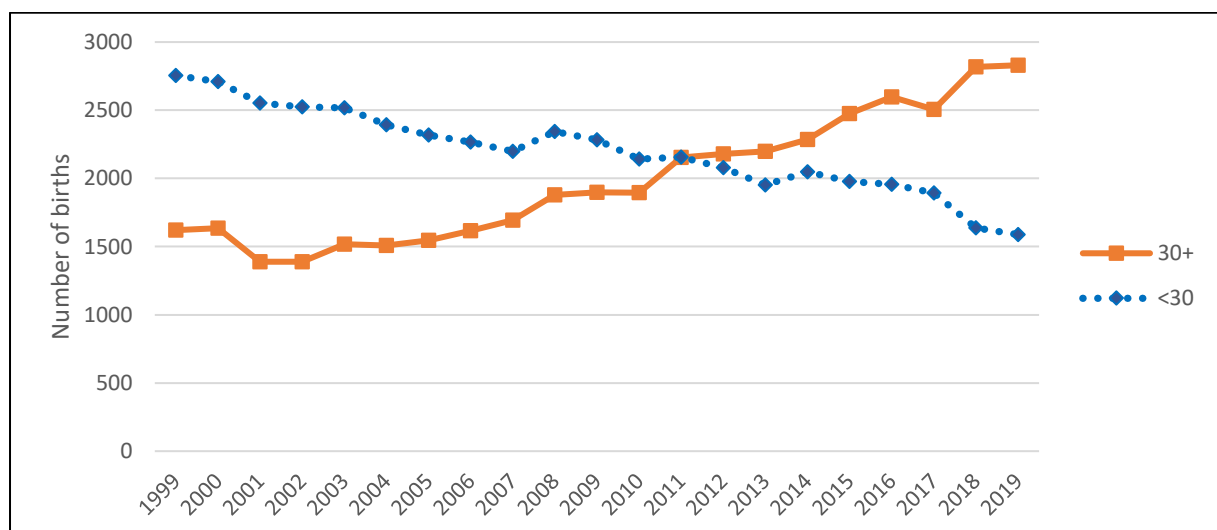
Most deliveries occurred in hospital 99.7% (4366) while 13 occurred at home or another site and were then transferred to hospital.

## Maternal Characteristics

The majority of deliveries (37.3%) occurred in the 30-34 year maternal age-group (Figure 2). This is consistent with trends reported in previous years; with an evident trend showing the proportion of births to mothers 30 years of age or more increasing, while the proportion of births to mothers below 30 years of age is decreasing (Figure 3). This has implications for maternal and infant care provision due to the association between increasing maternal age and adverse outcomes during pregnancy and delivery. There has also been a steady decrease in number of births to mothers less than 18 years of age from 86 in 1999 to 51 in 2019.



**Figure 2: Number of births in 5-year maternal age groups for the year 2019**



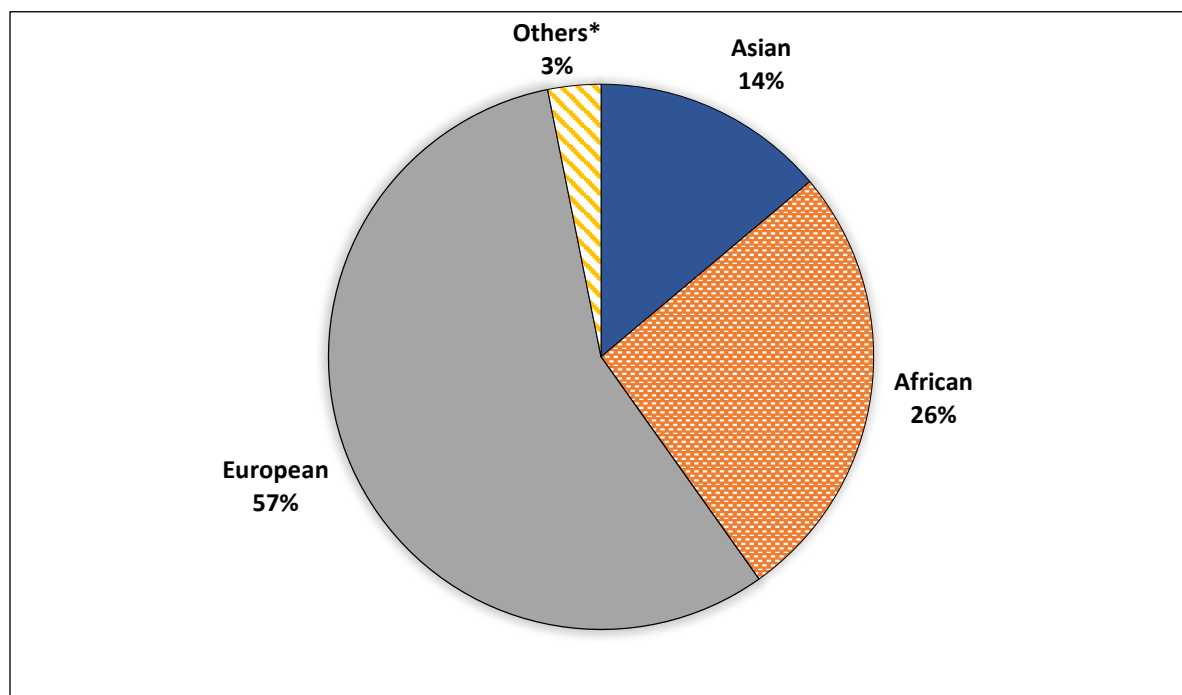
**Figure 3: Birth trends to mothers 30+ and <30 years of age throughout the years (1999-2019)**

Most (53.2%) of all mothers delivering in 2019 were primiparas and 65.5% of all mothers were reported as married.

Births to mothers of Maltese nationality stood at 72.2% compared to births to non-Maltese mothers (27.8%).

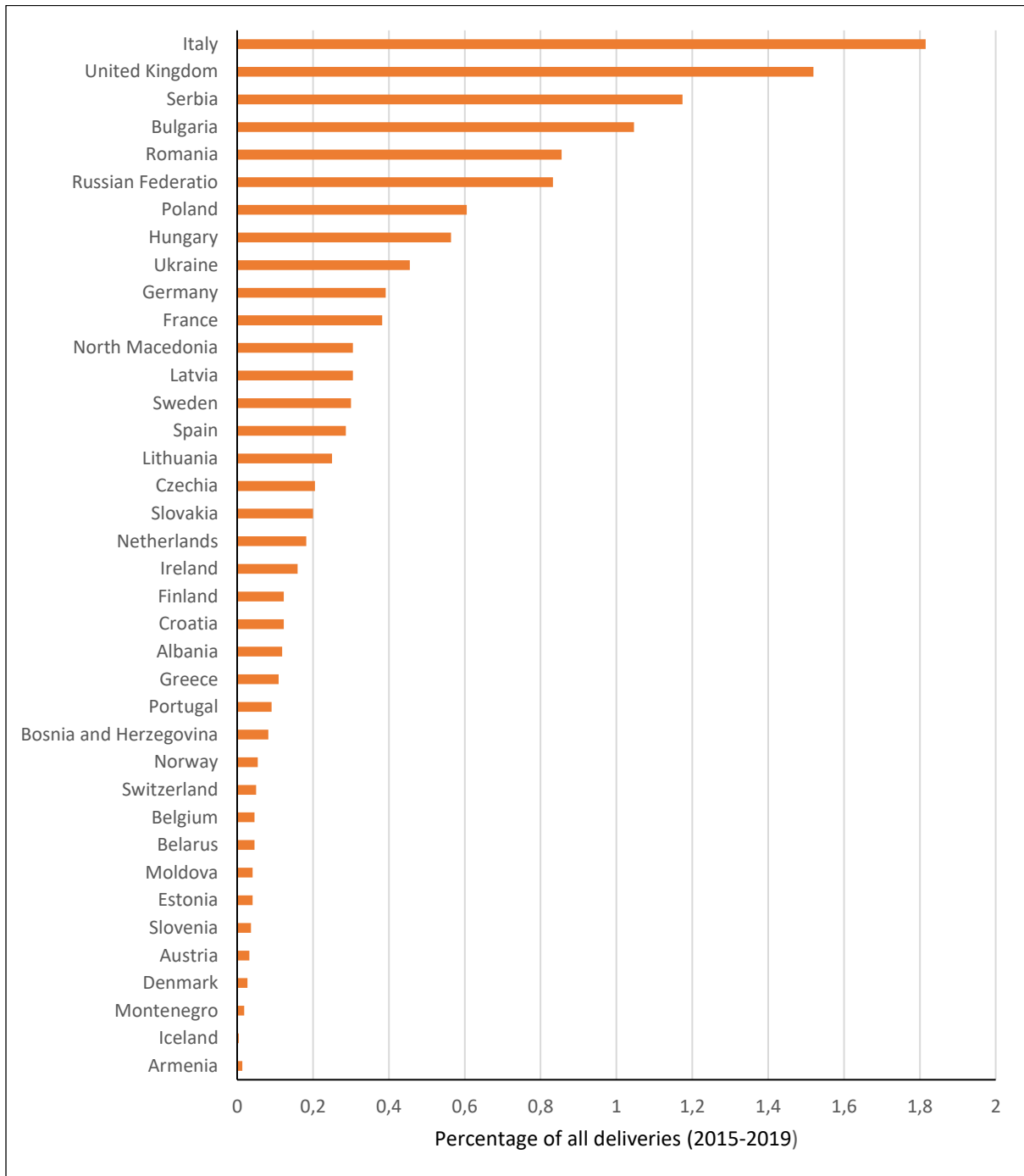
Over the past 5 years, the highest rate of non-Maltese mothers was in mothers of European nationality, followed by mothers of African nationality (Figure 4).

Amongst all European nationalities, the percentage of deliveries was highest to Italian mothers (399 deliveries), followed by those from the United Kingdom (334 deliveries) and Serbia (258 deliveries). A detailed breakdown of mothers of European origin is given in Figure 5.



*\*Others include Americas, Oceania and Unknown*

**Figure 4: Distribution of all deliveries to non-Maltese mothers for the 5-year period 2015-2019**



**Figure 5: Deliveries to mothers of European non-Maltese nationality (2015-2019)**

Pregnancy outcomes and infant health are affected by maternal educational level, with unfavourable outcomes being associated with lower educational levels. 42.4% of mothers were reported to have achieved a tertiary level of education, followed by 26.4% of mothers with a secondary level of education and 23.4% post-secondary/vocational non-tertiary education. Only 2.2% had primary or no education.

Mothers who smoked during pregnancy were 803 (18.3%), 28 (0.6%) drank alcohol, whilst 17 (0.4%) abused of illicit drugs during pregnancy.

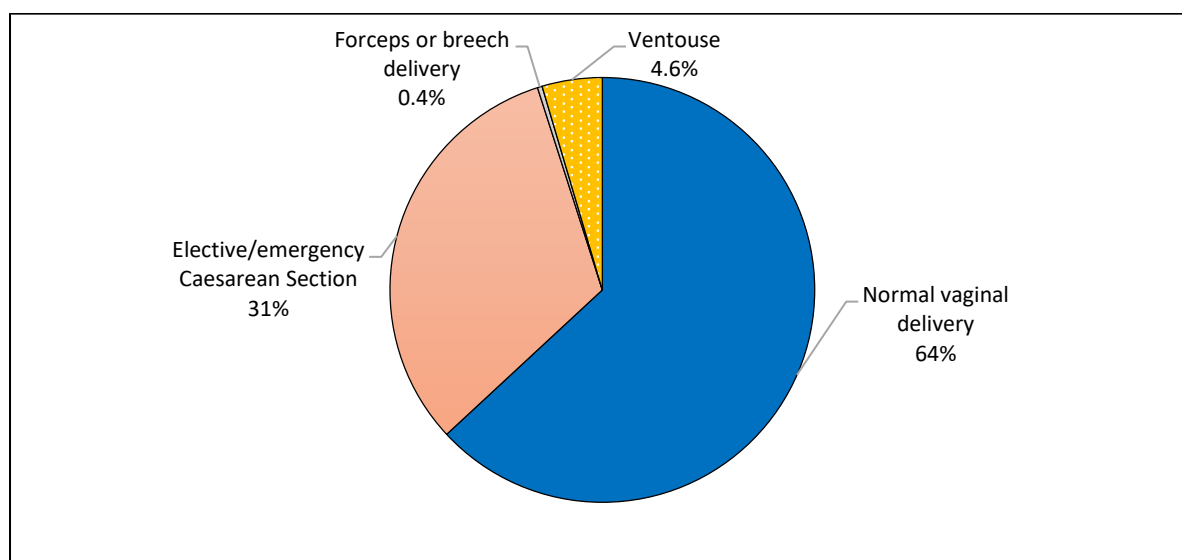
## Maternal Pathology during Pregnancy and Delivery

Gestational hypertension (7.8%, 340 mothers) and suspected intrauterine growth retardation (4.7%, 206 mothers) were the commonest maternal pathologies reported during pregnancy.

A total of 231 mothers were reported to suffer from gestational diabetes - 23 mothers with pre-existing Insulin-Dependent Diabetes Mellitus and 8 mothers with Non-Insulin Dependent Diabetes Mellitus.

Like previous years, normal vaginal delivery was the most common mode of delivery. Figure 6 below shows the distribution of deliveries by mode of delivery.

60.3% of women having a vaginal delivery were reported to have sustained some damage to the perineum, including episiotomy or perineal tear, or both.



**Figure 6: Distribution of Mode of delivery in 2019**

## Infant Characteristics

Similar to previous years, the number of male infants (2322, 52.1%) born in 2019 was greater than the number of female infants (2133, 47.9%).

The number of infants born over 2500g was 4124 (92.6%). 276 (6.2%) of the total births were in the low birth weight range of 1500g to 2499g while 45 (1.0%) of births were of very low birth weight 500g to 1499g. 7 babies were born with a birth weight less than 500g but 22 weeks completed gestation. 3 babies did not have their birth weight registered.

The number of infants born below 37 weeks of gestation was 337 (7.6%) whilst the number of infants below 32 weeks was 52 (1.2%).

The number of infants that were breast fed only at the time of discharge was 2172 (49.60%), those that were bottle fed was 1199 (27.34%), and 1043 (23.84%) had mixed feeding routines. 34 babies passed away prior to hospital discharge and in 3 babies feeding was not reported.

## Maternal and Neonatal Mortality

There have been no reports of maternal deaths in Malta since 2010. This year (2019), 16 stillbirths were reported, while 16 and 3 babies were reported as early and late neonatal deaths respectively.





# NATIONAL OBSTETRIC INFORMATION SYSTEM (NOIS) ANNUAL REPORT - 2019

A National Obstetric Information System (NOIS) was launched at the beginning of 1999 and now covers all deliveries, to residents and non-residents, 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 data sheet. Once the data are recorded, the sheets are forwarded to the Directorate for Health Information and Research (DHIR). At the DHIR the relevant sheets are processed and entered into the NOIS database. The system registers all infants/fetuses delivered at 22 completed weeks gestation and over.

The maternity centres actively participating in this information system in 2019 were: Mater Dei Hospital, Gozo General Hospital, St James Hospital Sliema and Zabbar. Home deliveries, which are not subsequently referred to a hospital, may not be captured by this system.

The NOIS Data Collection Sheet is used to collect extensive and comprehensive maternal, pregnancy, delivery and infant outcome data for all deliveries and births.

Data at the DHIR is kept in accordance with existent Data Protection legislation and confidentiality is protected at all times.

## Report

This report analyses all deliveries and infant/fetal births occurring on the Maltese Islands and reported to the Registry and compares figures to those reported for previous years where appropriate. The data in this report includes all births occurring irrespective of residency of the parents.

Data is sent to the Registry from all hospitals on the Maltese Islands. Accuracy and completeness of data provided to DHIR is the responsibility of the hospital providing data. This report includes the latest updated data as at time of release of report.

Further information and detailed maternal and perinatal health statistics and indicators may be found at: <https://deputyprimeminister.gov.mt/en/dhir/Pages/Registries/births.aspx>.

## ANALYSIS OF REPORTED DATA

There were a total of 4379 deliveries reported and registered for the Maltese Islands in 2019. These resulted in a total of 4455 infant/fetal births; this is a decrease of 61 births when compared to 2018.

The table below gives the number of deliveries and births in Malta and Gozo and registered in NOIS since 2000.

Year	Deliveries*	Total Births**	Livebirths
2000	4311	4377	4361
2001	3918	3955	3935
2002	3872	3926	3905
2003	3995	4054	4036
2004	3838	3902	3887
2005	3804	3865	3857
2006	3822	3891	3880
2007	3853	3898	3886
2008	4154	4228	4199
2009	4112	4180	4152
2010	3952	4036	4018
2011	4226	4311	4283
2012	4175	4258	4239
2013	4073	4149	4127
2014	4275	4335	4308
2015	4385	4453	4435
2016	4455	4555	4532
2017	4325	4398	4379
2018	4434	4516	4491
2019	4379	4455	4439

\* Deliveries refer to maternal confinements irrespective of number of infants delivered.

\*\* Total births include all reported live and still births

**Table 1. Total births and deliveries 2000-2019**

Of the registered 4379 deliveries (4455 births) in 2019, 4080 deliveries (4152 births) occurred in Malta and 299 deliveries (303 births) occurred in Gozo.

# DELIVERIES

## DEMOGRAPHY

### 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 below. A decrease in deliveries is seen in the younger age groups <30 years with a corresponding increase in deliveries in the older age groups ≥30 years. In 2019, the greatest number of deliveries 1635 (37.3%), occurred in the age group 30 to 34 years while there was only one delivery occurring in the youngest age group of less than 15 years. The minimum age at delivery of the mothers was 14 years (1 mother) while the maximum age was 47 years (2 mothers). The most frequent maternal age at delivery was 32 years and average maternal age was 30.6 years. The average age of first-time mothers was 29.1 years.

The frequency distribution of deliveries in 2019 according to maternal age group is given in the following table.

Age group (years)	2019		2018	
	Frequency	%	Frequency	%
<15	1	0.02	1	0.02
15-19	138	3.2	140	3.1
20-24	424	9.7	446	10.0
25-29	1181	27.0	1200	27.0
30-34	1635	37.3	1632	36.8
35-39	837	19.1	853	19.4
40-44	151	3.4	155	3.5
45+	10	0.2	7	0.2
Unspecified	2	0.05	0	0

**Table 2. Deliveries according to maternal age group**

### Marital Status

In 2019, 1348 (30.8%) of all deliveries occurred to mothers who were reported as never married (single); while 2868 (65.5%) of all deliveries occurred to mothers reported as married, and 147 (3.4%) were reported as being separated, divorced or widowed. 16 mothers had their marital status unspecified.

## Maternal Nationality

72.2% (3163) of all deliveries this year occurred to women of Maltese nationality while 27.7% (1211) were Non-Maltese. The remaining 5 mothers did not have a nationality specified. The table below gives the number of mothers of Maltese and non-Maltese Nationality delivering on the Maltese Islands since 2000.

Nationality	Maltese		Non-Maltese		Unknown	
	Number	%	Number	%	Number	%
2000	4096	95.0	211	4.9	4	0.1
2001	3737	95.4	178	4.5	3	0.1
2002	3662	94.6	170	4.4	41	1.1
2003	3687	92.3	220	5.5	88	2.2
2004	3558	92.7	168	4.4	112	2.9
2005	3512	92.3	237	6.2	55	1.4
2006	3491	91.3	288	7.5	43	1.1
2007	3511	91.1	308	8.0	34	0.9
2008	3729	89.8	402	9.7	23	0.6
2009	3711	90.2	376	9.1	25	0.6
2010	3581	90.6	365	9.2	6	0.2
2011	3740	88.5	479	11.3	7	0.2
2012	3668	87.9	501	12.0	6	0.1
2013	3501	86.0	564	13.8	8	0.2
2014	3533	82.6	733	17.1	9	0.2
2015	3544	80.8	838	19.1	3	0.1
2016	3565	80.0	889	19.9	1	0.1
2017	3364	77.8	958	22.2	3	0.1
2018	3345	75.4	1087	24.5	2	0.1
2019	3163	72.2	1211	27.7	5	0.1

**Table 3. Deliveries by reported Nationality of Mother for all deliveries on the Maltese Islands**

## Parity

There were 53.2% (2330) of mothers who were primiparas in 2019. The following table gives a breakdown of mothers by age and previous parity (includes all previous live and still births).

Mother's Age Group	Maternal Parity (previous livebirths and still births are included)							Total
	Primipara	1	2	3	4	>4 <sup>th</sup>	Unknown	
Under 20	125	14	0	0	0	0	0	<b>139</b>
20-24	278	113	24	4	5	0	0	<b>424</b>
25-29	762	317	70	24	7	1	0	<b>1181</b>
30-34	831	606	142	26	19	8	3	<b>1635</b>
35-39	291	356	137	26	13	14	0	<b>837</b>
40-44	41	53	32	10	7	8	0	<b>151</b>
45+	2	4	2	2	0	0	0	<b>10</b>
Unknown	0	1	0	0	0	0	1	<b>2</b>
<b>Total</b>	<b>2330</b>	<b>1464</b>	<b>407</b>	<b>92</b>	<b>51</b>	<b>31</b>	<b>4</b>	<b>4379</b>

**Table 4. Parity of Mothers by age group for 2019**

## Educational Level reached

It is documented that maternal educational level has a bearing on outcomes of pregnancy. In 2019, 94.4% of mothers had their completed level of education reported.

Distribution of maternal educational level is presented in Table 5. 42.4% of mothers were reported as having a tertiary education.

Level of Education reached	2019	
	Number	%
Primary or no education	95	2.2
Secondary	1156	26.4
Post-Secondary/Vocational non-tertiary	1024	23.4
Tertiary	1857	42.4
Unspecified	247	5.6

**Table 5. Maternal Education distribution**

## MATERNAL LIFESTYLES

There were 803 (18.3%) of the mothers who were reported to smoke one or more cigarettes during their pregnancy this year. 28 mothers were reported to drink some alcohol during their pregnancy, while 17 mothers were reported as being illicit drug abusers. It is conceivable that mothers may under-report these known harmful lifestyles.

Maternal Lifestyles	2019	
	Number	%
<b>Cigarette smoking during pregnancy:</b>		
1 to 3/day	444	10.1
> than 3/day	359	8.2
Do not smoke	3536	80.8
Unspecified	40	0.9
<b>Alcohol consumption during pregnancy:</b>		
Up to 1 unit/day	20	0.5
> than 1 unit/day	8	0.2
None	4319	98.6
Unspecified	32	0.7
<b>Drug Abuse during pregnancy</b>		
Yes	17	0.4
No	4329	98.9
Unspecified	33	0.8

**Table 6. Reported smoking, alcohol and drug habits of mothers**

Maternal smoking is a well-established risk factor for adverse perinatal outcomes including low birth weight (EuroPeristat, 2018). In 2019, the overall average birth weight of all infants born was 3203.7g, with 7.4% (328) of these babies being less than 2500g.

The average birth weight of babies born to mothers reported to have smoked at some time during their pregnancy (813 babies) was 3151.1g, with 9.2% (75) of these babies being less than 2500g.

## MATERNAL PATHOLOGY DURING PREGNANCY

In 2019 there were 124 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 reported with specific obstetric pathology during pregnancy. 7.8% of mothers were registered as having gestational hypertension.

Pathology during pregnancy	2019		2018	
	Number	%	Number	%
Antepartum Haemorrhage	79	1.8	65	1.5
Gestational hypertension	340	7.8	331	7.5
Pre-eclampsia	32	0.7	24	0.5
Eclampsia	1	0.02	0	0
Placenta praevia	35	0.8	35	0.8
Abruption of placenta	15	0.3	12	0.3
Suspected IUGR*	206	4.7	217	4.9
Cardiovascular disease	0	0	3	0.1

\*IUGR – intrauterine growth retardation

**Table 7. Pathology during pregnancy**

## Diabetes in Pregnancy

In 2019 there were 23 mothers who were reported as having pre-existing Insulin Dependent Diabetics before this pregnancy while there were 8 mothers reported with pre-existing Non-Insulin Dependent diabetes prior to pregnancy. There was a total of 231 mothers registered with impaired glucose tolerance or gestational diabetes.

## SINGLETON AND MULTIPLE DELIVERIES

For this year, there were a total of 4306 (98.3%) singleton, 70 (1.6%) twin deliveries and 3 (0.1%) triplet deliveries.

Multiplicity	2019	2018
Singleton	4306	4355
Twin	70	76
Triplet	3	3
Quadruplet	0	0

**Table 8. Deliveries by multiplicity**

## SITE OF DELIVERY

In 2019 of the total 4379 deliveries registered by the National Obstetric Information System, 4366 (99.7%) occurred in a hospital, 12 deliveries occurred at home and 1 delivery occurred at another site but were later transferred to hospital.

## ONSET OF DELIVERY

Of the total 4379 deliveries, 54.2% (2372) were reported as spontaneous onset of contractions, 28.3% (1237) were induced by drugs or artificial rupture of membranes and 15.7% (688) were carried out as elective caesarean sections, while 1.9% (82) were carried out as emergency caesarian sections for pathological conditions including antepartum haemorrhage, pre-eclampsia, fetal distress etc.

## DAMAGE TO THE PERINEUM

A total of 3027 women were delivered by normal or assisted vaginal delivery. 2808 (92.8%) of these women were reported to have a normal vertex vaginal delivery, while 219 (7.2%) had assisted vaginal delivery (including ventouse, forceps and breech). A total of 1039 (34.3%) of these normal or assisted vaginal deliveries were reported to have sustained no episiotomy or damage to the perineum or cervix, while 1988 (65.7%) were reported to have had an episiotomy, perineal, cervical tear/laceration, or both.

Damage to perineum	Normal Vaginal Delivery (n= 2808)		Assisted Vaginal Delivery** (n= 219)	
	Number	%	Number	%
No Damage	1026	36.5	13	5.9
Episiotomy* only	327	11.6	99	45.2
Perineal tear only	1380	49.1	71	32.4
Episiotomy and tear	75	2.7	36	16.4
Unknown	0	0	0	0

\* Episiotomy is defined as a surgical incision through the perineum to enlarge the vagina to assist delivery

\*\*These include ventouse, forceps and breech extraction

**Table 9. Damage to perineum in vaginal deliveries**



# INFANT / FETAL BIRTHS

## METHOD OF BIRTH

In 2019 there were a total of 4455 infant/fetal births. Of these 2812 (63.1%) were delivered as a normal vertex delivery, 1423 (31.9%) by emergency or elective Caesarean Section and 220 (4.9%) by assisted vaginal delivery (includes forceps, ventouse and breech).

Mode of Delivery*	2019	2018
Vertex delivery	2812	2847
Elective/emergency Caesarean Section	1423	1482
Forceps	12	5
Ventouse	204	179
Breech deliveries	4	3

\*Data analysed according to total infant/ fetal births

**Table 10. Mode of delivery**

For 2019 there were 1423 infants/fetuses delivered by caesarean section but 1352 caesarean operations performed, this due to the fact that a number of caesareans are done in multiple birth deliveries. The Caesarean section operation rate in 2019 was 30.9% of the total 4379 maternal deliveries.

Year	Deliveries by Caesarean section	Caesarean section operation rate (% of all deliveries)
2000	994	23.1
2001	926	23.6
2002	914	23.6
2003	1039	26.0
2004	1048	27.3
2005	1165	30.6
2006	1329	34.8
2007	1243	32.3
2008	1263	30.4
2009	1194	29.0
2010	1252	31.7
2011	1435	34.0
2012	1409	33.7
2013	1270	31.2
2014	1368	32.0
2015	1359	31.0
2016	1366	30.7
2017	1338	30.9
2018	1400	31.6
2019	1353	30.9

Table 11. Caesarean Section rates 2000-2019

## 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.

Gender	2019		2018	
	Number	%	Number	%
Male	2322	52.1	2318	51.3
Female	2133	47.9	2198	48.7
Unknown	0	0	0	0

**Table 12. Gender distribution of infants delivered**

## BIRTHWEIGHT OF INFANTS/FETUSES

In 2019, there were 4110 (92.3%) of the total births that occurred in the birth weight range of 2500g to 4499g. 276 (6.2%) of the total births were in the low birth weight range of 1500g to 2499g, while 45 (1.0%) of births were of very low birth weight 500g to 1499g. This year there were 7 babies of birth weight less than 500g but 22 completed weeks gestation, two of these survived the neonatal period. There were another 14 babies of birth weight 4500g and over. Birth weight was not recorded for 3 births.

The lowest birth weight recorded this year was 290g in a 23-week antepartum intrauterine death. The highest birth weight recorded was 5040g in a baby with Tetralogy of Fallot. The average birth weight was 3203.8g. All infants / fetuses delivered at 22 weeks gestation and over are registered into the system.

Birth weight	2019		2018	
	Number	%	Number	%
<500g	7	0.2	9	0.2
500-999g	22	0.5	24	0.5
1000-1499g	23	0.5	29	0.6
1500-1999g	60	1.3	64	1.4
2000-2499g	216	4.8	210	4.7
2500-2999g	953	21.4	1001	22.2
3000-3499g	1939	43.5	1927	42.7
3500-3999g	1038	23.3	1047	23.2
4000-4499g	180	4.0	174	3.9
4500-4999g	13	0.3	14	0.3
5000+	1	0.02	4	0.09
Unspecified	3	0.07	13	0.3

**Table 13. Birth weight distribution of infants/fetuses**

## GESTATIONAL AGE AT DELIVERY

Preterm births are associated with adverse obstetric outcomes and long-term health problems. In 2019, 337 (7.6%) of babies born were preterm, having a gestational age of <37 weeks. 52 (1.2%) were born very or extremely preterm (<32 weeks).

Gestational age	2019		2018	
	Number	%	Number	%
<b>Extremely preterm</b> 22-27 weeks	22	0.5	30	0.7
<b>Very preterm</b> 28-31 weeks	30	0.7	33	0.7
<b>Moderately preterm</b> 32-36 weeks	285	6.4	244	5.4
<b>Term</b> 37 – 41 weeks	4116	92.4	4208	93.2
<b>Post term</b> 42+ weeks	1	0.02	0	0
<b>Unspecified</b>	1	0.02	1	0.02

**Table 14. Gestational age at delivery**

## OUTCOME OF BIRTH

The number of live births registered in 2019 was 4439, which accounted for 99.6% of the total births at a national level. The remaining 16 births were reported as stillbirths. Of the live births, there were 16 cases of early neonatal deaths and 3 cases of late neonatal deaths (see table below). All births delivered at 22 weeks and over, irrespective of birth weight, are registered into the system.

Outcome of Birth	2019	2018
Livebirths	4439	4491
Stillbirths	16	25

Neonatal deaths	2019	2018
Early Neonatal deaths	16	15
Late Neonatal deaths	3	6

**Table 15. Birth outcomes – livebirths, fetal, early and late neonatal deaths (22+ weeks gestation)**

## INFANT FEEDING METHODS AT DISCHARGE

Infant feeding habits are recorded by hospital staff at the time of discharge from hospital, which is usually 2-5 days after delivery. Little can be said on the longer-term infant feeding habits as these may change soon after discharge from the birthing facilities.

<b>Infant feeding methods at time of discharge</b>	<b>2019</b>	<b>2018</b>
Breast only	2172	2359
Bottle only	1199	1263
Mixed (Breast & Bottle)	1043	833
Other*	36	50
Unspecified	5	11

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

**Table 16. Infant feeding methods at time of discharge**

# MATERNAL AND PERINATAL MORTALITY INDICATORS

Maternal, fetal, perinatal and neonatal mortality statistics are indicators of quality of health care. Definitions of the rates presented are given in Annex II. Indicators for the past 20 years given in the tables below and refer to births with birth weight 500g and over.

Year	Maternal Deaths
2000	0
2001	2
2002	0
2003	0
2004	0
2005	0
2006	0
2007	0
2008	1
2009	0
2010	1
2011	0
2012	0
2013	0
2014	0
2015	0
2016	0
2017	0
2018	0
2019	0

**Table 17. Maternal Deaths 2000-2019**

Year	Fetal death rate 500g and over	
	Number	Rate/1000 total births
2000	16	3.6
2001	20	5.1
2002	20	5.1
2003	16	3.9
2004	15	3.8
2005	8	2.1
2006	10	2.6
2007	11	2.8
2008	26	6.2
2009	21	5.0
2010	16	4.0
2011	23	5.3
2012	14	3.3
2013	18	4.3
2014	26	6.0
2015	14	3.1
2016	17	3.7
2017	15	3.4
2018	17	3.8
2019	13	2.9

**Table 18. Fetal Death Rates 2000-2019**

Year	Neonatal mortality rate (500g and over)	
	Number	Rate/1000 live births
2000	23	5.3
2001	12	3.0
2002	20	5.1
2003	20	5.0
2004	17	4.4
2005	17	4.4
2006	9	2.3
2007	17	4.4
2008	24	5.7
2009	17	4.1
2010	18	4.5
2011	22	5.1
2012	14	3.3
2013	16	3.9
2014	11	2.6
2015	15	3.4
2016	22	4.9
2017	18	4.1
2018	20	4.5
2019	17	3.8

**Table 19. Neonatal Mortality rates 2000-2019**

Year	Early neonatal mortality rate (500g and over)	
	Number	Rate/1000 live births
2000	16	3.6
2001	10	2.5
2002	16	4.1
2003	18	4.5
2004	12	3.1
2005	13	3.4
2006	4	1.0
2007	14	3.6
2008	21	5.0
2009	13	3.1
2010	16	4.0
2011	18	4.2
2012	12	2.8
2013	13	3.2
2014	10	2.3
2015	11	2.5
2016	17	3.7
2017	12	2.7
2018	14	3.1
2019	14	3.2

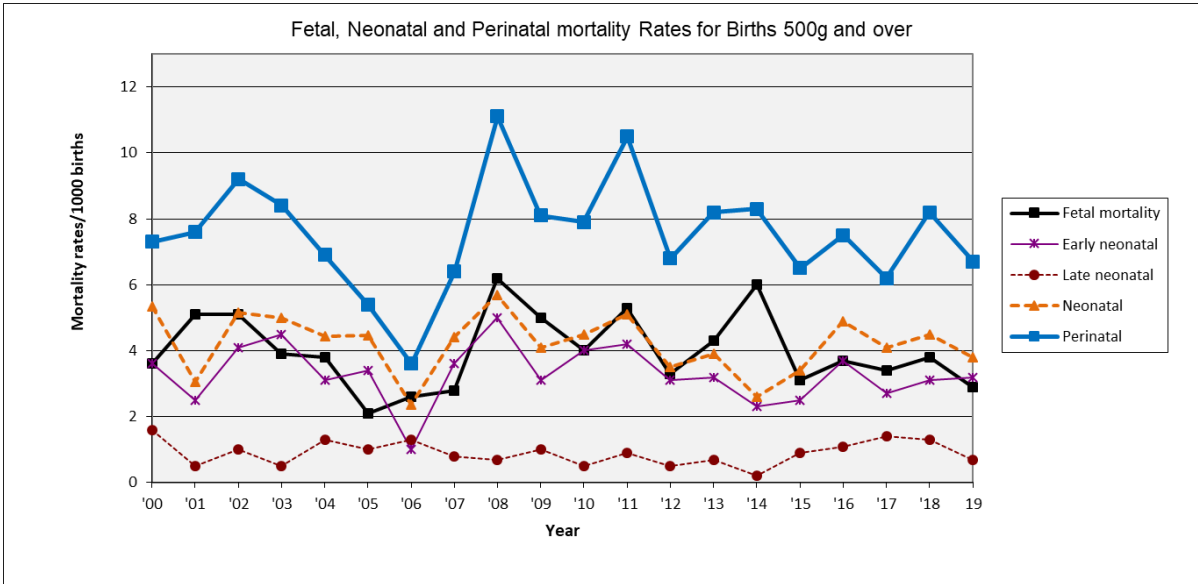
**Table 20. Early Neonatal Mortality rates 2000-2019**

Year	Late neonatal mortality rate (500g and over)	
	Number	Rate/1000 live births
2000	7	1.6
2001	2	0.5
2002	4	1.0
2003	2	0.5
2004	5	1.3
2005	4	1.0
2006	5	1.3
2007	3	0.8
2008	3	0.7
2009	4	1.0
2010	2	0.5
2011	4	0.9
2012	2	0.5
2013	3	0.7
2014	1	0.2
2015	4	0.9
2016	5	1.1
2017	6	1.4
2018	6	1.3
2019	3	0.7

**Table 21. Late Neonatal Mortality Rates 2000-2019**

Year	Perinatal mortality rate (500g and over)	
	Number	Rate/1000 total births
2000	32	7.3
2001	30	7.6
2002	36	9.2
2003	34	8.4
2004	27	6.9
2005	21	5.4
2006	14	3.6
2007	25	6.4
2008	47	11.1
2009	34	8.1
2010	32	7.9
2011	45	10.5
2012	28	6.6
2013	34	8.2
2014	36	8.3
2015	29	6.5
2016	34	7.5
2017	27	6.2
2018	37	8.2
2019	30	6.7

**Table 22. Perinatal Mortality Rates 2000-2019**



**Fetal, neonatal and perinatal mortality rates 2000-2019**  
(fetal deaths include only fetuses of birth weight 500g and over)

Varying data collection systems and reporting of smaller babies (namely 22-24 weeks gestation) over time may account for some of the changes in mortality rates.

Annex I gives some selected comparative birth and mortality statistics for Malta and the EU.



## ANNEX 1

Comparative statistics for Malta and EU – data reproduced from the WHO – European Health for All Database (HFA-DB): <https://gateway.euro.who.int/en/hfa-explorer/> as available at October 2020.

Year	Malta	EU members before May 2004	EU members after May 2004
2001	10.01	10.58	9.44
2002	9.86	10.52	9.26
2003	10.12	10.57	9.31
2004	9.69	10.63	9.49
2005	9.55	10.59	9.74
2006	9.32	10.70	9.92
2007	9.26	10.75	10.13
2008	9.80	10.90	10.61
2009	9.77	10.70	10.67
2010	9.40	10.75	10.39
2011	10.00	10.52	9.87
2012	9.84	10.37	9.89
2013	9.52	10.08	9.44
2014	10.03	10.14	9.87
2015	10.33	10.03	9.84
2016	10.67	10.07	10.05

**Table 23. Live births per 1000 population** (HFA Indicator 16)

Year	Malta	EU members before May 2004	EU members after May 2004
2001	1.50	1.50	1.25
2002	1.40	1.50	1.25
2003	1.50	1.52	1.25
2004	1.37	1.55	1.26
2005	1.37	1.56	1.29
2006	1.41	1.58	1.31
2007	1.37	1.59	1.34
2008	1.40	1.62	1.40
2009	1.40	1.61	1.43
2010	1.40	1.62	1.39
2011	1.50	1.60	1.35
2012	1.36	1.60	1.35
2013	1.36	1.58	1.33
2014	1.38	1.60	1.36
2015	1.37	1.59	1.37
2016	1.37	1.61	1.38
2017	1.26	1.51	1.55
2018	1.23	1.51	1.55

**Table 24. Total Fertility Rate** (HFA indicator 25)

Year	Malta	EU members before May 2004	EU members after May 2004
2001	50.83*	5.43	16.94
2002	0	5.28	13.93
2003	0	5.42	15.13
2004	0	5.54	13.54
2005	0	4.86	10.11
2006	0	5.42	9.27
2007	0	4.85	8.45
2008	24.92*	5.08	10.17
2009	0	6.20	9.68
2010	25.65*	5.12	9.24
2011	0	4.65	9.21
2012	0	4.49	5.98
2013	0	4.41	6.78
2014	0	4.64	6.10
2015	0	N/A	7.56

\*There were 2 maternal deaths in 2001, and 1 maternal death in each of 2008 and 2010.

**Table 25. Maternal Deaths per 100 000 live births (HFA Indicator 90)**

Year	Malta	EU members before May 2004	EU members after May 2004
2001	5.06	4.46	5.38
2002	5.09	5.01	5.32
2003	3.95	5.05	5.19
2004	3.84	5.02	5.09
2005	2.07	4.93	4.96
2006	2.64	4.98	4.76
2007	3.18	4.88	4.63
2008	7.17	5.08	4.49
2009	6.90	5.44	4.44
2010	4.09	5.08	4.20
2011	5.49	5.00	4.30
2012	3.38	5.06	4.18
2013	3.95	5.00	4.03
2014	6.17	5.02	4.06
2015	3.80	4.93	3.71

**Table 26. Fetal Deaths per 1000 births (HFA Indicator 82)**

Year	Malta	EU members before May 2004	EU members after May 2004
2001	3.05	3.11	5.98
2002	5.38	3.01	5.70
2003	5.20	2.92	5.52
2004	4.37	2.86	5.57
2005	4.41	2.74	5.09
2006	2.38	2.68	4.71
2007	5.31	2.62	4.45
2008	5.98	2.53	4.09
2009	4.47	2.50	4.01
2010	4.62	2.45	3.71
2011	5.76	2.41	3.57
2012	4.84	2.35	3.38
2013	4.46	2.33	3.26
2014	3.82	2.35	3.22

**Table 27. Neonatal Deaths per 1000 live births** (HFA Indicator 77)

## ANNEX II - DEFINITIONS

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

### 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. Rates are usually expressed per 1000 total births.

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

### 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.

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

### 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.

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

### Late Neonatal Mortality Rate

The number of deaths during the late neonatal period (ie 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.

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

### 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.

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

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