

## Highlights of the Euro-Peristat Perinatal Health Report on Core Indicators 2015 to 2019 – with a focus on Malta

In Europe, about 5 million women give birth per year, thus the collecting and monitoring of data on maternal and perinatal health outcomes is of upmost importance. Promoting healthy pregnancy and safe childbirth sets the stage for a positive lifelong trajectory of both physical and mental health for both the parents and the newborns.

Euro-Peristat was set up with the goal of producing '*data and analysis on a regular basis for use by national, European and international stakeholders who make decisions about the health and health care of pregnant women and newborns*' [<https://www.euoperistat.com/>]. It began as an EU wide project in 1999 as part of the European Union Health Monitoring Programme. The aim of this project is to produce comparable data and analyse the health and care of newborns and their families using national data systems. Data for this project is collected from birth registers, hospital discharge registers, civil registration systems and cause of death databases.

This edition of the Euro-Peristat report presents data for the period between 2015-2019 and focuses on a number of core indicators. These core indicators can be classified as follows:

- (i) Indicators of Mortality including fetal, neonatal and infant mortality (C1-C3)
- (ii) Indicators describing birthweight and gestation age distribution (C4-C5)
- (iii) Indicators of Population Characteristics including maternal age, parity, multiplicity (C7-C9)
- (iv) Mode of Delivery (C10)

These indicators provide essential information to monitor perinatal and maternal care. When comparing indicators between countries it is important to factor in the vast difference in number of births between the countries (with ranges of over 600,000 in countries such as Germany, France and the UK to fewer than 10,000 in Malta, Cyprus and Iceland). In countries with fewer births, there is more random variation in indicators from year to year.

Euro-Peristat has published similar reports to the one just issued, with the previous one focusing on data and indicators for 2015. The full reports can be accessed from the Euro-Peristat website by following this link: [www.euoperistat.com](http://www.euoperistat.com)

This document highlights and summarizes the major findings of the latest Euro-Peristat report with a particular focus on Malta. This document also contains graphs for easy visualisation of where Malta ranks compared with the other European countries.

## **C1 – Stillbirth in Europe, 2015-2019**

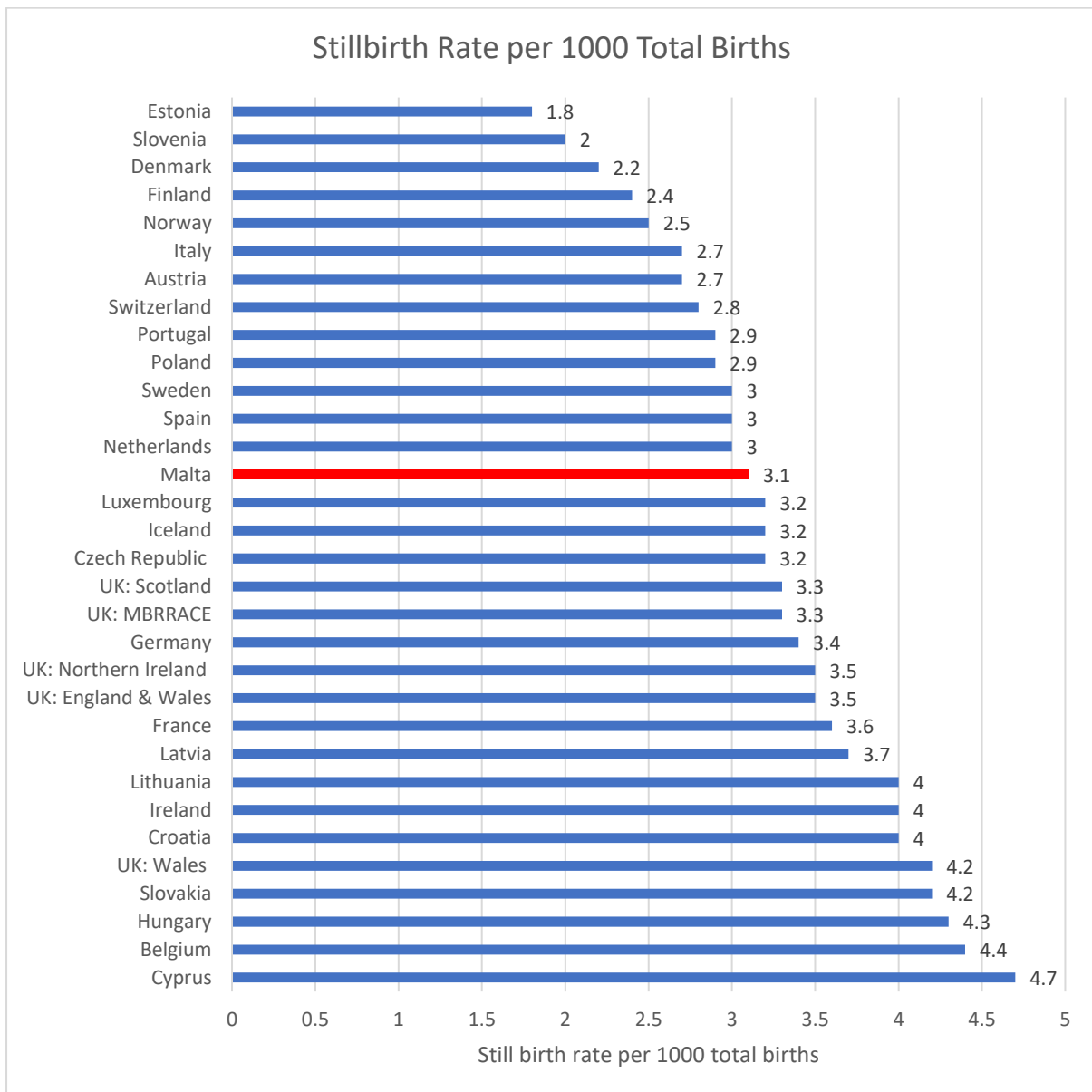
Stillbirth is a key indicator of reproductive health and the quality of maternity care and represents a high health burden. Stillbirths account for over half of all deaths occurring in the perinatal period. The causes of stillbirth are multiple and between 30-50% of all stillbirths remain unexplained.

Throughout Europe, the trend in stillbirths between 2015 to 2019 decreased or remained stable. Although stillbirth rates were generally low, significant differences between countries were noted. When comparing stillbirth rates at or after 24 weeks gestation across Europe, Estonia had the lowest rate of stillbirths (1.8/1000 total births) while Cyprus had the highest rate (4.7/1000 total births). [Figure C1]

### **Malta:**

- The stillbirth rate at or after 24 weeks gestation in 2019 was 3.1/1000 total births, very close to that of Luxembourg (3.2/1000) and the Netherlands, Spain and Sweden (3.0/1000).
- There was a decrease in the stillbirth rate compared to the previous rate of 3.4/1000 in 2015.

**Figure C1- Stillbirth Rate per 1000 total births at or after 24 weeks of gestation.**



## **C2 – Neonatal Mortality in Europe, 2015-2019**

The neonatal mortality rate is a key indicator of health and the quality of maternity care during pregnancy and childbirth. Neonatal deaths are defined as those occurring between 0 and 27 days after live birth. The main causes behind neonatal mortality are perinatal complications, congenital anomalies and complications due to very preterm birth. Neonatal mortality rates tend to be higher in multiples when compared to singletons, since the former are more often associated with preterm birth.

The general trend in Europe is that, similar to the rate of fetal mortality, the rate of neonatal mortality has been decreasing, however wide variation was found between countries. With neonatal mortality rates for infants at or after 22 weeks of gestation ranging from less than 1.0 per 1000 in Iceland (0.5), Slovenia (0.7), and Estonia (0.9) to 3.0 or more per 1000 in Malta (4.3), Northern Ireland (3.3), Croatia (3.0), and the Netherlands (3.0). The median rate for neonatal mortality was 1.5 per 1000 live births (IQR of 1.1 to 2.1 per 1000 live births). [Figure C2]

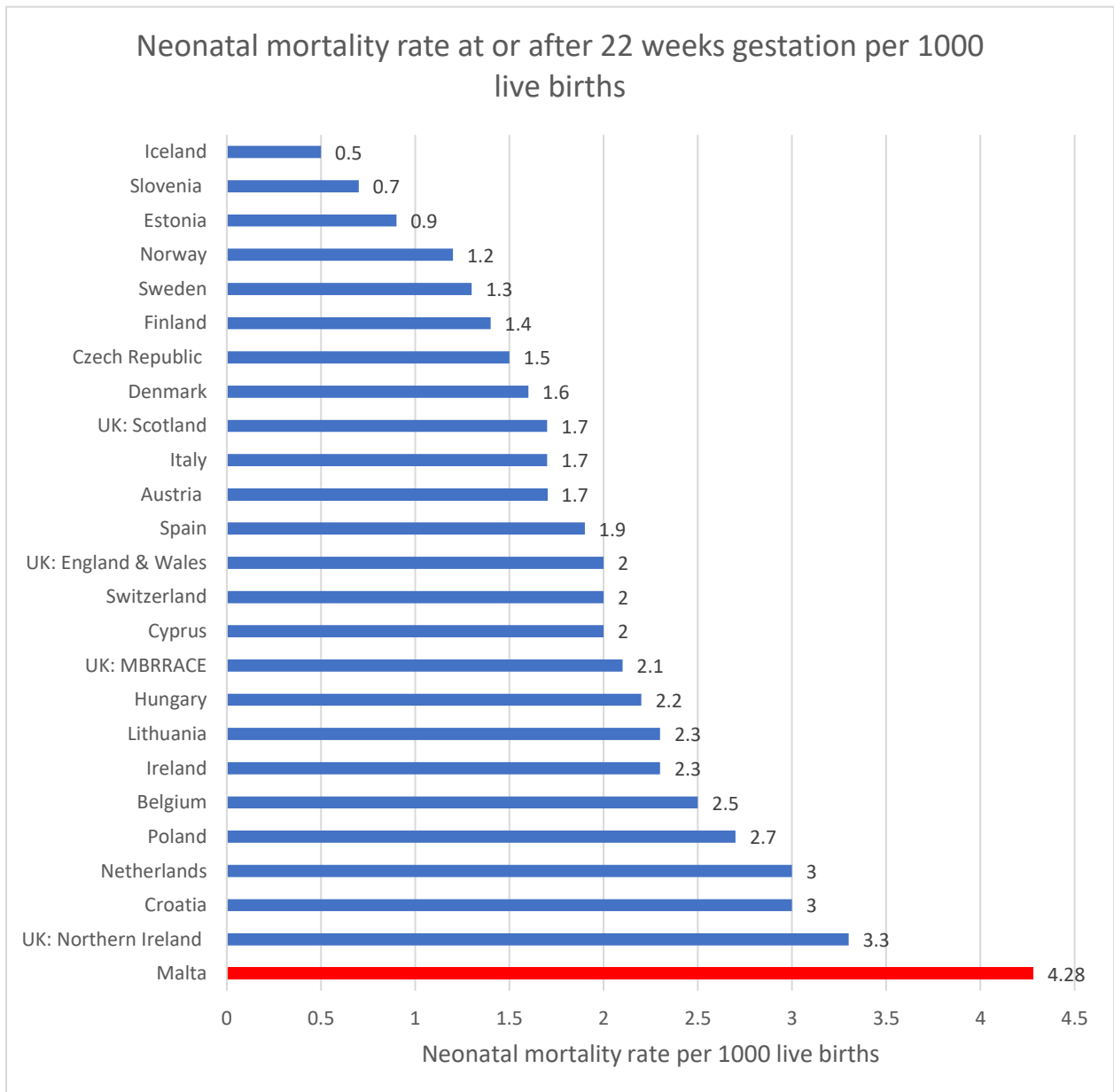
This indicator is greatly affected by different policies and practices adopted by different countries in the management of very small births of 22 to 23 weeks gestation. Also, in countries where termination of pregnancy is not legal or difficult to access (Malta, Ireland, Northern Ireland, Poland) higher neonatal mortality rates may be expected due to deaths from lethal congenital anomalies.

Furthermore, neonatal deaths are rare events and in smaller countries where there is a small number of annual births, year-to-year random fluctuations are naturally greater.

### **Malta:**

- The neonatal mortality rate from 22 weeks gestation and over in 2019 was 4.3 per 1000 live births,
- Neonatal mortality in Malta was the highest reported rate and reflects the fact that here in Malta termination of pregnancy is illegal and the neonatal mortality will be significantly affected by the occurrence of lethal congenital anomalies.

**Figure C2 - Neonatal Mortality Rate per 1000 livebirths at or after 22 weeks gestation**



### **C3 – Infant Mortality in Europe, 2015-2019**

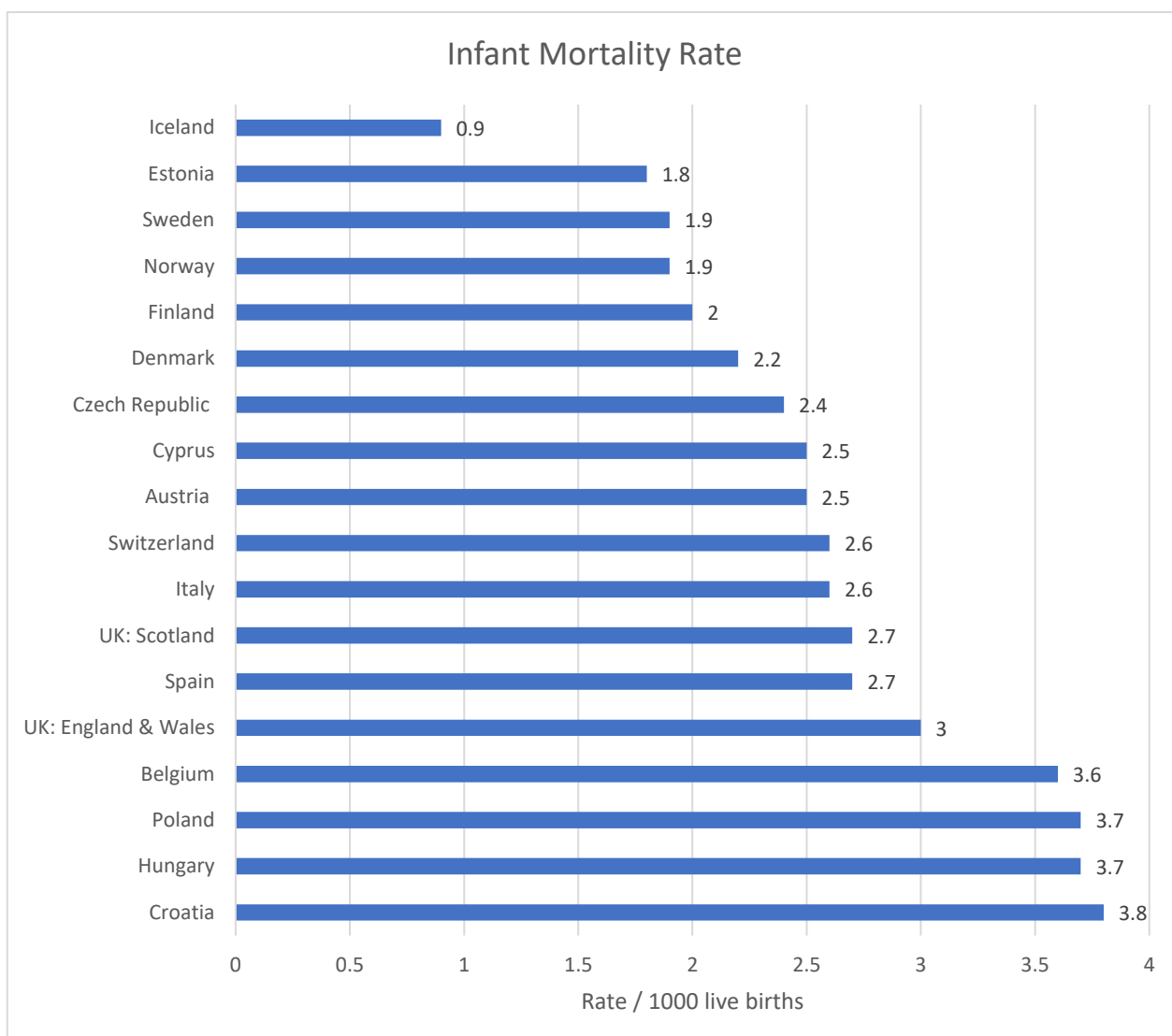
Infant mortality is defined as the number of deaths that occur within the 1<sup>st</sup> year of life for newborns born at or after 22 weeks gestation. The infant mortality rate is a key measure of the population's health and is vital for capturing the longer-term consequences of perinatal morbidity. Potential causes of infant death include perinatal morbidity, congenital anomalies, sudden infant death syndrome and accidents, to name a few. Most infant deaths occurred in those infants born pre-term or with a low gestational weight. Infant mortality is also affected by population characteristics such as maternal age, maternal weight, and may also be influenced on external factors such as pollution.

In most European countries, the infant mortality rate either decreased or remained stable. Infant mortality rates ranged from lows of 0.9/1000 livebirths in Iceland to highs of 3.8/1000 livebirths in Croatia.

#### **Malta:**

- Malta was one of a number of other European countries who did not supply data for this core indicator.

**Figure C3 – Infant Mortality Rate per 1000 live births**



## **C4 – Birth Weight in Europe, 2015-2019**

A baby's weight at birth is strongly associated with mortality risk during the first year of life, and to a lesser degree, with developmental problems in childhood and the increased risk of various diseases in adulthood.

Low birth weight (less than 2500g) and high birth weight (4500g or more) are used to assess fetal growth

### **(i) Low birth weight**

Low birthweight is defined as weight of less than 2500g. Risk factors for poor growth include maternal chronic disease, pregnancy related complications and congenital anomalies. In most countries, the prevalence of low birth weight decreased slightly from 2015 to 2019. Northern European countries tended to have lower rates of low birth weight compared with Southern European countries. The range of low birth weight ranged from 4% in Finland up to 10.1% in Cyprus. The median was 6.1% with an IQR from 4.5% to 7.1%. [Figure C4a]

#### **Malta:**

- The rate of low birth weight babies in Malta was 7.1% of total births same as the rates reported from France, Italy and UK (England and Wales)
- There was a rise in the prevalence of low birth weight babies (<2500g) in 2019 with the figure being 7.1% of total births, compared to 6.3% in 2015.

### **(ii) High Birth Weight**

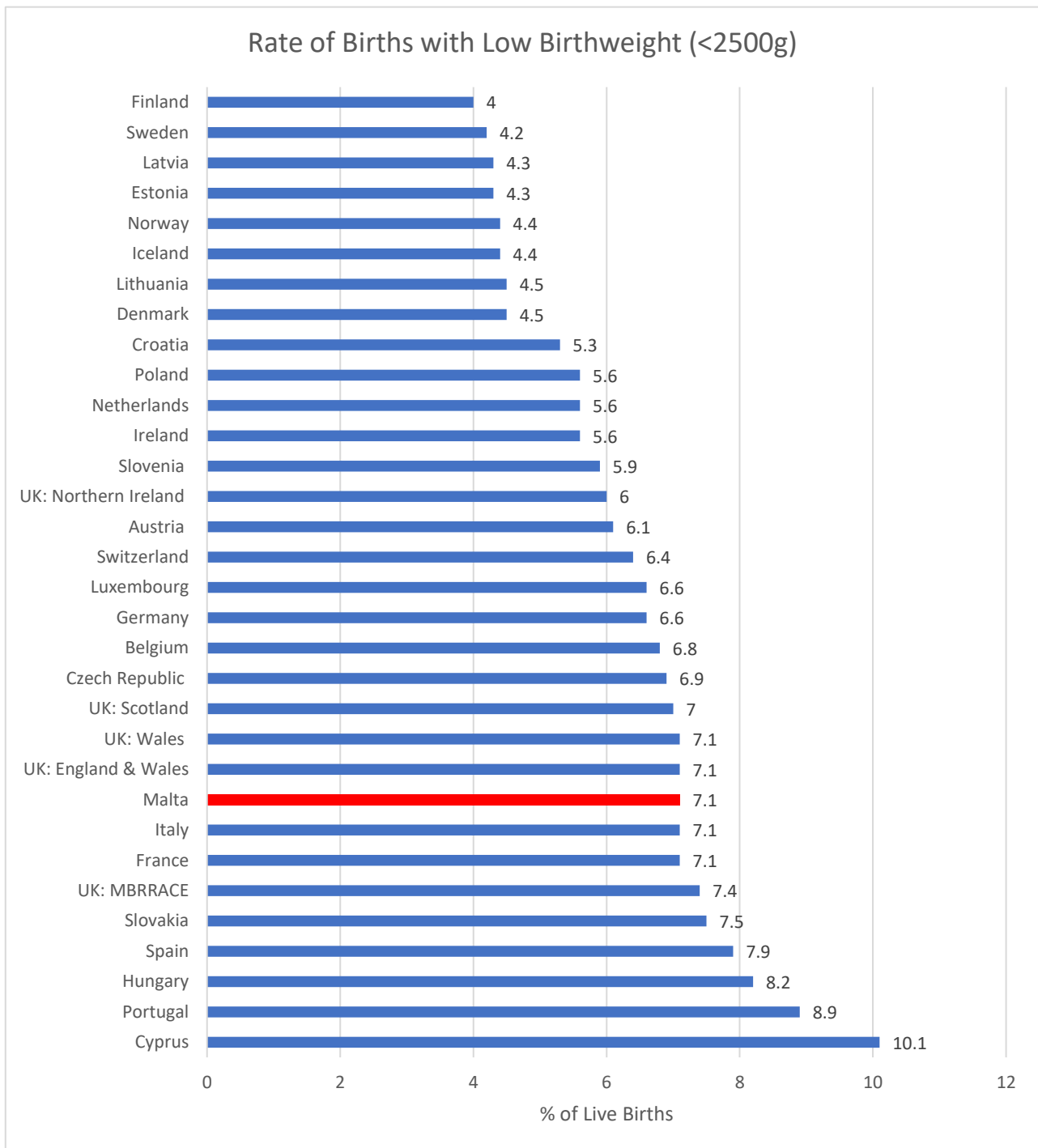
High birthweight, also known as macrosomia, is defined as weight of more than 4500g. Macrosomia is also associated with complications such as shoulder dystocia, increased neonatal morbidity and increased rate of Caesarean delivery. Rates of high birthweight have remained relatively stable compared to 2015 data. Northern European countries tended to have higher rates of high birth weight infants. The range of high birth weight was between 0.2% in Cyprus up to 4.8% in Iceland. [Figure C4b]

#### **Malta:**

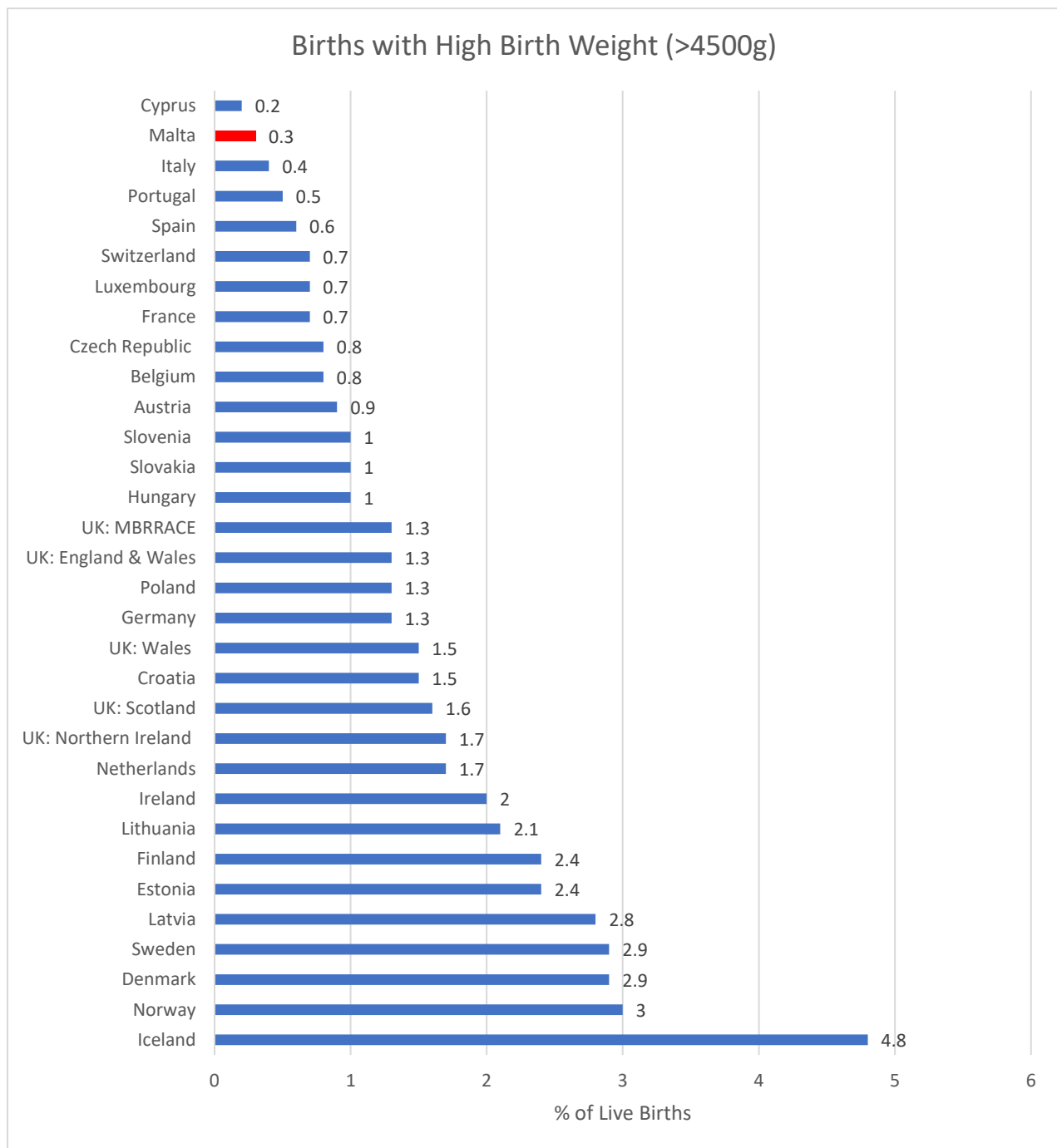
- Malta, a southern European country, had the second lowest rate of high birth weight infants (0.3%). Similar to other southern European countries Cyprus (0.2%) and Italy (0.4%)
- Malta's high birth weight rate showed a slight decrease when compared to the rate documented in 2015 (0.5%)



**Figure C4a Rate (%) of low birth weight births (<2500g)**



**Figure C4b – Rate (%) of high birth weight births (>4500g)**



## **C5 – Gestational Age at Delivery in Europe, 2015-2019**

### **(i) Pre-term Births**

Pre-term births are defined as infants born before 37 completed weeks of gestation. These infants are associated with increased risks of mortality and morbidity. Preterm birth is not only associated with increased health risks in childhood, but these risks extend into adulthood. These risks increase with decreased gestational age at birth.

Overall, the pre-term birth rates across Europe have tended to decrease when compared to 2015 data. The preterm birth rate (before 37 weeks of gestation) varied from lows of 5.3% in Finland and Lithuania to highs of 11.3% in Cyprus. The median rate was 6.9% (IQR 6.1%, 7.5%). [Figure C5a]

#### **Malta:**

- The preterm birth rate for live births in Malta was found to be 7.4%, falling within the interquartile range. This rate however showed an increase from the 2015 rate of 6.8%. Malta was found to have had the second greatest increase (0.6% increase) in preterm birth rate in Europe after Wales (0.7% increase).

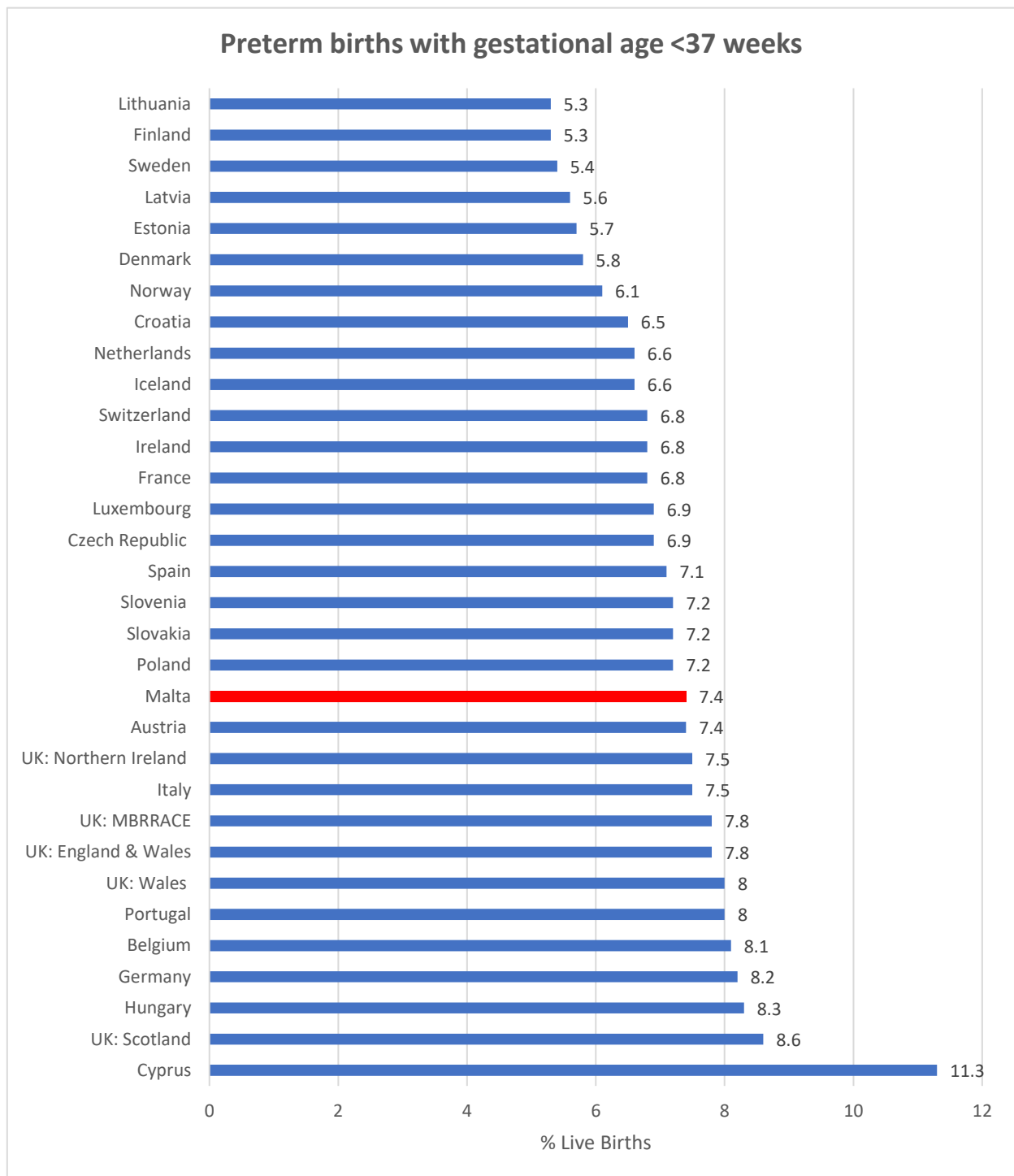
### **(ii) Post-term Births**

Post-term births are defined as infants born after 42 weeks of gestation. As with pre-term birth, post-term birth is not without its risks. Post-term births confer increased risks of perinatal death and morbidity. The lowest rates (0.1% or less) observed in Malta, Belgium, Cyprus, Portugal, Luxembourg, Hungary, and Lithuania, whereas Sweden (6%) and Norway (4.4%) were at the highest end of the spectrum. [Figure C5b]

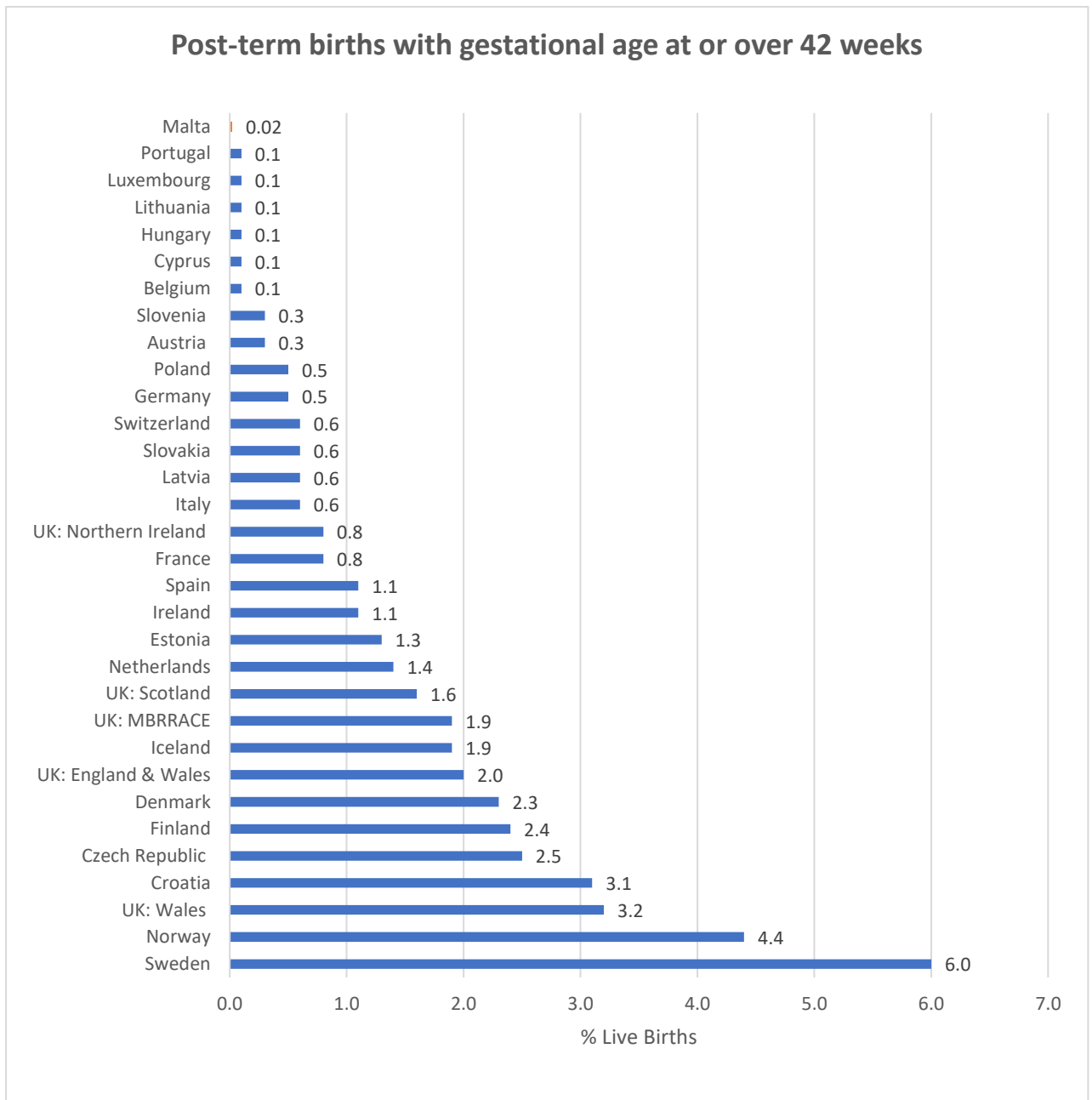
#### **Malta:**

- The post term birth rate (>42 weeks) for live births was one of the lowest recorded in 2019 at a rate of <0.1%.

**Figure C5a –Rate (%) of Preterm births with a gestational age <37 weeks**



**Figure C5b –Rate (%) of Preterm births with a gestational age at or over 42 weeks**



## **C7 – Multiple Births in Europe, 2015-2019**

Compared to singleton pregnancies, multiple pregnancies are associated with greater risk of complications to both the mother and the child. Infants in multiple pregnancies are at greater risk of preterm birth, low birth weight and congenital anomalies while mothers are at an increased risk for pre-eclampsia and diabetes. Delivery in women with multiple pregnancies is also more likely to be by caesarean delivery.

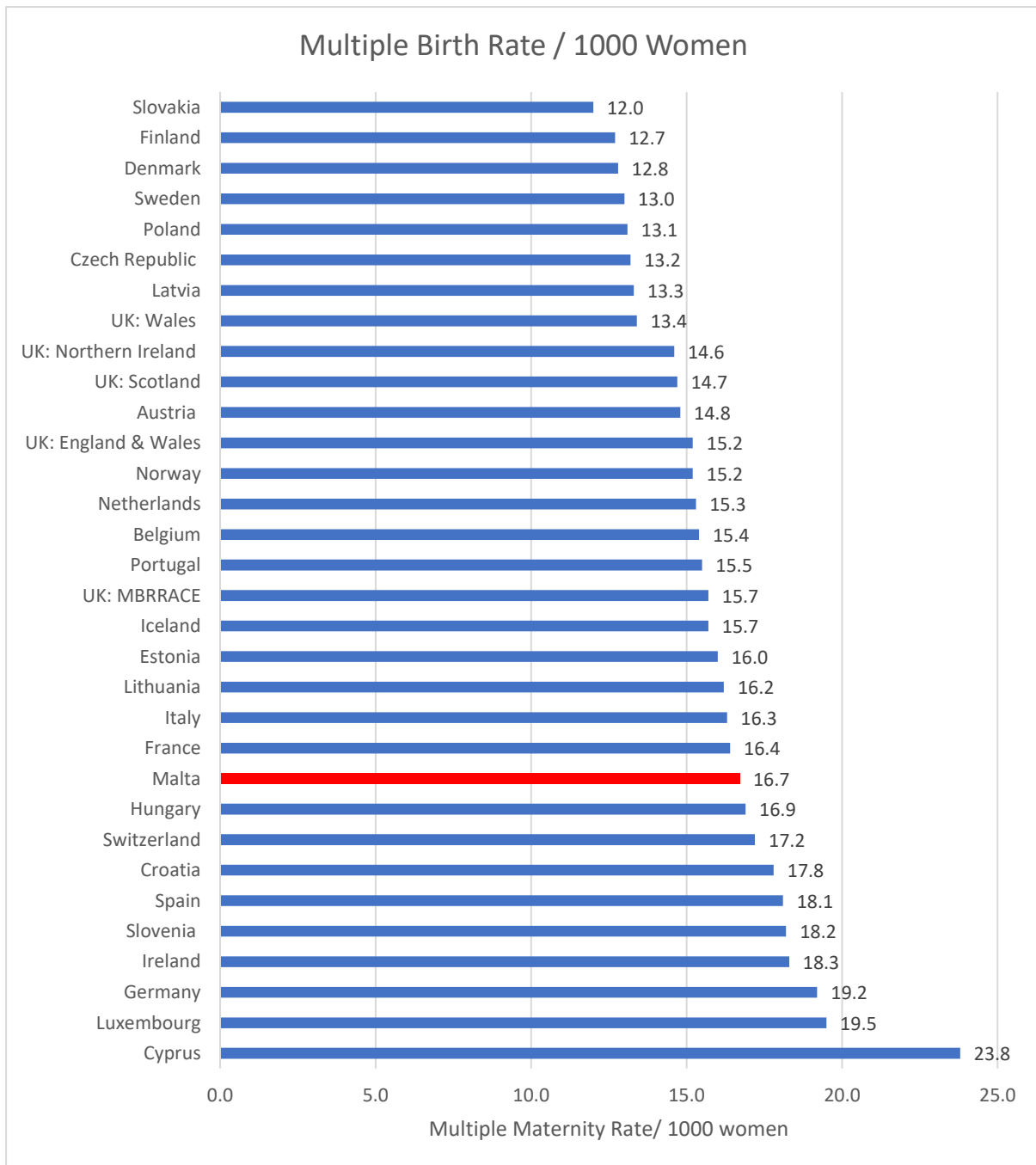
Rates of multiple births in Europe vary widely, namely due to differences in maternal age and policies regarding assisted reproductive technologies. In most European countries, twin birth rates decreased from 2015 to 2019. The lowest rate (12.0 per 1000 women giving birth) was seen in Slovakia whereas the highest rate (23.6 per 1000 women giving birth) was seen in Cyprus. The median twin rate was 15.6 per 1000 (IQR of 13.2 to 17.1). [Figure C7]

For triplets or higher order gestations which are far less common, the lowest rates (less than or equal to 0.1 per 1000) were observed in Iceland, Czech Republic, Latvia, Slovakia, Slovenia, Wales, Luxembourg, and Sweden, while the highest rates were observed in Malta (0.7 per 1000) followed by Ireland and Germany (0.4 per 1000).

### **Malta**

- The overall multiple birth rate in Malta was 16.7 per 1000 women, which was an increase over the rate in 2015 (15.3 per 1000 women).
- The rate for twin was 16.0 per 1000 women in 2019 (15.1 per 1000 women in 2015)
- The rate for triplets or higher order pregnancies was 0.7 per 1000 women in 2019 which was an increase on the 2015 rate (0.2 per 1000 women). However, when one is comparing these rates, one needs to exercise caution due to the very small number of triplet or higher order pregnancies in Malta per year.

**Figure C7 –Birth rate for all multiples per 1000 women**



## **C8 – Maternal Age at Delivery in Europe, 2015-2019**

Poor pregnancy outcomes are increased in women with both early (defined as being under 20 years of age) and late (defined as being 35 years of age or older) childbearing ages. Examples of poor pregnancy outcomes for both age groups include preterm birth and low birth weight. Risks of poor child health outcomes (such as birth defects and cerebral palsy) are also increased for both age groups.

Over the past several decades, Europe has seen an increase in the average maternal age. Except for Denmark, the percentage of mothers aged 35 years or more increased in all European countries when compared to rates published in the 2015 report. The percentage of older mothers (35 years of age or more) ranged from lows of 18.5%-19.5% in Poland, Lithuania, Wales and Slovakia to highs of over 39% in Spain and Ireland. [Figure C8a]

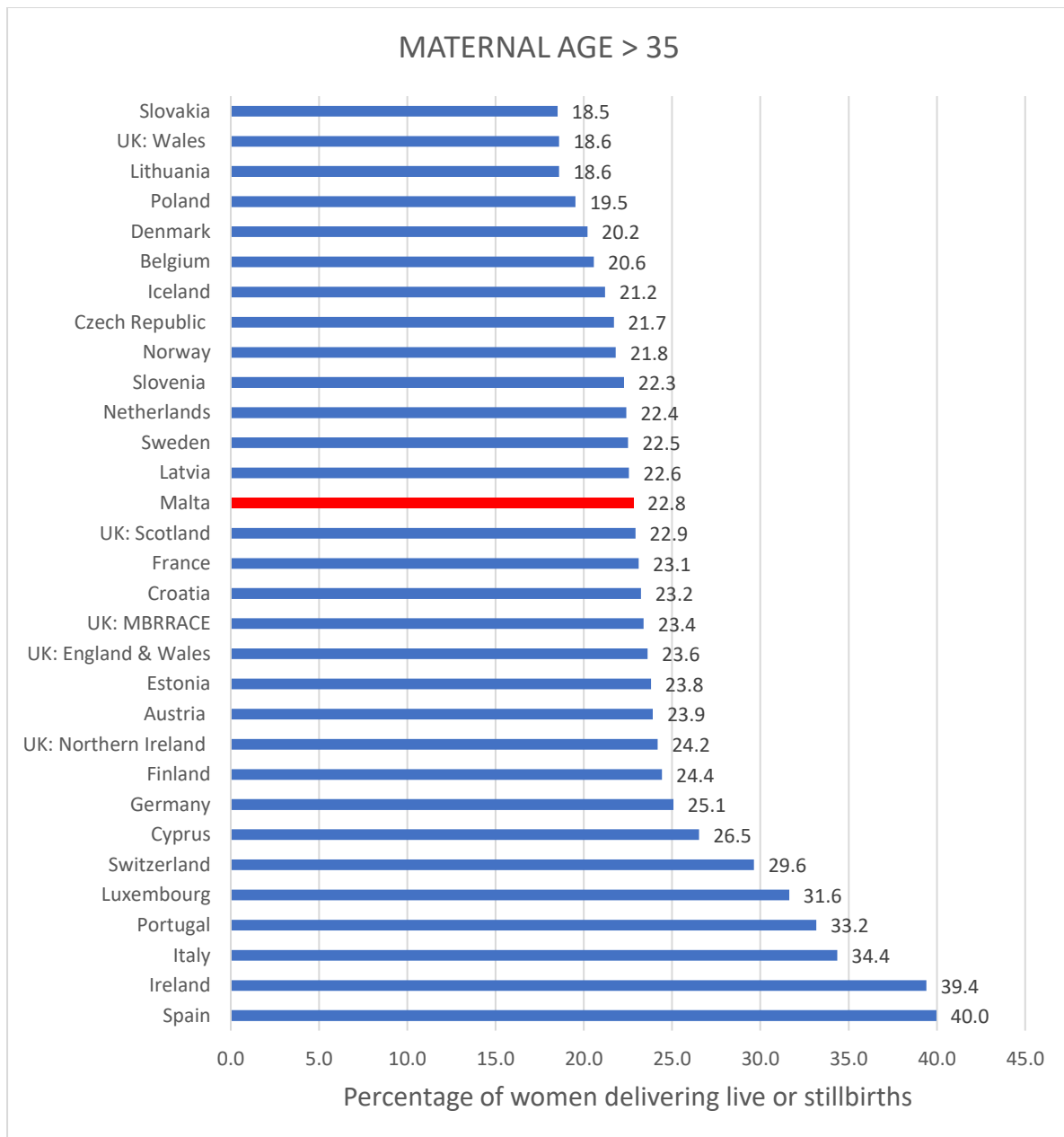
On the opposite end of the spectrum, fewer women gave birth at less than 20 years of age (median 1.7%, IQR 1.1%, 2.3%). The lowest rates of young mothers (0.7%) were found in Switzerland and Norway, while the highest rates (> 3.5%) were observed Slovakia, Wales and Malta. [Figure C8b]

### **Malta:**

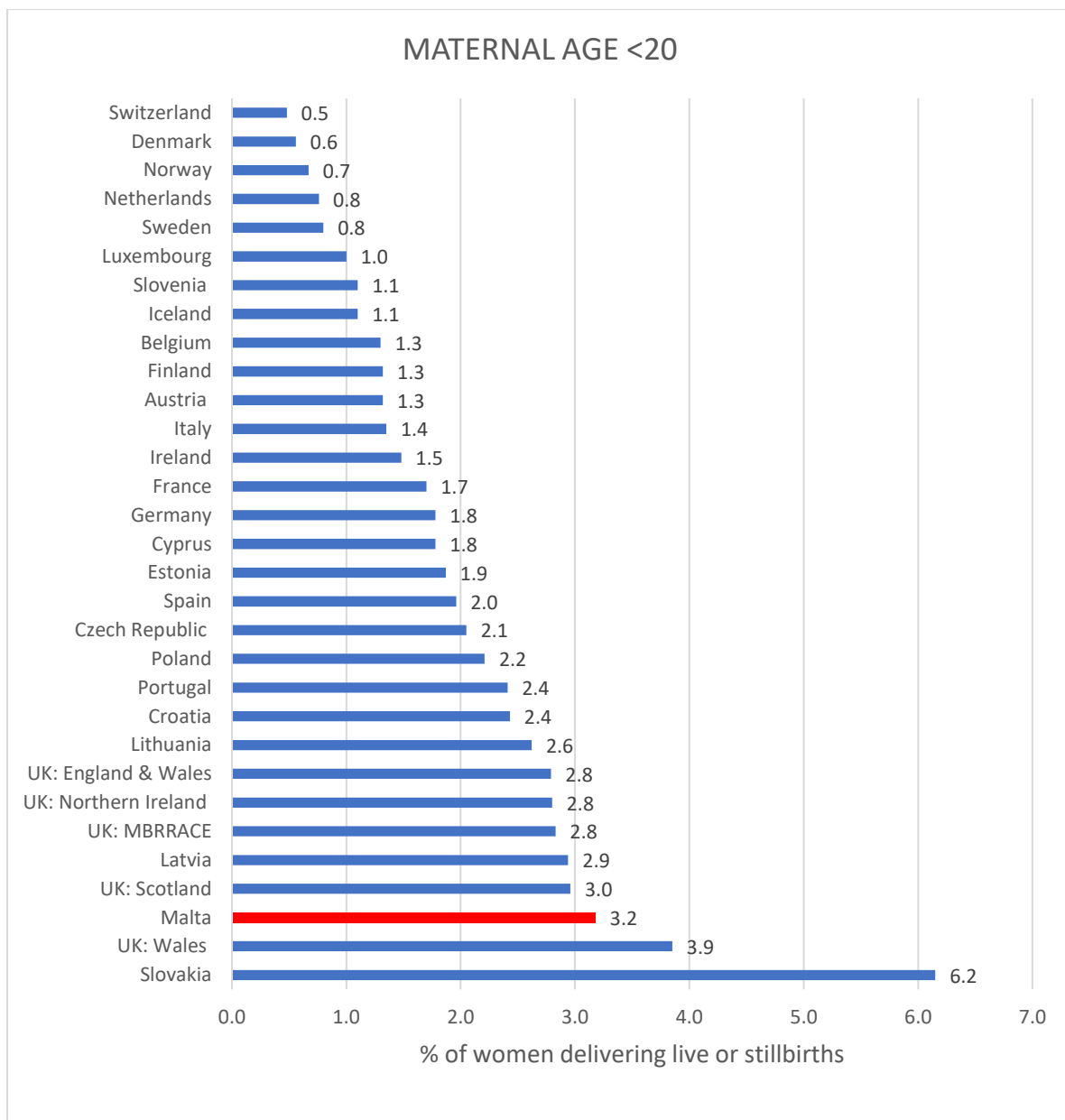
- The percentage of mothers over 35 years of age was found to be 22.8%. The trend of older women giving birth continued to increase when compared to both the rates in 2015 (19%) and 2010 (15%)
- The percentage of mothers under 20 years of age was found to be 3.2%, which was a slight increase on the rate in 2015 (3%).
- Increases in the rate of younger maternal ages(<20yrs) was only seen in Cyprus, Malta and Slovenia.



**Table C8a** - Percentage of women 35 years and over giving birth



**Figure C8b –Percentage of women under 20 years giving birth**



## **C9 – Maternal Parity in Europe, 2015-2019**

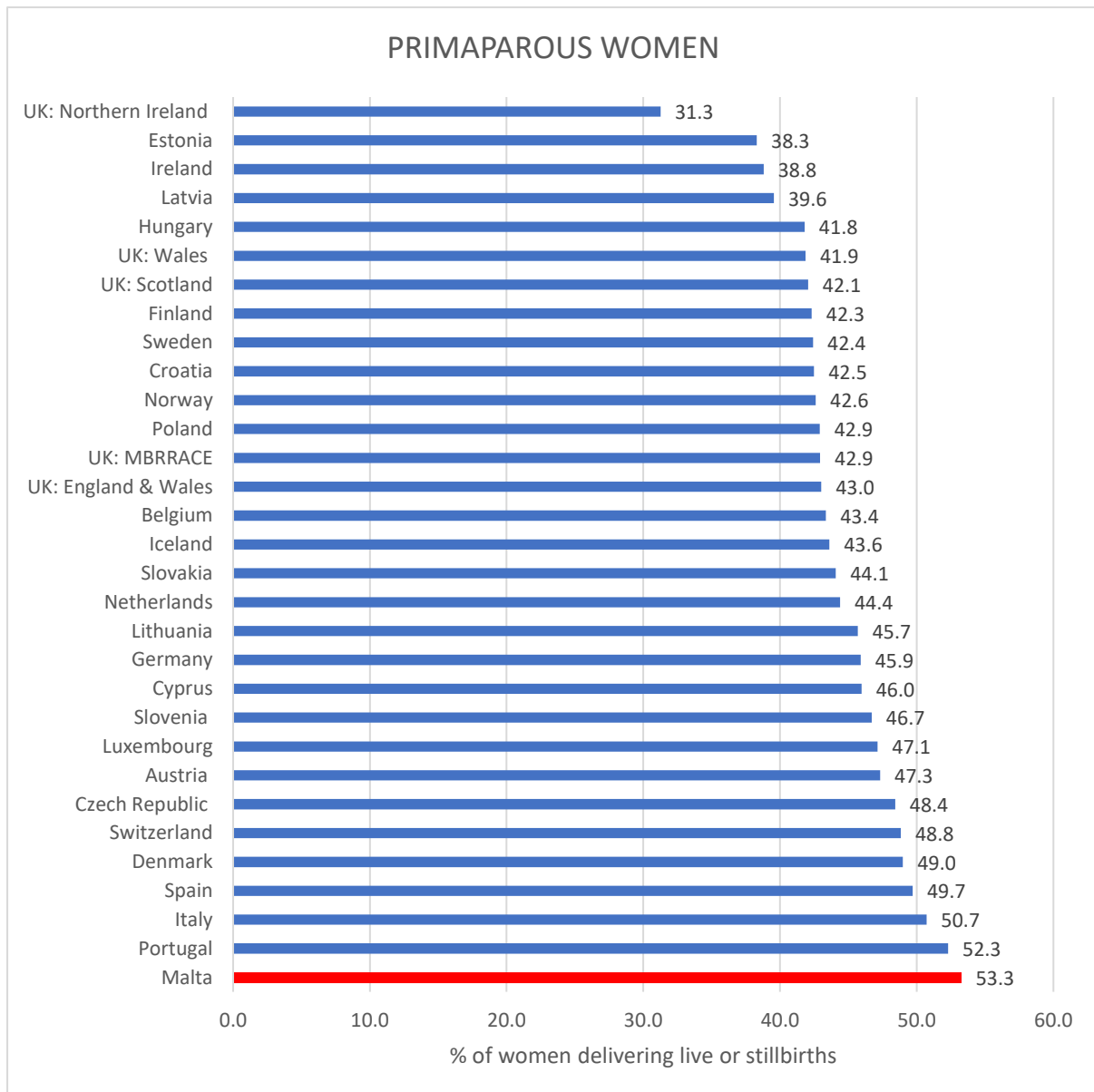
Parity is defined as the number of times that a woman has given birth to a fetus, regardless of whether the child was born alive or was stillborn. Women with no previous births and are giving birth for the first time are described as primiparous and women with one or more previous births are described as multiparous. Higher risks of certain adverse outcomes have been reported for primiparas and grand-multiparas (more than 4 or 5 previous births). Primiparous women tend to have increased risks of preterm birth, low birth weight, pregnancy complications such as pre-eclampsia or diabetes and perinatal death. Multiparity is also associated with increased utilisation of antenatal care.

In European countries, the percentage of primiparous women giving birth has generally been decreasing or remaining stable. The percentage of primiparous women in Europe ranged from 31.3% in Northern Ireland to 53.3% in Malta, with a median of 44.2% (interquartile range [IQR]: 42.4%, 48.4%). [Figure C9]

### **Malta:**

- Malta recorded the highest rate of primiparas in Europe in 2019 (53.3%). This was an increase from the previous rate of 50.7% in 2015.

**Figure C9 – Rate (%) of Primiparous women**



## **C10 – Mode of Delivery in Europe, 2015-2019**

Mode of Delivery can be broadly classified into Vaginal Delivery (VD), which may be spontaneous, instrumental or VD of unknown type, or Caesarean Delivery (CD). In the published report, mode of delivery was reported as a percentage of total births.

### **(i) Caesarean Delivery**

Caesarean delivery can be a lifesaving procedure in the presence of certain fetal or maternal complications. However, in the absence of fetal or maternal complications, vaginal delivery is associated with less maternal morbidity and is at least as safe as CD for the child.

Worldwide, CD rates have been increasing over the last few decades, however looking at the picture in Europe, the trends appear to be plateauing or decreasing. When looking at the data provided by the participating countries, CD rates tend to differ widely between countries. In general, CD rates tended to be lower in Northern European Countries when compared to Southern and Central ones. Rates varied from lows of 16.4% in Norway up to highs of 53.1% in Cyprus. [Figure C10] The median rate was 26%. Variations in obstetric intervention rates likely reflect differences in demographic and clinical characteristics among childbearing women, as well as differences in culture and healthcare policy and practice.

#### **Malta:**

- The rate of Caesarean delivery was found to be at 31.9%, which is at similar levels to the rate in 2015 (32%) and similar to the rate reported by Germany (31.8%).

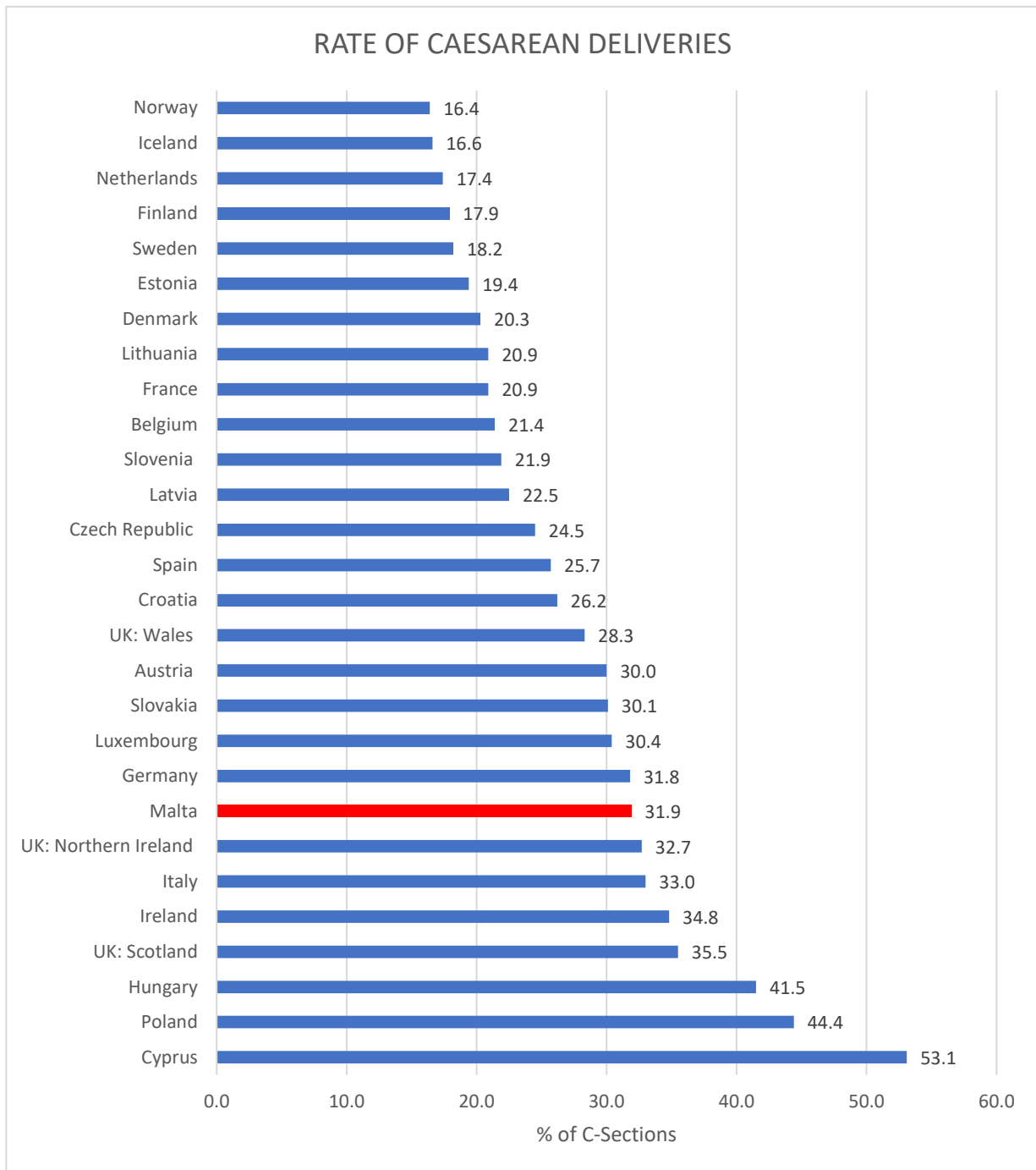
### **(ii) Instrumental Delivery**

Rates of Instrumental Delivery also vary widely amongst participating countries with rates varying from 1.4% in Croatia to 13.8% in Ireland, with a median instrumental VD rate of 6.1%.

#### **Malta:**

- The rate of Instrumental Delivery was found to be at 4.8%, which was up from the 2015 rate of 4.2%

**Figure C10 – Rate (%) of Caesarean Deliveries as a percentage of total births**



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