



World Birth Defects Day 2017 – Congenital Heart Defects

World Birth Defects Day (WBDD) was first marked on March 3rd 2015 and this year, March 3rd 2017, will mark the third WBDD. Organisations from around the world, including the Malta Congenital Anomalies Registry, are marking this day¹. The vision for WBDD is to raise awareness on birth defects and the message being disseminated this year is that Birth Defects impact millions of families and that a sustained focus is needed to support research, prevention, treatment and services. Further information can be found at: <http://www.icbdsr.org/> and <https://www.cdc.gov/features/birth-defects-day/>.



Birth defects, also known as congenital anomalies, affect millions of babies world wide occurring at around 1 in every 33 babies born. Some defects are more severe than others and it is estimated that, globally, 303,000 new-borns die within the first 4 weeks of life due to congenital anomalies.² Those babies who survive may suffer long term disability with significant impact on the individual, family, society and health care systems. While many birth defects have, as yet, no known cause or prevention, some can be prevented by taking appropriate measures before and during pregnancy. Preventive measures include adopting healthy lifestyles, achieving healthy weight, avoiding smoking and alcohol in pregnancy, vaccination and adequate intake of folic acid and other vitamins and minerals amongst others³. Continuing research is essential to further identify the causes of birth defects, for prevention programs and for improving the care and support of those individuals affected and their families.

CONGENITAL HEART DEFECTS (CHDs)

Congenital heart defects are the commonest form of birth defect and are structural problems arising from the abnormal formation of the heart or major blood vessels. CHDs range in severity from minor defects, some of which resolve spontaneously, to very severe defects requiring urgent surgery and which sometimes even lead to death. CHDs can occur as isolated defects or in association with other defects as part of a genetic or chromosomal syndrome. They are quoted to occur at a rate of 76 per 10,000 births or 1 in every 130 births in Europe including Malta.⁴ They have a significant impact on

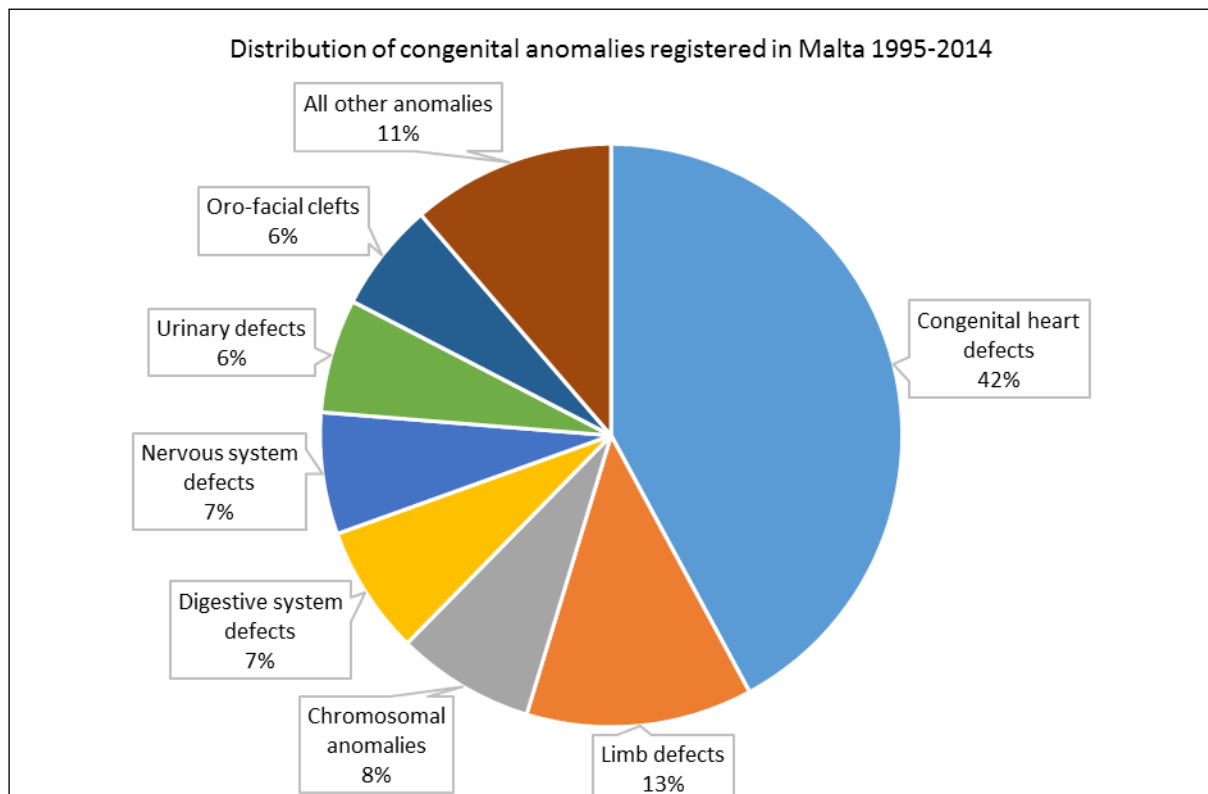
the individual's life, their family, health care requirements and costs throughout infancy, childhood and adult life. In spite of improved medical management and surgery, CHDs remain associated with significant perinatal and infant mortality.⁵

Numerous risk factors are known to contribute to congenital heart defects; these include maternal smoking and maternal alcohol intake in pregnancy. Obesity and gestational diabetes in the mother are also implicated as a risk factor for congenital heart disease. Maternal folate deficiency is a well accepted risk factor for a number of congenital defects, including congenital heart defects, with recent research suggesting that taking the vitamin folic acid in early pregnancy can help decrease the occurrence of congenital heart defects.⁶

Congenital Heart Defects in Malta

The Malta Congenital Anomalies Register within the Directorate for Health Information and Research collects information on all babies born on the Maltese Islands and diagnosed with congenital anomalies until one year of age. Over the 20 year period 1995-2014 there were a total of 1307 babies registered with some form of Congenital Heart Defect in Malta. These defects accounted for slightly more than 40% of all registered defects (Fig.1).

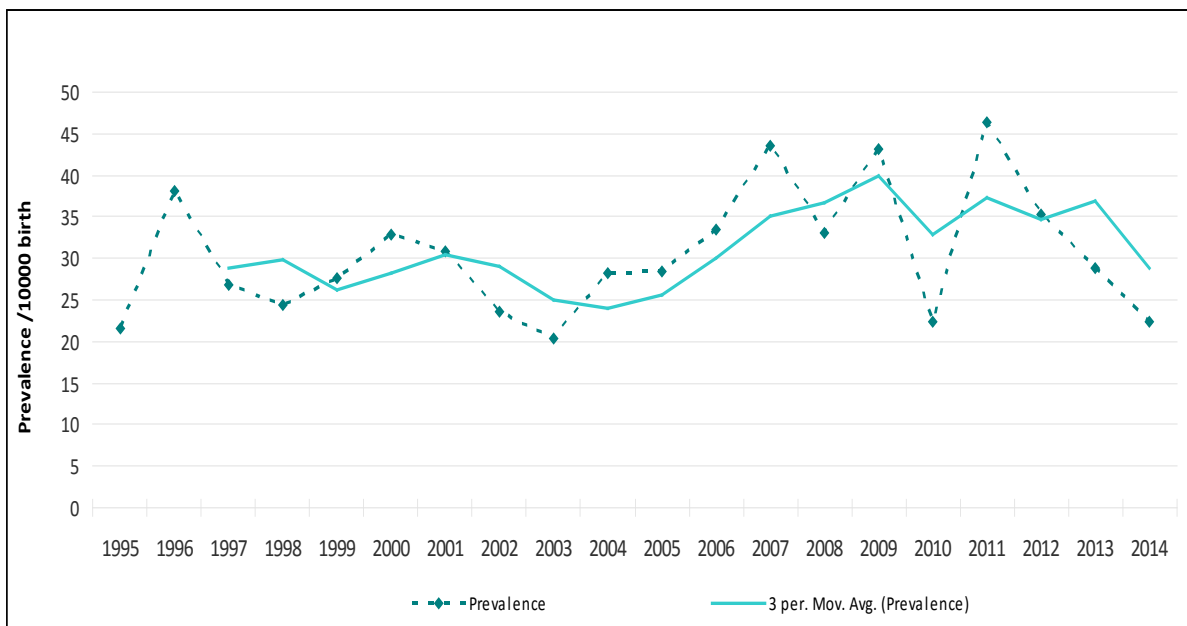
Figure 1 - Total prevalence rates of NTDS in Malta 1994-2014



Severe Congenital Heart Defects

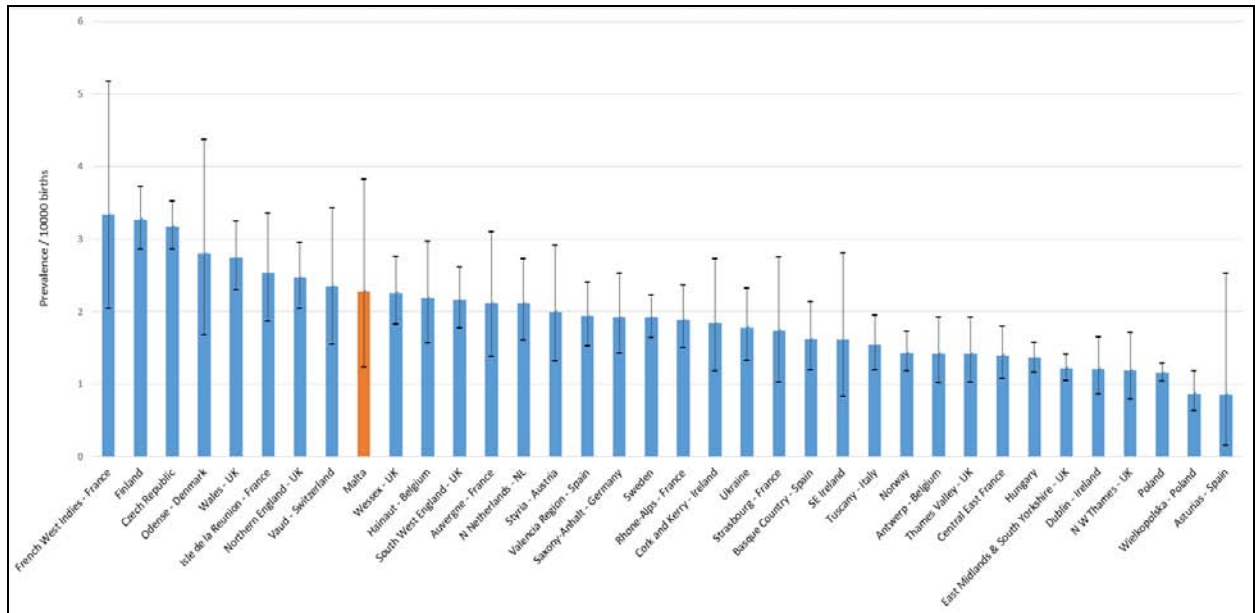
Severe Congenital Heart Defects as defined by the European Surveillance of Congenital Anomalies (EUROCAT)⁴ are cardiac defects which do not include atrial and ventricular septal defects and mild pulmonary stenosis. In Malta, of the total of 1307 babies registered with CHD, 258 were classified as having a severe CHD. The overall population prevalence rate of severe CHDs (including livebirths and stillbirths) between 1995-2014 has been 30.6/10,000 births and has shown no statistically significant change over the time period.

Fig. 2 – Prevalence of Severe Congenital Heart Defects in Malta between 1995-2014



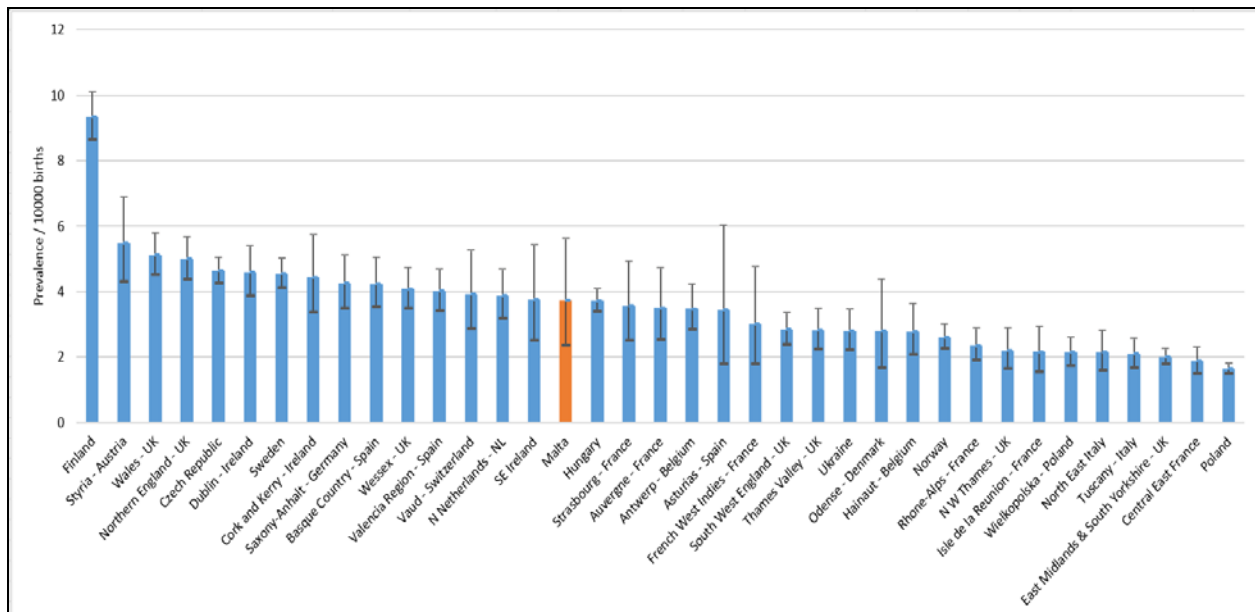
The reported total prevalence of congenital heart conditions in various European Registries varies and this variation may, in part, be due to better ascertainment in certain Registries. Figs. 3 - 6 show the reported total prevalence (including livebirths, still births and terminations of pregnancy for fetal anomaly) and 95% confidence intervals of four major congenital heart defects from European Registries.⁴ The reported rates include those defects that do not form part of a genetic or chromosomal syndrome ie they include only non-syndromic congenital heart conditions.

Fig.3 Prevalence of non-syndromic Atrioventricular Septal Defect reported by European Registers 2010-14*



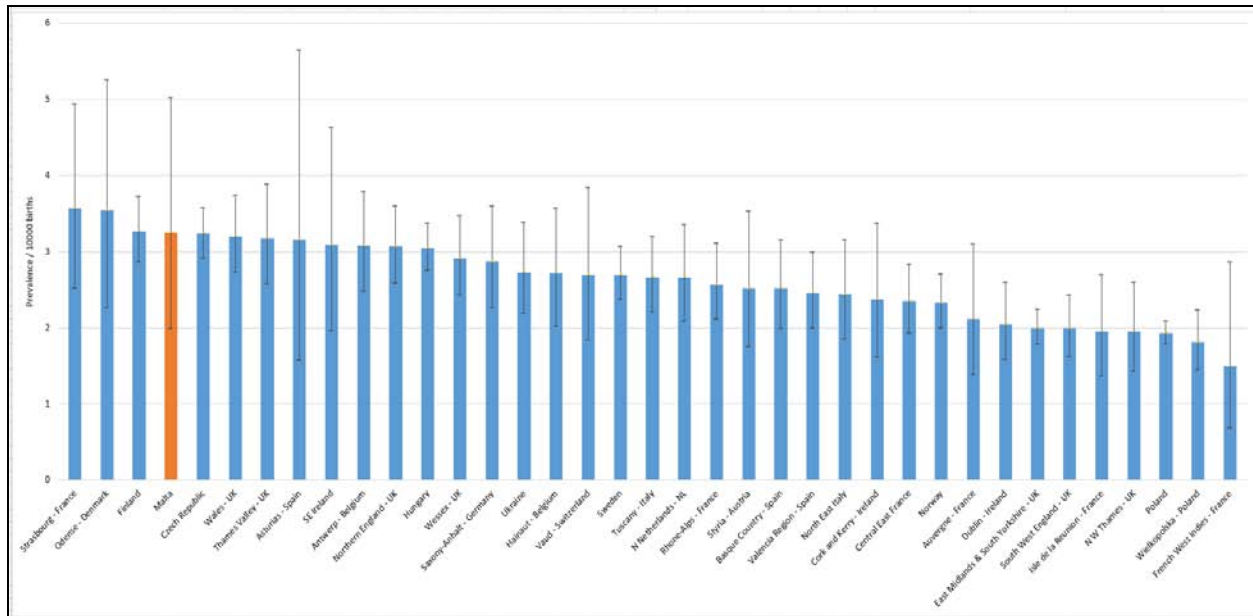
Total number of cases registered in Malta 2010-2014: 53

Fig.4 Prevalence of non-syndromic Coarctation of the Aorta reported by European Registries 2010-14*



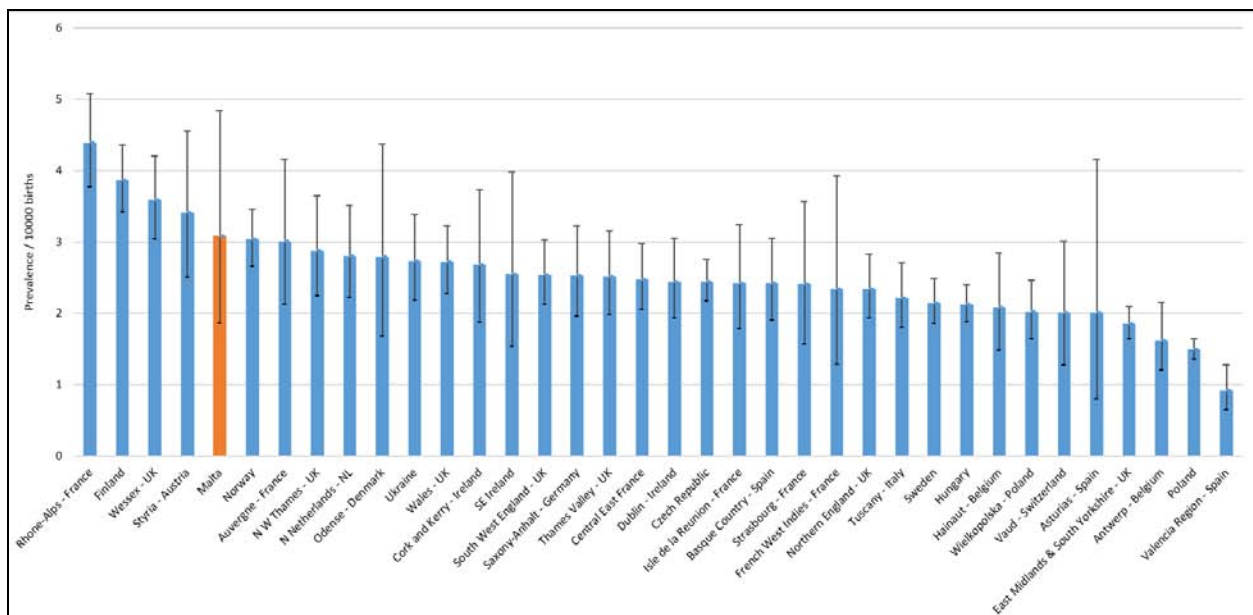
Total number of cases of non-syndromic coarctation of aorta registered in Malta 2010-2014: 43

Fig.5– Prevalence of non-syndromic Tetralogy of Fallot reported by European Registries 2010-14*



Total number of cases of non-syndromic Tetralogy of Fallot registered in Malta 2010-2014: 37

Fig.6–Prevalence of non-syndromic Hypoplastic Left Heart reported by European Registers 2010-14*



Total number of cases registered in Malta 2010-2014: 26

*Source: Taken from EUROCAT which presents both the definition of the cases and reported prevalences. Only Registers that follow up cases until at least one year of age have been presented. (EUROCAT)

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References

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- ⁶ van Beynum, I. M., Kapusta, L., Bakker, M. K., den Heijer, M., Blom, H. J., & de Walle, H. E. (2010). Protective effect of periconceptional folic acid supplements on the risk of congenital heart defects: a registry-based case–control study in the northern Netherlands. *European heart journal*, 31(4), 464-471.