



World Birth Defects Day 2016 – Neural Tube Defects

World Birth Defects Day (WBDD) was conceived on March 3rd 2015 and this year, March 3rd 2016, will mark the second WBDD. Over 40 organisations globally, including the Malta Congenital Anomalies Registry, will be marking this day (Appendix 1)¹. WBDD aims to increase the awareness of birth defects and spurs countries' commitment to improve knowledge, prevention and management of these conditions.

Birth defects, also known as congenital anomalies, occur at a rate of 3% of all births or 1 in every 33 babies born. Some are comparatively minor but others are major and are associated with high mortality and morbidity and they are considered important causes of perinatal and infant mortality in developed countries². Those babies who survive may suffer a lifetime of disability and will require good healthcare and social services to improve their quality of life and allow them to participate in society. Worldwide, all populations are affected by birth defects, and while several have no known cause or prevention, other conditions can be prevented by taking appropriate measures before and during pregnancy³. There is an increasing need to advocate for policy and resource support for research aimed at finding the causes of birth defects, for prevention programs and for improving the care of those affected.



A major group of very severe birth defects that have scientifically been shown to be avoidable are Neural Tube Defects (NTDs). The prevention of avoidable birth defects, such as NTDs, is an area where public health initiatives and interventions can be effective and are true opportunities for the primary prevention of these conditions.

NEURAL TUBE DEFECTS (NTDs)

Neural Tube Defects, namely spina bifida and anencephaly, are severe birth defects resulting from inappropriate development of the neurological system within the first few weeks of embryonic development. They occur at a total rate of 1 in 1000 births in Europe including Malta; however, in certain countries that have implemented comprehensive preventive public health measures, this rate has been significantly decreased^{4,5,6}.

NTDs are associated with major medical problems, anencephaly invariably leads to death while spina bifida is associated with major life-long complications including musculoskeletal impairment, inability to walk, urinary and bowel incontinence⁷.

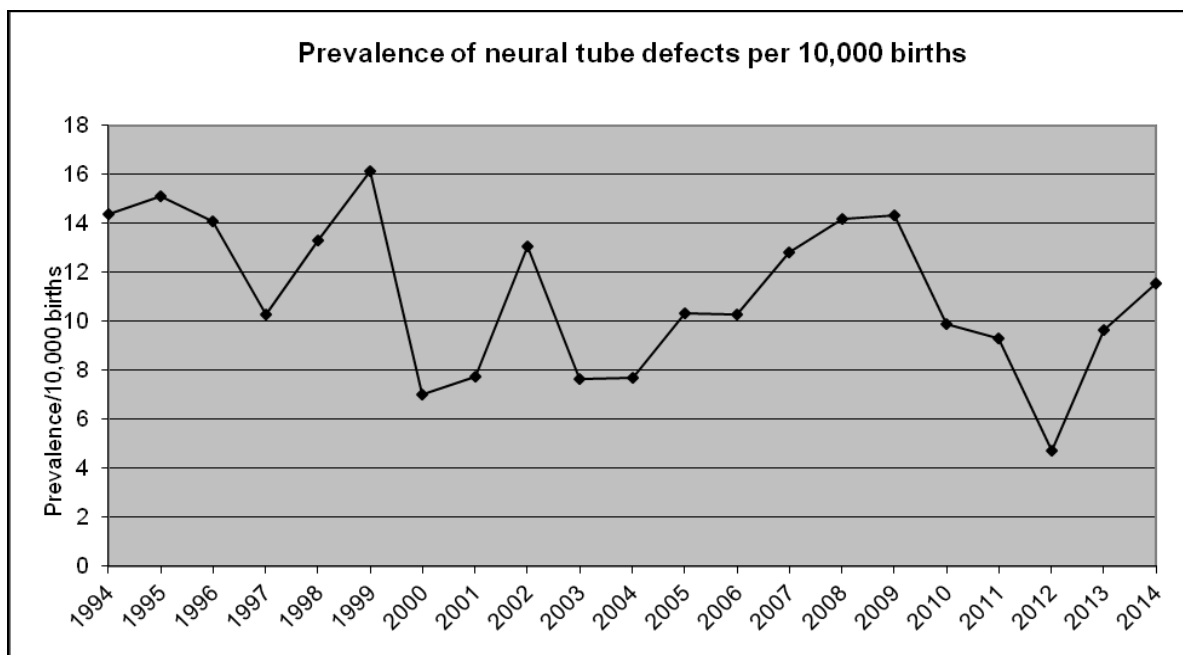
In the early 1990s scientific studies showed that mothers taking folic acid (the synthetic form of the vitamin folate) **before** and during the first few months of pregnancy decreased their risks of having a child with NTD by 50-70%⁸. This has spurred many countries to issue recommendations and implement health promotion campaigns for women planning pregnancy and women of childbearing age to take daily folic acid supplementation⁹. In spite of these recommendations, many women still did not take the advised supplementation as required to avoid NTDs¹⁰.

In light of this evidence several countries have now introduced mandatory fortification of basic grain products, namely wheat flour or rice, with folic acid¹¹. These countries have documented significant decreases and prevention of NTDs with no confirmed adverse effects to the population^{12,13}. Furthermore countries that have introduced food fortification with folic acid have documented major and significant cost-benefits¹⁴. Unfortunately, food fortification with folic acid has not yet been implemented in Europe¹⁵ although Scotland is currently seriously considering flour fortification¹⁶.

NTDs in Malta

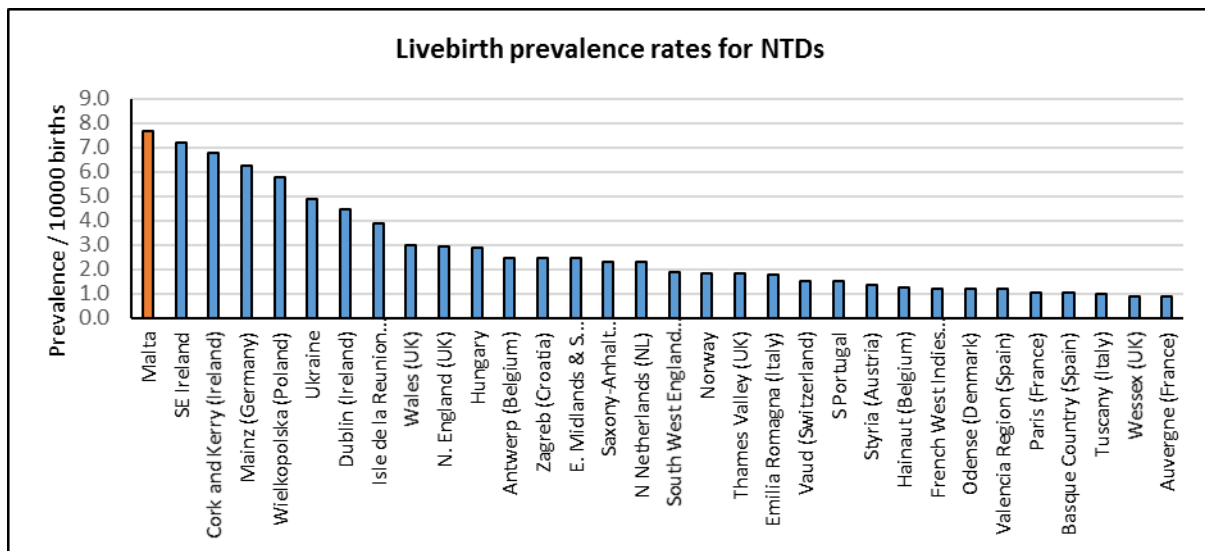
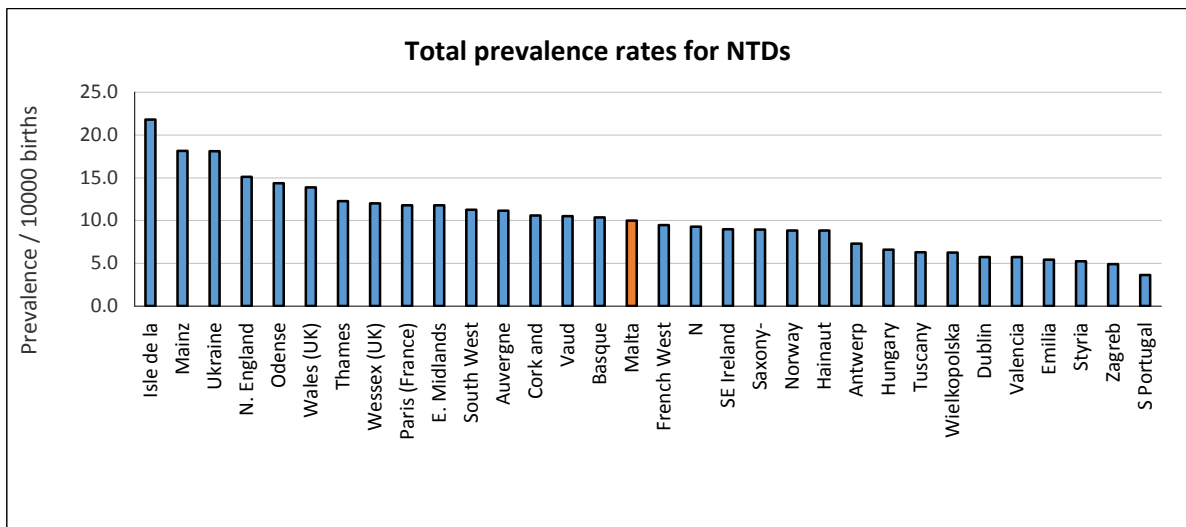
In Malta, over the past 20 years, the total prevalence rate of NTDs (including livebirths and stillbirths) has been 11/10,000 births and has shown no significant decrease (Fig. 1).

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



The **total** prevalence rate of NTDs (i.e. including all cases-live births, stillbirths and terminations of pregnancy) reported for European countries (2008-2012) is similar to that reported by Malta. However, the live birth rate reported by Malta in the same period is the highest reported in Europe as termination of pregnancy is illegal (Fig. 2). This constitutes a comparatively more significant public health concern for Malta and increases the need for the country to consider implementation of proven, effective public health prevention initiatives such as food fortification with folic acid.

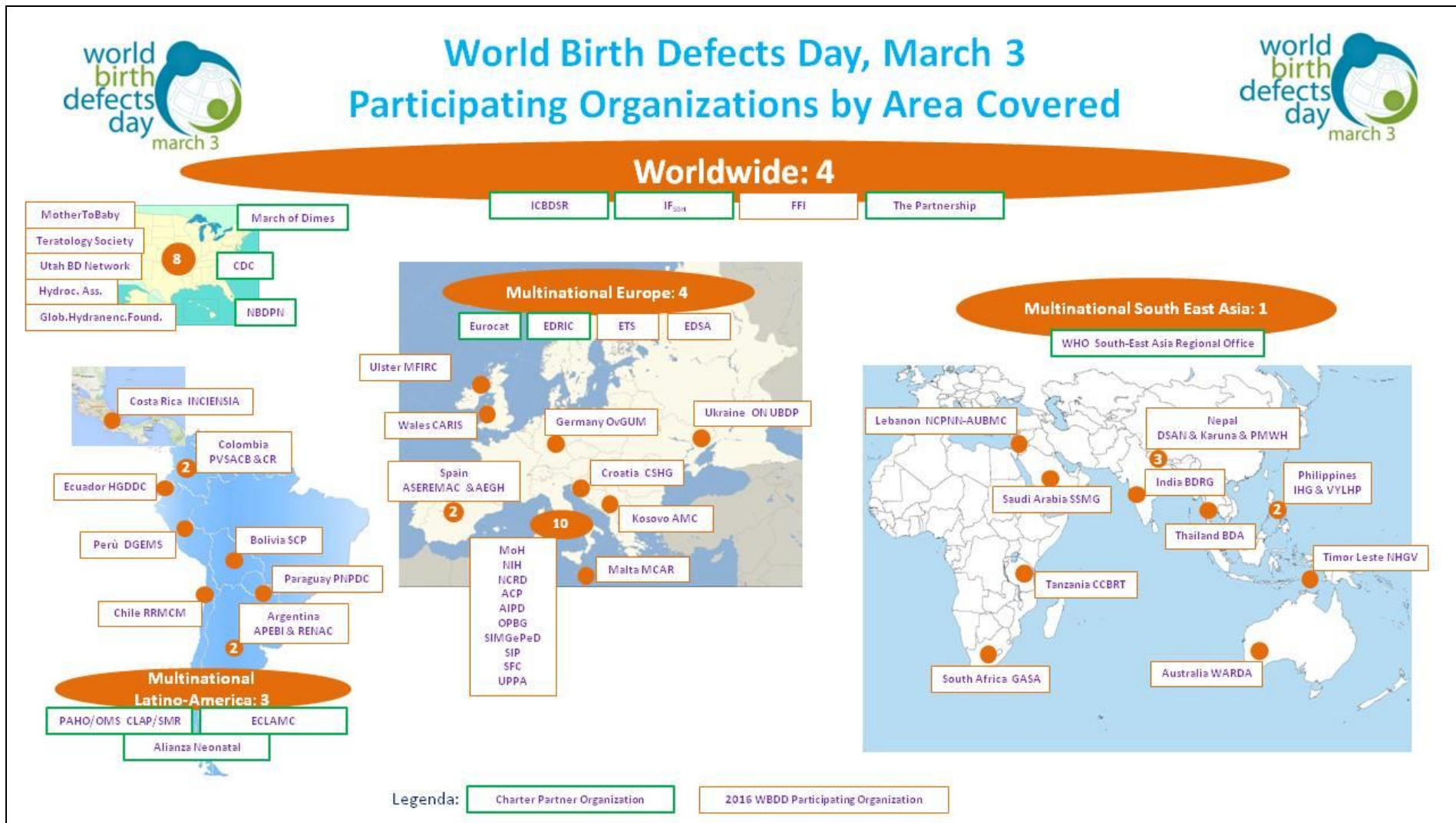
Figure 2 – Total and livebirth prevalence rates of NTD in Malta and European countries 2008-2012



Source: EUROCAT data for Full Registries (<http://www.eurocat-network.eu/>)

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Appendix 1 – World Birth Defects Day, 2016 – Participating organisations



References

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