



## Neural tube defects in Queensland 2007-2008

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Neural tube defects (NTD) are a significant public health concern in Australia and are typically associated with high rates of mortality and morbidity<sup>1</sup>. Most NTD are diagnosed early in pregnancy and many women opt for a termination of pregnancy. The fetal death rate is high in pregnancies affected by NTD and, while some fetuses survive, these individuals may experience significant lifetime morbidity and disability.

Three forms of NTD are described in this report using data from the Queensland Hospital Admitted Patient Data Collection (2007/2008) and the Queensland Perinatal Data Collection (2007): anencephaly, which is the absence of major parts of the brain, skull and scalp; encephalocele, which is a protrusion of brain tissue and/or covering membranes through a defect in the skull; and spina bifida, in which the vertebrae that cover the spinal cord have one or more openings in the middle, allowing exposure and or protrusion of nervous tissue and coverings.

There were 70 fetuses affected by NTD in Queensland during 2007/2008, yielding an incidence rate of 9.4 cases per 10,000 fetuses (Figure 1). Spina bifida was the most common of the NTD evaluated, with an incidence rate of 4.4 cases per 10,000 fetuses, followed by anencephaly (4.0 per 10,000) and encephalocele (0.9 per 10,000). In total, 36 fetuses with a NTD were terminated prior to twenty weeks gestation (Figure 2: 51.4%), although this was much higher for anencephaly (83.3%) than for the other NTD (42.9% for encephalocele and 24.2% for spina bifida).

The live birth rate was 2.0 per 10,000 births<sup>2</sup> for all NTD (Figure 1) and was higher for spina bifida (1.7 per 10,000 births<sup>2</sup>) than for encephalocele (0.3 per 10,000 births<sup>2</sup>) or anencephaly (0.0 per 10,000 births<sup>2</sup>). Fetal death rates were generally higher than the live birth rates for all categories of NTD, being 3.7 per 10,000 births<sup>2</sup> for all NTD, 2.5 per 10,000 births<sup>2</sup> for spina bifida, 0.8 per 10,000 births<sup>2</sup> for anencephaly and 0.3 per 10,000 births<sup>2</sup> for encephalocele. The relatively low fetal death rates most likely reflect the high rate of early termination for these conditions.

These data show that, in Queensland during 2007-2008, the outcomes for NTD were generally quite poor. Once early TOP were taken into account, only one-third of the remaining babies were born alive. This represents less than 1 in 5 of all fetuses affected by a NTD.

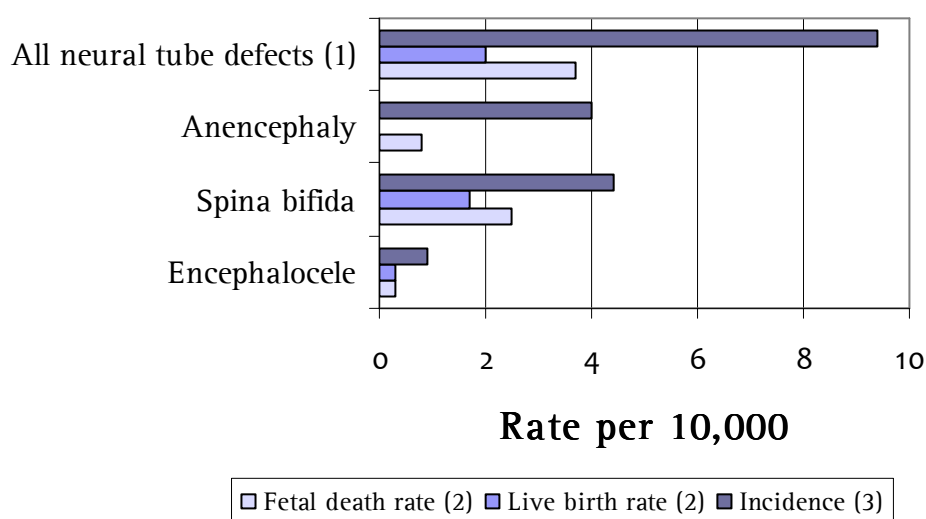
### **Related publications:**

*StatBite #18 Maternal Characteristics in pregnancies affected by Neural Tube Defects (NTD) in Queensland 2007-2008*

<sup>1</sup> Abeywardana S & Sullivan EA 2008. Neural tube defects in Australia. An epidemiological report. Cat. No. PER 45: AIHW National Perinatal Statistics Unit.

<sup>2</sup> The rate denominator – Births – includes all live births plus fetal deaths (>20 wks gestation or 400g birth weight)

**Figure 1: Incidence rates, live birth rates and fetal death rates for neural tube defects in Queensland (2007-2008)**

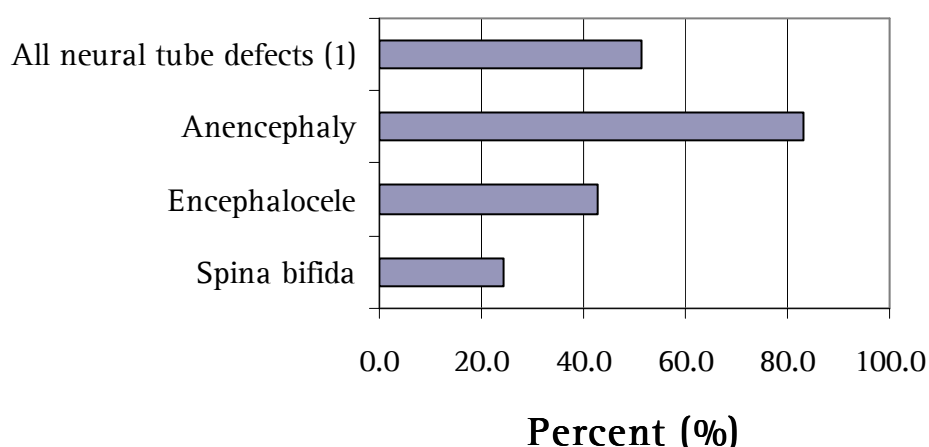


- (1) All neural tube defects represents the aggregate of anencephaly, spina bifida and encephalocele  
 (2) The rate is per 10,000 live births and fetal deaths (>20 wks gestation or 400g birth wgt)  
 (3) The rate is per 10,000 live births and fetal deaths (>20 wks gestation or 400g birth wgt) and terminations of pregnancy (TOP: <20 wks gestation)

Sources: Queensland Admitted Patient Data Collection, Queensland Health – TOP prior to 20 weeks gestation (extracted June 2009)

Queensland Perinatal Data Collection, Queensland Health – Live births and deaths in fetuses (including TOP) of at least 20 weeks gestation or 400 grams birth weight (extracted June 2009)

**Figure 2: Proportion of pregnancies terminated for neural tube defects in Queensland (2007/2008)**



- (1) All neural tube defects represents the aggregate of anencephaly, spina bifida and encephalocele

Source: Queensland Admitted Patient Data Collection, Queensland Health – TOP prior to 20 weeks gestation (extracted June 2009)