Central Nervous System Birth Defects

What are Central Nervous System (CNS) Defects?
The central nervous system includes both the brain and spinal cord. Incorrect formation of the central nervous system during pregnancy can result in several types of defects. Central nervous system defects include spina bifida (abnormal formation of the spine), anencephaly (brain tissue fails to develop), hydrocephalus (water on the brain), or microcephalus (reduced head size).

What causes CNS defects and how can the risk of CNS defects be reduced?
Central nervous system defects are caused by a combination of genetic and environmental factors. To reduce the risk of CNS defects, the following are recommended for pregnant women and women of childbearing age (18-45 years old):

- Take a multivitamin supplement with folic acid both **before** and **during** pregnancy. Folic acid can prevent up to 70% of neural tube defects.
- Take steps to reduce obesity before becoming pregnant and control maternal diabetes during pregnancy.
- Consult with your doctor if you currently take medications for epilepsy, because certain medications may increase the risk of birth defects.
- Avoid exposure to toxic chemicals before and during pregnancy.

How severe are CNS defects?
The severity of neural tube defects depends on the size and location of the defect—ranging from no physical handicap to severe lifelong disability or death. CNS defects are associated with health problems including learning disabilities, paralysis, bone and joint abnormalities, and bowel and urinary problems.

What can be done to detect or treat CNS defects?
Neural tube defects can often be detected during pregnancy by tests such as the quadruple blood screen between 15 and 20 weeks, amniocentesis, and ultrasound. Some defects can be treated by surgical closure.

How does Washtenaw County compare to Michigan?
Central nervous system defects make up 4.1% of all birth defects in Washtenaw County, with an overall rate of 3.7 per 1,000 live births from 1992-2003. This is slightly higher than the Michigan rate of 3.1 per 1,000 live births. In Washtenaw County, the rate of CNS defects is increased in infants born to women under 25 years old compared to women over 25 years old, and in infants born to black women compared to white women. Overall rate trends in Michigan and Washtenaw County from 1992-2003 are shown in the figure below.