# **Supplemental Information**

Table S1. Clinical Description of Neural Tube Defect (NTD) Types

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NTD Types and Embryonic Origin** | **Description** | **Subtypes** | **Open and Closed Status** | **Figure 2** |
| Anencephaly –  Failure of closure of the anterior neural tube | Absence of a major portion of the brain, neurocranium, and scalp | Holoanencephaly – anencephaly in which the lesion extends through the foramen magnum  Meroanencephaly – anencephaly in which the lesion ends anterior to the foramen magnum | Open | Infants A, B |
| Spina bifida –  Failure of closure of the posterior neural tube | Absence of the bony spine and covering skin with various degrees of exposure of the neural tissue of the spinal cord | Meningomyelocele – herniation of spinal cord tissue into a sac composed of meninges and cerebrospinal fluid  Meningocele – herniation of meninges and cerebrospinal fluid without herniation of spinal cord tissue  Rachischisis – cleft-like spinal lesion with neural tissue open to the surface without meningeal covering | Primarily open although some lesions of lower spina are closed and often have lipomatous components | Infants F – I |
| Craniorachischisis –  Failure of closure of the anterior and posterior neural tube | Anencephaly with contiguous rachischisis extending caudally to variable levels of the spine including complete dysraphism into the lumbosacral region | Craniorachischisis occurs with and without spinal retroflexion. | Open | Infant D |
| Encephalocele –  Abnormal closure of the anterior neural tube | Sac-like protrusions of the meninges and brain tissue through persistent openings in the cranium (encephalocele); containing cerebrospinal fluid only (cranial meningocele) | Encephalocele and cranial meningocele are both cephaloceles; however, without neuroimaging these two defects are usually included as encephaloceles. Can occur anywhere on the head but most often in the midline. | Closed | Infant C |
| Iniencephaly –  Abnormal closure of the anterior neural tube | Complex defect of the posterior brain and spine characterized by a closed cranium that is markedly retroflexed | Iniencephaly can be accompanied by an encephalocele or spina bifida. | Closed | Infant E |

Table S2 Open vs. closed neural tube defect (NTD) by NTD type in north and south China, 1993-1996.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Neurulation status** | **Region** | **Count by NTD type** | | | | | |
| **Anencephaly** | **Craniorachischisis** | **Iniencephaly** | **Spina bifida** | **Encephalocele** | **Total** |
| Closed NTDs | North | 0 | 0 | 8 | 34 | 32 | 74 |
| South | 0 | 0 | 7 | 28 | 70 | 105 |
| North + South | 0 | 0 | 15 | 62 | 102 | 179 |
| Open NTDs | North | 49 | 58 | 0 | 114 | 0 | 221 |
| South | 155 | 48 | 0 | 97 | 0 | 300 |
| North + South | 204 | 106 | 0 | 211 | 0 | 521 |