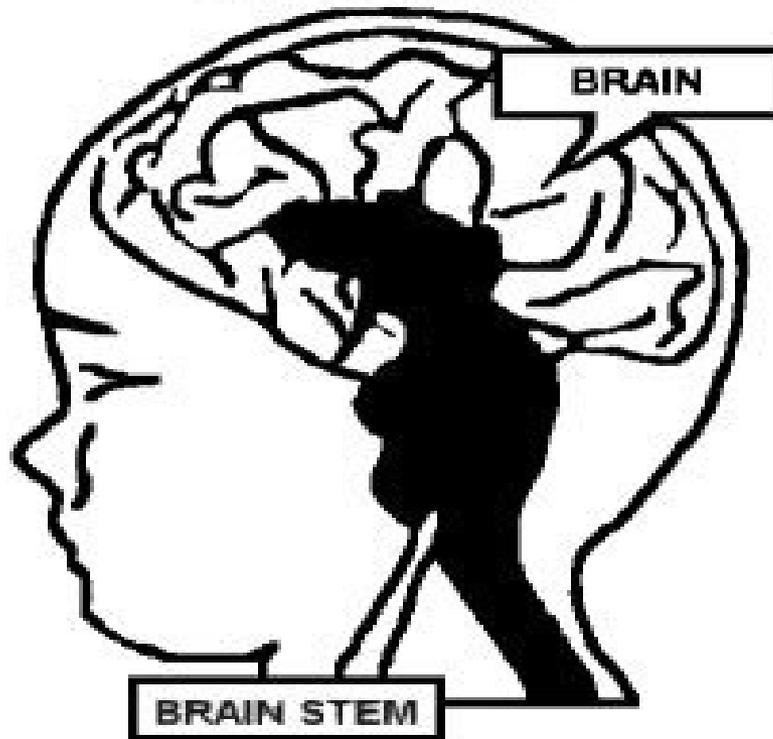


Neurological System

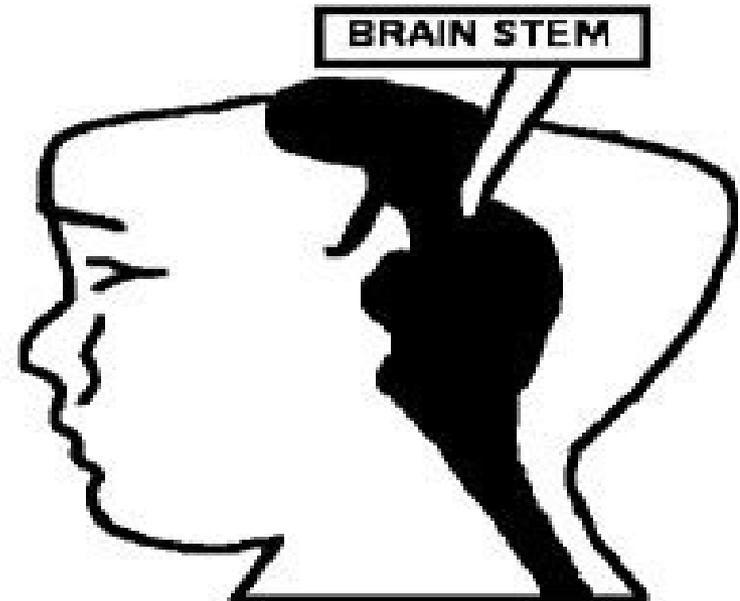
Pediatrics - Newborn

Anencephaly- NTD

NORMAL INFANT



ANENCEPHALIC INFANT



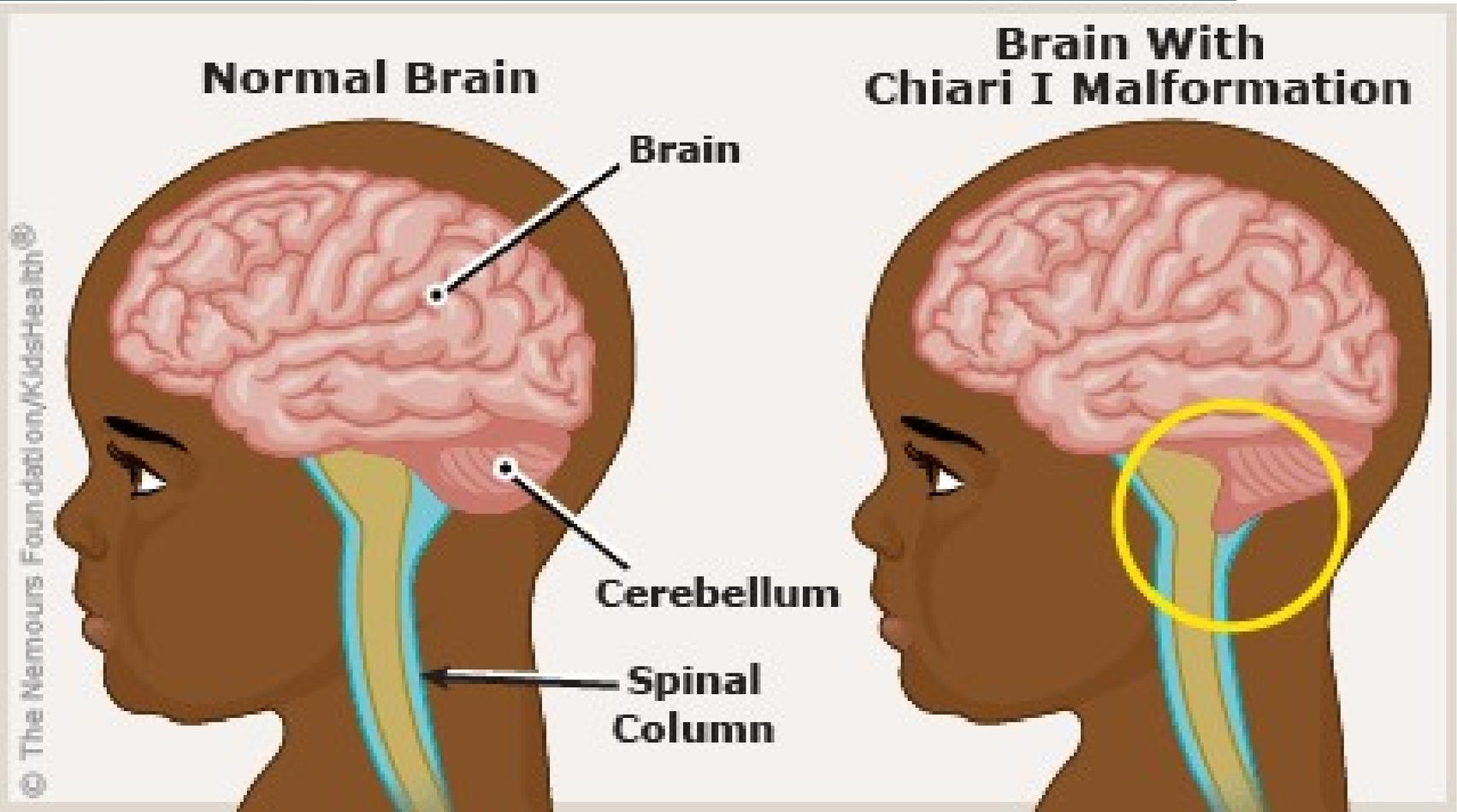
Anencephaly-



Encephalocele- NTD

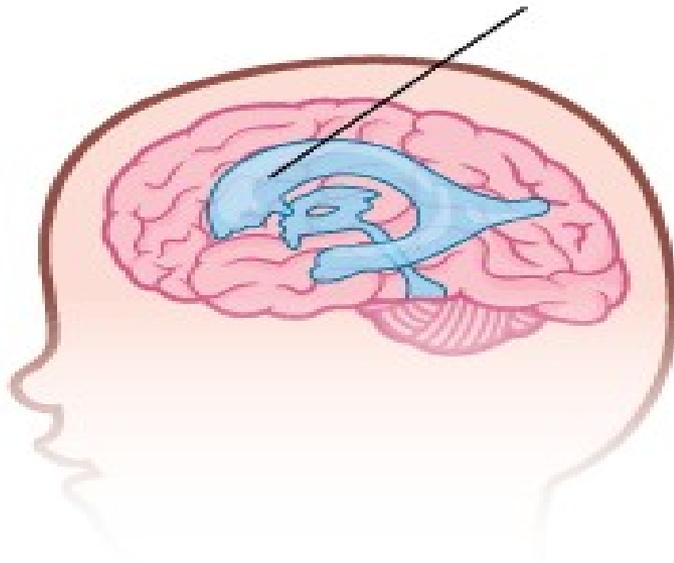


Chiari Malformation

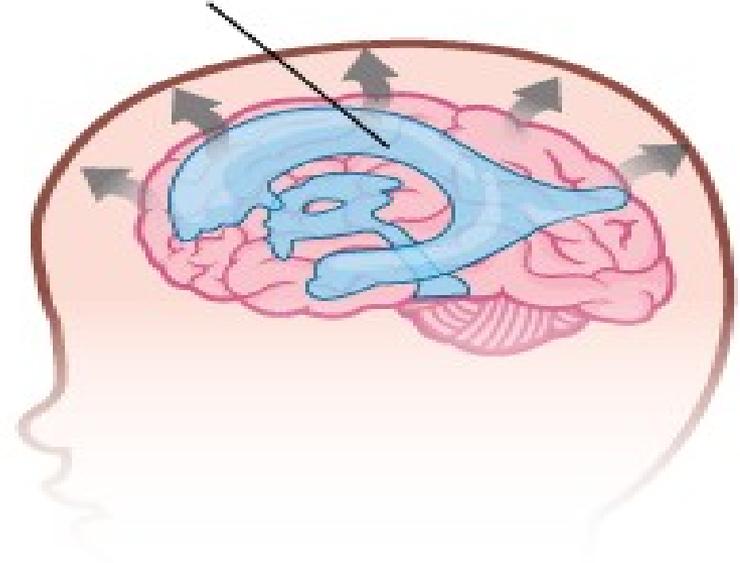


Hydrocephalus

Fluid-filled Ventricles in the Brain



Healthy Ventricles



**Enlarged Ventricles
(Hydrocephalus)**

Hydrocephalus in Children

- × Congenital= present in utero or at birth
- × Acquired= at birth or anytime after
- × Causes of acquired hydrocephalus:
 - × Tumors
 - × Developmental malformation
 - × Infection
 - × Trauma

Hydrocephalus

Clinical Manifestations

- Increased head circumference
- Bulging fontanel
- Sunsetting eyes
- Sluggish pupils
- Prominent scalp veins
- Suture lines separated



- “sunsetting sign”



Enlarged head



Increasing Intra-cranial pressure

- Drowsy
- Irritable
- Hyperactive reflexes
- Shrill cry
- Poor feeding

Hydrocephalus Diagnosis & Management

Diagnosis

- Head circumference measurements
- CT/ MRI
- Transillumination

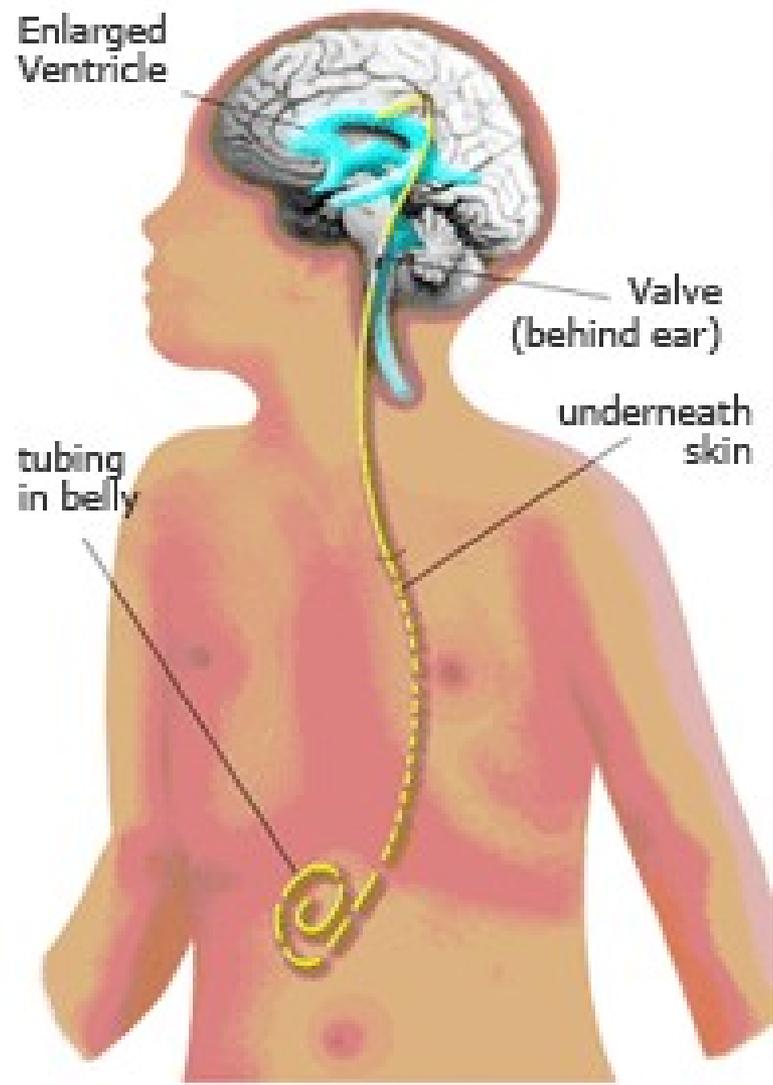
Management

- Early recognition
- Surgery/Shunt
- Ventriculostomy

A bright light is shined through a body cavity or organ such as the brain



Ventriculoperitoneal Shunt





What is Hydrocephalus?

Nursing considerations

- Pre and Post –op shunt care
 - Assess
 - Positioning
 - Antibiotics
 - Skin care
 - Family support and teaching

Spina Bifida

Myelodysplasia

2 Types

- Spina bifida occulta
- Spina bifida cystica

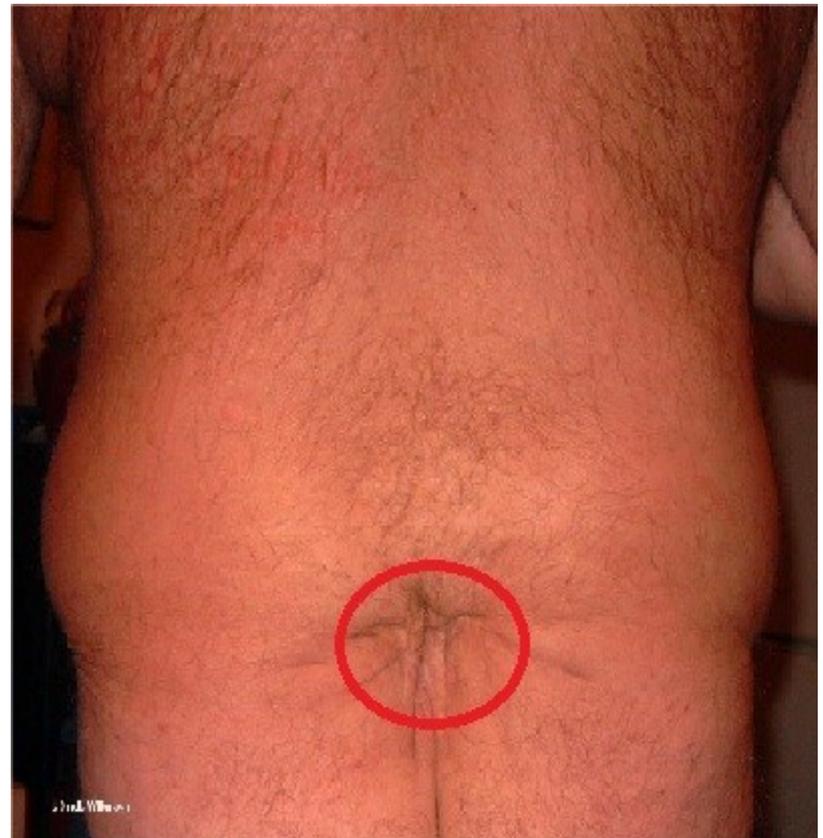
Spina Bifida Occulta

S/S occur most of the time at L5 S1 level

- May not be easily seen/apparent
- Dimpling or skin depression
- Abnormal hair tufts
- Soft subcutaneous lipoma (collection of fat)
- Port wine angiomatous nevi

Spina Bifida Occulta

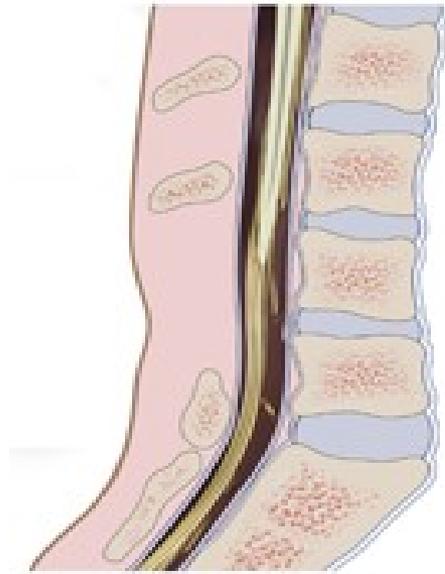
- Neuro S&S
 - Foot weakness
 - Bowel/Bladder possibly
 - Defect on radiography
- Treatment
 - None initially
 - May need surgery later



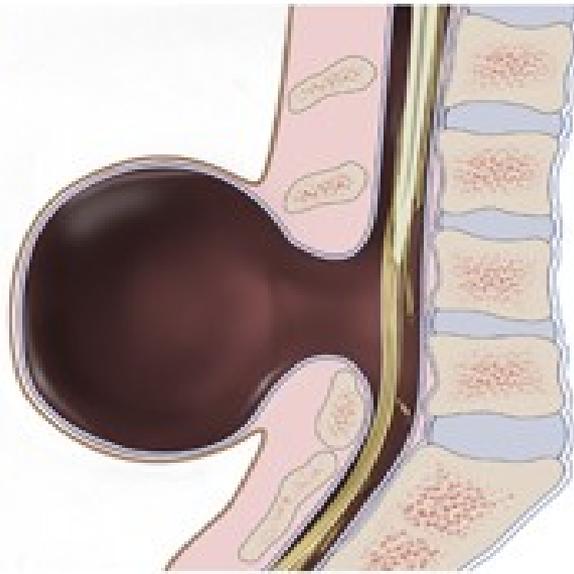
Spina Bifida Cystica

- Meningocele
 - meninges and spinal fluid, but no nerves
- Myelomeningocele- *aka the real spina bifida*
 - meninges, spinal fluid
and nerves

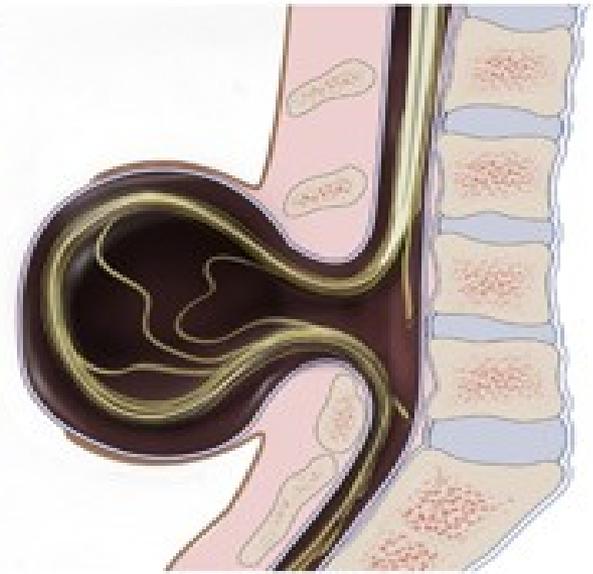
Spina Bifida Types



Spina bifida occulta



Meningocele



Myelomeningocele

Spina Bifida Cystica

Meningocele

Myelomeningocele



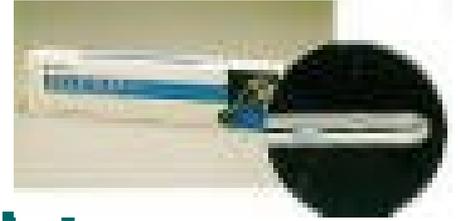
Therapeutic Management Meningocele/Myelomeningocele

- Initial Care
 - Protection of the sac from trauma (can tear easily), avoid rectal temperatures
 - Prevention of infection (as sac has thin membrane and often no skin covering)
 - Positioning (Prone)
- Multidisciplinary Approach
 - Neurosurgery, Neuro, Peds, Urology, Social Service, Ortho, Rehab, PT, OT, Nursing

Orthopedic Considerations

- Goal: best possible Ambulatory function





GU function and Spina Bifida

Neurogenic bladder

- Urinary incontinence
 - clean intermittent caths
- Urinary tract infections
 - quick vigorous treatment of UTI's
- Impaired renal function
 - Due to renal insufficiency

Spina Bifida & Bowel Function

- Fecal incontinence
 - diet modification
 - regular toilet habits
 - prevention of constipation/impaction
 - good skin care

Nursing Considerations

- Delivery
- Care of the cyst
- Positioning
- Post operative care
- Family assistance
- Family considerations
- Latex allergies
- Folic acid for future pregnancies



What does the future hold for NTD?

