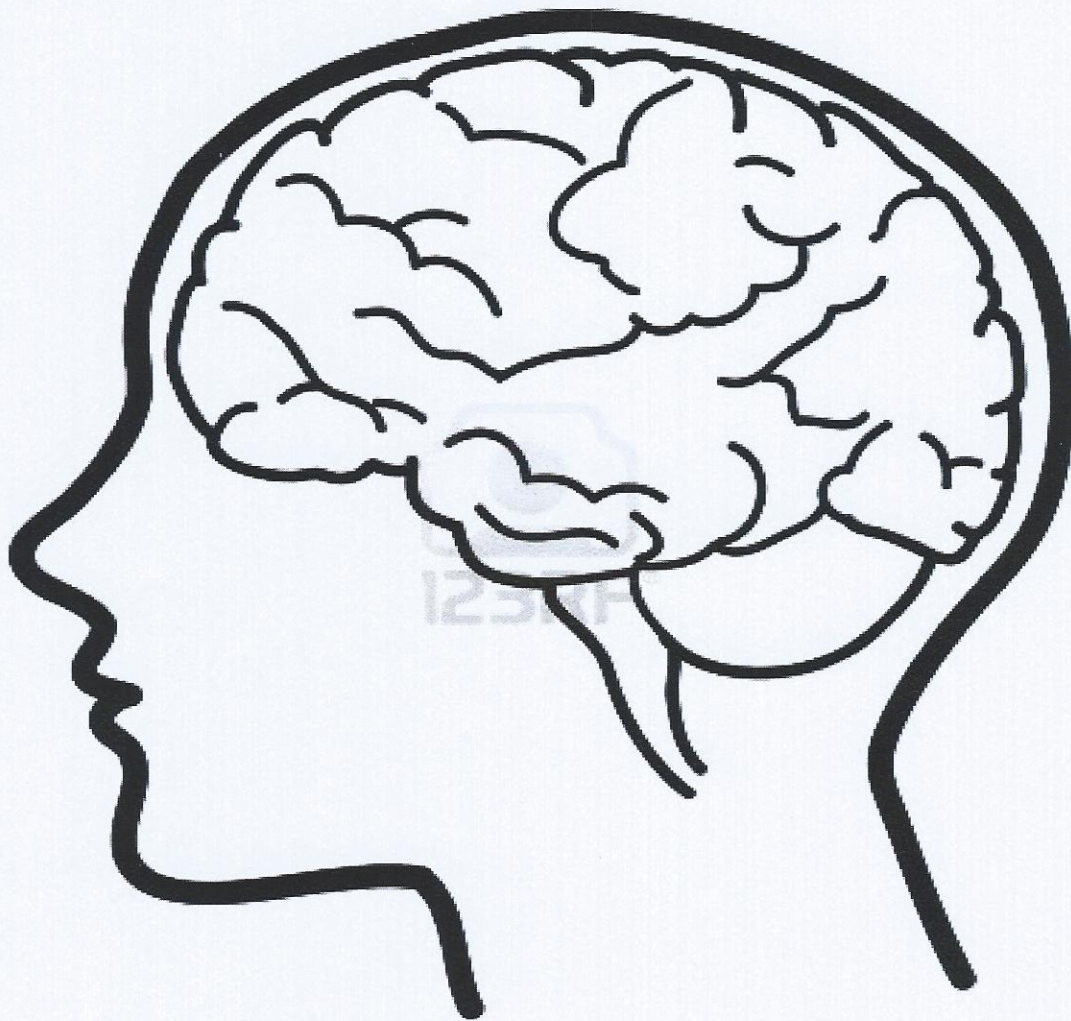


NEUROLOGICAL CARE! (NICU)



By: Fran Nguyen 😊

NAME:

DATE:



INTRODUCTION!!!!

NICU (Neurological Intensive Care Unit) is for patients with head injuries or neurological disorders.

What is Neurology?

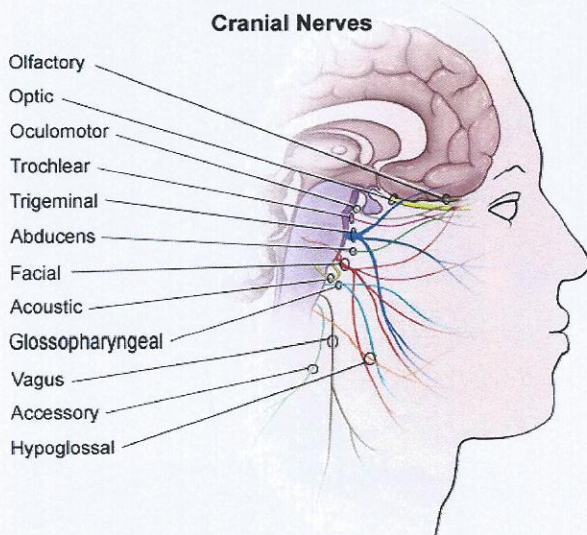
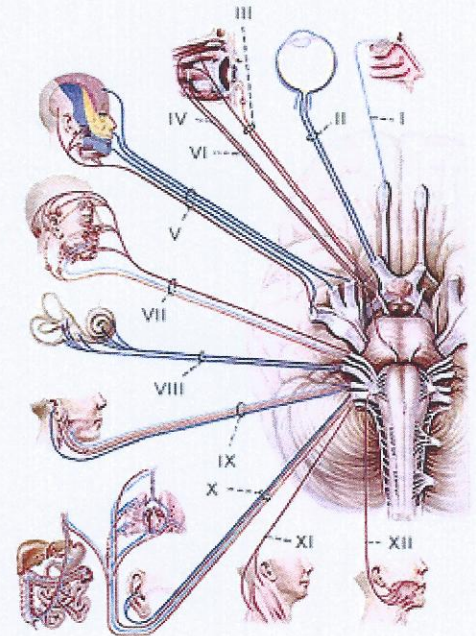
Neurology is a medical specialty dealing with disorders of the nervous system. Specifically, it deals with the diagnosis and treatment of all categories of disease involving the central, peripheral, and autonomic nervous systems, including their coverings, blood vessels, and all effected tissue, such as muscles.

Physicians who specialize in neurology are called neurologists, and are trained to investigate, or diagnose and treat, neurological disorders.

Although many mental illnesses are believed to be neurological disorders affecting the central nervous system, traditionally they are classified separately, and treated by psychiatrists.

Neurological Disorders

There are over 600 known neurological disorders and conditions that affect the human nervous system and for many of them treatment options are extremely limited. In addition to the physical and mental toll these conditions take on patients, their families and caregivers, they also have an enormous economic impact, resulting in hundreds of billions of dollars annually in medical expenses and lost productivity.



Neurological disorders are health conditions involving the nervous system. A neurological disorder is a disease or injury of the central nervous system that causes paralysis of any part of the body. Sometimes physical injury to the brain, spinal cord, or nerves can be the cause of neurological disorders. Sometimes they can result from biochemical causes. Other times, the cause may be unknown and only the effects are seen.

The nervous system is a complex, sophisticated system that regulates and coordinates the body's basic functions and activities. It is made up of two major divisions, including the central nervous system (consisting of the brain and spinal cord) and the peripheral nervous system (consisting of all other neural elements).

Neurological disorders include diseases of the central and peripheral nervous system such as, the brain, spinal cord, cranial nerves, peripheral nerves, nerve roots, autonomic nervous system, neuromuscular junction, and muscles. These disorders include epilepsy, Alzheimer's disease and other dementias, cerebrovascular diseases including stroke, migraine and other headache disorders, multiple sclerosis, Parkinson's disease, neuroinfections, brain tumours, traumatic disorders of the nervous system such as brain trauma, and neurological disorders as a result of malnutrition.

DISEASES!

There are more than 600 neurologic diseases. Major types include

- Diseases caused by faulty genes, such as Huntington's disease and muscular dystrophy
- Problems with the way the nervous system develops, such as spina bifida
- Degenerative diseases, where nerve cells are damaged or die, such as Parkinson's disease and Alzheimer's disease
- Diseases of the blood vessels that supply the brain, such as stroke
- Injuries to the spinal cord and brain
- Seizure disorders, such as epilepsy
- Cancer, such as brain tumors
- infections, such as meningitis

DISEASES	SYMPTOMS
Alzheimer's	onset in 40's, declining memories and intellects
Attention Deficit Hyperactivity Disorder	impulsiveness, distractibility, immaturity, aggressiveness, phenylethylamine excretion
Dementia	brain atrophy, recent memory loss, delusions, interrupted sleep, speech disturbances
Depression	slow to answer questions, eat little, constipated, sleepless, memory loss
Dyslexia	reversal of letters when reading
Hypertension	headache, confusion, stupor, convulsions, blindness, elevated blood pressure, irrational fears
Jumping Frenchmen of Maine Syndrome	exaggerated startle reflex, echoing words, responding to command without thought
Panic Disorder	sudden, intense fear, chest pain, palpitations, chcking, trembling, irrational fear
Parkinson's Disease	tremors, shuffling gait, mental deterioration, inhibition of voluntary movements
Schizophrenia	inability to organize thoughts and perceptions, withdrawal from reality, delusions, hallucinations, irrational fears, inappropriate emotional responses
Tourette's Syndrome	inexplicable verbal outbursts, nervous ticks, normal to bright mentality

In addition, there are a number of diseases that attack the nervous system itself. They include infections (bacterial, viral or fungal), cancers (malignant or benign), degenerative conditions (such as multiple sclerosis and Parkinson's disease), and disorders of function (e.g. epilepsy, Tourette's syndrome). Neurological disorders are common and can be life-threatening, like brain tumors and strokes, or less harmful (though potentially debilitating), like tension headaches and sleep disorders.

Testing examinations

During a neurological examination, the neurologist reviews the patient's health history with special attention to the current condition. The patient then takes a neurological exam. Typically, the exam tests mental status, function of the cranial nerves (including vision), strength, coordination, reflexes, and sensation. This information helps the neurologist determine whether the problem exists in the nervous system and the clinical localization. Localization of the pathology is the key process by which neurologists develop their differential diagnosis. Further tests may be needed to confirm a diagnosis and ultimately guide therapy and appropriate management.

What are some diagnostic tests for nervous system disorders?



In addition to a complete medical history and physical examination, diagnostic procedures for nervous system disorders may include the following:

- **computed tomography scan (Also called a CT or CAT scan.)** - a diagnostic imaging procedure that uses a combination of x-rays and computer technology to produce cross-sectional images (often called slices), both horizontally and vertically, of the body. A CT scan shows detailed images of any part of the body, including the bones, muscles, fat, and organs. CT scans are more detailed than general x-rays.
- **electroencephalogram (EEG)** - a procedure that records the brain's continuous, electrical activity by means of electrodes attached to the scalp.
- **magnetic resonance imaging (MRI)** - a diagnostic procedure that uses a combination of large magnets, radiofrequencies, and a computer to produce detailed images of organs and structures within the body.
- **electrodiagnostic tests (i.e., electromyography (EMG) and nerve conduction velocity, or NCV)** - studies that evaluate and diagnose disorders of the muscles and motor neurons. Electrodes are inserted into the muscle, or placed on the skin overlying a muscle or muscle group, and electrical activity and muscle response are recorded.
- **positron emission tomography (PET)** - in nuclear medicine, a procedure that measures the metabolic activity of cells.

- **arteriogram (Also called an angiogram.)** - an x-ray of the arteries and veins to detect blockage or narrowing of the vessels.
- **spinal tap (Also called a lumbar puncture.)** - a special needle is placed into the lower back, into the spinal canal. This is the area around the spinal cord. The pressure in the spinal canal and brain can then be measured. A small amount of cerebral spinal fluid (CSF) can be removed and sent for testing to determine if there is an infection or other problems. CSF is the fluid that bathes the brain and spinal cord.
- **evoked potentials** - procedures that record the brain's electrical response to visual, auditory and sensory stimuli.
- **myelogram** - a procedure that uses dye injected into the spinal canal to make the structure clearly visible on x-rays.
- **neurosonography** - a procedure that uses ultra high-frequency sound waves that enable the physician to analyze blood flow in cases of possible stroke.
- **ultrasound (Also called sonography.)** - a diagnostic imaging technique which uses high-frequency sound waves and a computer to create images of blood vessels, tissues, and organs. Ultrasounds are used to view internal organs as they function, and to assess blood flow through various vessels.

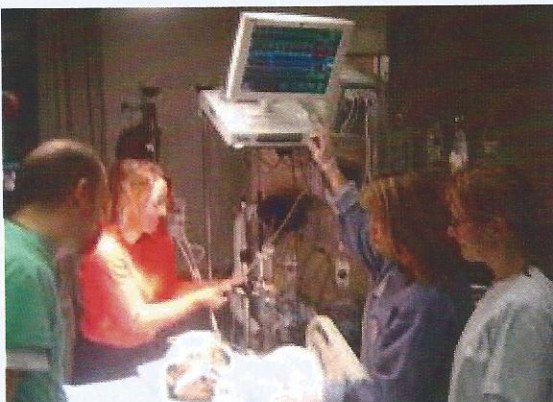


Complete Neurological Services

- **Neurological examinations**
- **Laboratory services**
- **Medication injections**
- **Family counseling on neurological disease**

Prevention

Scientists at the **National Institute of Neurological Disorders and Stroke (NINDS)** and the **National Institutes of Health (NIH)** conduct research across the country to study neurological disorders. Those looking for the causes of neurological disorders search for possible environmental factors, such as toxins, that may trigger the disorders and study genetic factors to determine how defective genes play a role. Other scientists are working to develop new protective drugs that can delay, prevent or reverse the disease.



Treatment

Treatment programs help patients modify the disease course by managing symptoms and improving function and safety. Balance, mobility, energy and more can be restored by following a rehabilitation plan designed to strengthen and loosen muscles and reduce pain. Patients in the neurological rehabilitation programs at our hospital learn how to control symptoms and reduce the risk of future medical problems.

□ *Patient Care Delivery System:*

- Neuro Intensivist MDs (round twice daily)
- Critical Care MDs (round twice daily)
- Mid-level practioners (24x7x365)
- Nurses round as part of the team daily
- Nurses Aides assist with patient ADLs as delegated by RN

Special Equipment Used:

- ICP monitoring
- Flowtracs
- Esophageal dopplers
- Swan Ganz/PA catheters
- Arterial lines
- Central Lines
- Level I Rapid infuser
- CVVH bedside machines
- GE Cardiac Monitors
- Pyxis medication stations

Special Medications Administered:

- Vasopressors
- Anesthetics
- IV Pain meds
- Insulin drip protocol
- IV TPN and Lipids
- IV fluids

Special Procedures:

- Intracranial Pressure Monitoring including external ventricular drains and fiberoptic monitoring systems (licox)
- Esophageal Doppler
- Non-invasive monitoring, IV and IA TPA
- Post-op Neuro-interventional care including Neurovascular aneurysm coilings
- Post-op open craniotomy care
- 24-hour Stroke Center care
- CVVH dialysis
- Flowtrac central access monitoring
- Swan Ganz/PA catheter monitoring
- Organ Donation patient management
- End of Life care

The neurological disorder rehabilitation program:

- Provides training in self-care, mobility, nutrition, communication, cognition, socialization and general wellness
- Helps patients manage the disease through proper use of medications, rest and activity
- Teaches fall prevention and mobility strategies to maximize safe mobility

- **Assists in transition to home and community while providing appropriate support services**
- **Provides patient and family disease education and home programs to increase safety, muscle strength, flexibility and function**

Support

Whether just diagnosed with a neurological disorder or living with it for a long time, seeking knowledge and support about the condition can help to enhance overall wellness and understanding to deal with the physical and emotional challenges that may result. If you or a loved one is living with a neurological disorder, resources are available:

- **National Parkinson Foundation**
- **Parkinson's Disease Foundation**
- **National Multiple Sclerosis Society**
- **Multiple Sclerosis Foundation**
- **Multiple Sclerosis Foundation of America**

Advance directives: More than just living wills

Advance directives are written instructions regarding your medical care preferences. Your family and doctors will consult your advance directives if you're unable to make your own health care decisions. Having written instructions can help reduce confusion or disagreement.

Advance directives include:

- **Living will.** This written, legal document spells out the types of medical treatments and life-sustaining measures you want and don't want, such as mechanical breathing (respiration and ventilation), tube feeding or resuscitation. In some states, living wills may be called health care declarations or health care directives.
- **Medical or health care power of attorney (POA).** The medical POA is a legal document that designates an individual — referred to as your health care agent or proxy — to make medical decisions for you in the event that you're unable to do so. However, it is different from a power of attorney authorizing someone to make financial transactions for you.
- **Do not resuscitate (DNR) order.** This is a request to not have cardiopulmonary resuscitation (CPR) if your heart stops or if you stop breathing. Advance directives do not have to include a DNR order, and you don't have to have an advance directive to have a DNR order. Your doctor can put a DNR order in your medical chart.

Do you need a living will and a medical POA?

A living will can't cover every possible situation. Therefore, you might also want a medical POA to designate someone to be your health care agent. This person will be guided by your living will but has the authority to interpret your wishes in situations that aren't described in your living will. A medical POA also might be a good idea if your family is opposed to some of your wishes or is divided about them.



Choosing a health care agent

Choosing a person to act as your health care agent is possibly the most important part of your planning. You need to trust that this person has your interests at heart, understands your wishes and will act accordingly. He or she should also be mature and

levelheaded, and comfortable with candid conversations. Don't pick someone out of feelings of guilt or obligation.

Your health care agent doesn't necessarily have to be a family member. You may want your health care decision maker to be different from the person you choose to handle your financial matters. It may be helpful, but it's not necessary, if the person lives in the same city or state as you do.

What treatments would you want?

In determining your wishes, think about your values, such as the importance to you of being independent and self-sufficient, and what you feel would make your life not worth living. Would you want treatment to extend life in any situation? Would you want treatment only if a cure is possible? Would you want palliative care to ease pain and discomfort if you were terminally ill?

Although you can't predict what medical situations will arise, be sure to discuss the following treatments. It may help to talk with your doctor about these, especially if you have questions.

- **Resuscitation.** Restarts the heart when it has stopped beating (cardiac death). Determine if and when you would want to be resuscitated by cardiopulmonary resuscitation (CPR) or by a device that delivers an electric shock to stimulate the heart.
- **Mechanical ventilation.** Takes over your breathing if you're unable to do so. Consider if, when and for how long you would want to be placed on a mechanical ventilator.
- **Nutritional and hydration assistance.** Supplies the body with nutrients and fluids intravenously or via a tube in the stomach. Decide if, when and for how long you would want to be fed in this manner.
- **Dialysis.** Removes waste from your blood and manages fluid levels if your kidneys no longer function. Determine if, when and for how long you would want to receive this treatment.

BIBLIOGRAPHY

- ❖ "Traumatic Brain Injury Rehabilitation Educational Resources : Neurologic ICU | FINR." *Traumatic Brain Injury Rehabilitation at Florida Institute for Neurologic Rehabilitation*. Web. 08 Apr. 2012. <<http://www.fnr.net/educational-resources/testing-treatment/neurologic-intensive-care-unit/>>.
- ❖ "Neuromuscular Disorders Rehabilitation." *WakeMed Health & Hospitals, Raleigh, Cary, Clayton, Apex, Fuquay, Zebulon, Brier Creek, WakeMedVoice*. Web. 08 Apr. 2012. <<http://www.wakemed.org/body.cfm?id=679>>.
- ❖ "Supplemental Content." *National Center for Biotechnology Information*. U.S. National Library of Medicine. Web. 08 Apr. 2012. <<http://www.ncbi.nlm.nih.gov/pubmed/3916779>>.
- ❖ "Neuro ICU." *Neuroscience Doctors and Specialists*. Web. 08 Apr. 2012. <<http://neurosciences.beaumont.edu/neuro-icu>>.
- ❖ "Neurology/Stroke Services." *Mountain Vista Medical Center*. Web. 08 Apr. 2012. <<http://www.mvmedicalcenter.com/services/neurology/>>.