

# Career Employer

## NCLEX RN Cheat Sheet

### NURSING PROCESS

There are five steps to the nursing process.

- **Assessment:** Here the nurse collects subjective data to help them investigate the physical, psychosocial, and spiritual needs of a patient.
- **Analysis (diagnosis):** The plan of care is determined by analyzing the data collected in the previous phase.
- **Planning:** Nursing interventions, amongst other measurable goals and outcomes are developed from the data gained during the assessment and analysis phases.
- **Implementation:** The interventions determined during the planning phase are executed in the form of treatment for the patient.
- **Evaluation:** There must be a form of measurement to determine whether the outcomes of the nursing interventions were effective on the patient.

### CARRYING OUT A BASIC HEAD-TO-TOE ASSESSMENT

Here's the procedure to follow when carrying out a simple head-to-toe assessment.

- **General:** Included in this is the assessment of the patient's general appearance, behavior, gait and posture, levels of hygiene, mental status, speech, vision and hearing, vital signs, and overall nutrition. Record their height and weight as well.
- **Head and neck:** The symmetry and shape of their head as well as their skull size should be noted. For potential masses on their ears, face, throat, neck, or scalp, palpate. Sinuses can be palpated too to check for masses or tenderness while the sclera and conjunctiva should also be inspected. Use PERRLA (pupils, equal, round, reactive to light and accommodation) to determine pupil response. While checking eyes, test for convergence, confrontation, and corneal light reflex.

Teeth and gums should be inspected as well as gag reflex and rise of the uvula. Sense of taste and smell should be checked, and range of motion (ROM) in the shoulders and neck. Lastly, palpate for masses in the thyroid for symmetry in the trachea, and tenderness in the lymph nodes.

- **Upper extremities:** Check ROM, deep tendon reflexes, and overall muscle strength. Look at skin condition and test capillary refill. Palpate peripheral pulses.
- **Posterior thorax:** To assess tenderness, carry out blunt percussion over cost vertebral angles. Check spine alignment. Inspect anteroposterior to lateral diameter. Thoracic expansion should be assessed too and breath sounds auscultated.
- **Anterior thorax:** Check patient's respiratory pattern and palpate respiratory excursion. Breath sounds and heart sounds should be auscultated and a breast exam carried out. Jugular veins must be inspected.
- **Abdomen:** Percuss for tenderness and masses in the abdomen and auscultate for bowel sounds. The kidneys and spleen should be palpated. Percuss the liver.
- **Lower extremities:** Assess for Homan's sign, percuss for any tenderness and masses and carry out a skin inspection. Carry out ROM checks, joints should be assessed and palpated for swelling and ankle and pedal edema.

### TECHNIQUES USED FOR ASSESSMENT

#### Inspection

This involves examining the patient carefully and includes using visual, auditory, and olfactory senses to get the necessary information needed while inspecting each body system.

Inspection:

- Starts by looking at body parts in terms of their position, their color, shape, and their symmetry.
- Must always be carried out in a systematic and purposeful way. During the examination, comparing body parts bilaterally is a must.
- To properly inspect the body from a visual perspective, good lighting is essential.

#### Palpation

With this technique, information is gathered through the use of touch.

Information gathered about a body part or organ using this includes location, tenderness, consistency, size, and shape. It also provides information regarding moisture, texture, turgor, and temperature.

- Light or deep palpation techniques might be necessary, depending on what you are examining.
- Also ensure your hands are warm and your fingernails cut short and provide the patient with the necessary privacy. Always leave areas that are tender to last.
- Assessment during palpation should include tissue consistency, intactness of structures and overall alignment, body part symmetry, and movement.

#### Percussion

This involves hitting one object with another one as a way to create sound which can then help to assess underlying tissue in terms of size, density, and location.

It's carried out by tapping the middle finger on the dominant hand on the middle finger of the nondominant one which has the palm placed on the patient's body.

Overall, percussion can produce five types of sounds:

- **Tympany:** Drum-like sound; loud

- **Resonance:** Hollow, low-pitched sound; moderate to loud
- **Hyperresonance:** Booming sound, low-pitched; very loud
- **Flatness:** High-pitched, flat sound; soft
- **Dullness:** High-pitched thud; soft to moderate

### Auscultation

This uses a stethoscope to listen to sounds the body produces in the following systems: gastrointestinal, respiratory, and circulatory.

- To properly identify them as well as to evaluate them, sounds should be isolated.
- Low-pitched sounds can be detected by the bell of the stethoscope, while high-pitched sounds are best detected by the diaphragm.
- When listening to sounds, there are four things to note: duration, quality, loudness, and pitch.

### SYSTEM ASSESSMENT

Let's look at how various systems are assessed.

#### Integumentary

- The color, tone, and texture of skin should be assessed and it should be checked for lesions. The back of the hand should be palpated for texture, temperature, and moisture. Any abnormal findings should be noted.
- Hair should be checked for head lice as well as overall distribution while the scalp should be checked for lesions too.
- Color, contour, texture, symmetry, and capillary refill of nails must be checked and abnormal findings noted.

#### Cardiovascular

- Record the patient's blood pressure
- Using the bell of the stethoscope, auscultate carotid arteries
- Carotid bruits (rushing/blowing sounds) should be listened out for
- Listen to the heart and note any abnormal sounds (rubs, clicks, gallops, or murmurs).
- All pulses should be palpated
- Feet should be assessed for vascularity

#### Respiratory

- Check skin color and assess the patient's overall level of consciousness.
- Any signs of respiratory distress should be noted, for example, retractions, nasal flaring, pursed-lip breather, and others.
- Breathing rate, rhythm, and depth should be noted.

- Palpate for equal thoracic expansion, tactile fremitus, crepitus, and tracheal deviation.
- Percuss starting at the left lung's apex. The following should be listened for: resonance, hyper-resonance, or flatness.
- Listen for breath sounds and anything abnormal should be noted.

#### Gastrointestinal

- Start with the mouth, checking for tumors, irritations, or any lesions.
- Gag reflex should be checked
- Check for contour, symmetry, abdominal aorta pulsation, and distension in all four quadrants of the abdomen.
- All four quarters should be percussed as well, unless an aortic aneurysm is suspected.
- Note bowel sounds in terms of classification and frequency, noting anything abnormal.
- Each quadrant should be palpated and any masses, tenderness, rigidity, and guarding noted.

#### Genitourinary

- Urinary intake and output should be assessed including abnormal urinary urges, or pain when urinating.
- Any discharge, swelling, warts, redness, bumps, and blisters should be noted during an inspection of the genitalia.
- Determine if the patient has had any sexually transmitted diseases.
- Ask about their menstrual history

#### Musculoskeletal

- Each extremity should be inspected bilaterally for symmetry.
- Joints should be checked for deformities, masses, contours, and overall size.
- Each extremity should be palpated for edemas.
- ROM test should be carried out on extremities bilaterally.
- Ask the patient to bend forward and touch their toes as a way to test ROM on their spine.

#### Types of musculoskeletal pain

For bone pain, assess if it is

- Constant
- Deep
- Aching
- Unless a fracture is present if it is unrelated to moving

For muscle pain, assess if it is:

- If it is related to posture
- If it occurs when the patient moves
- If the pain includes weakness, twitches, or tremors in the muscle
- If referred pain is a product thereof

#### Joint pain

- When palpated, the area around the joint will be tender
- There might be referred pain because of pain around joints
- Due to nerve root irritation, distal pain might be a product of joint pain
- Gets worse as the day progresses and with more movement

#### Neurologic

- A patient's balance and gait should be checked
- Check both their recent and their remote memory
- Use the finger-to-nose test to check their cerebellar functions for upper extremities. For lower extremities run each heel down the opposite shin.
- Check the patient's Babinski reflex. This will see the toes spread out when the big toe bends backward.
- Mental status should be assessed by looking at their judgment, insight, cognition, perception, content of thought, thought process, speech, behavior, mood, attitude, and appearance.
- Cranial nerves, including olfactory, optic, oculomotor, trochlear, trigeminal, facial, acoustic, glossopharyngeal, hypoglossal, spinal accessory, and vagus should be assessed.
- Check reflexes bilaterally.
- Motor skills should be assessed including bilateral muscle strength, coordination, and balance.
- Sensory perception should be assessed bilaterally.
- Sensory perception should be assessed bilaterally.

#### Assessment of cranial nerves

- **Olfactory CN I:** To assess a patient's unilateral sense of smell, have them smell easily identifiable substances like coffee or soap.
- **Optic CN II:** The visual acuity of the patient should be checked (both near and far vision).
- **Oculomotor CN III:** Look at the size of the patient's pupils as well as their light reflex.
- **Trochlear and abducens CN IV and CN VI:** By having a patient move their eyes down, temporally, and nasally, you can check their eye movement.
- **Trigeminal CN V:** Palpate the jaw and temples to assess motor function. The

patient's teeth should be clenched while doing this.

- **Facial CN VII:** Have the patient frown, close their eyes, lift their eyebrows, and puff out cheeks to check the overall mobility and symmetry of their face. Their ability to identify different tastes should also be assessed.
- **Acoustic CN VIII:** Assess a patient's hearing.
- **Glossopharyngeal and vagus CN IX and CN X:** Check gag reflex and assess uvula movement as well as their soft palate.
- **Spinal accessory CN XI:** Assess the patient's head and neck movements
- **Hypoglossal CN XII:** Check the patient's tongue control

### Psychosocial

- A mental status exam should be performed. This looks at the patient's overall appearance, mood, attitude, speech, thought processes, content of thought, insight, judgment, and cognition.
- Their home environment should be assessed, including their safety, structure of their family, support systems as well as their interactions.
- Their community environment should be assessed. This includes their safety, transportation used, as well as recreational activities.
- Their religious affiliations and spiritual beliefs should be noted by carrying out a spiritual assessment.

### PREGNANCY, LABOR, DELIVERY, AND CARE AFTERWARDS

To start this section, let's first look at some definitions.

#### Perinatal period:

This is from before the baby is born right until the 28<sup>th</sup> day after their birth.

- **Prematurity:** This is when the baby is born before the 37-week gestation period is over
- **LBW:** Low birth weight is when a baby is less than 2,500 grams (5lb, 8 oz) at birth.
- **Full term:** This is when a baby is born between weeks 38 - 40 (266 - 280 days)

#### Prenatal period:

- **Embryonic period:** This covers weeks 2 to 8.
- **Fetal period:** This covers week 9 until the baby's delivery

#### Postpartum period:

This covers the six-week time frame after the birth of a child.

- **Puerperium period:** This is usually a 3 to 6-week period between the end of labor to when the uterus goes back to its normal size

#### Labor nursing care

- Fetal heart rate must be monitored (120 – 160 bpm is the optimum level)
- Vital signs of the mother should be monitored
- By palpating the uterine fundus, the frequency, duration, and intensity of the mother's contractions must be monitored
- When performing a vaginal exam, assess dilation, effacement (the shortening and thinning of the cervix), membrane status (is it intact or ruptured), station (the relationship between the mother's ischial spines and the how the presenting part of the baby), overall fetal position and presentation, and if there is a bloody show, the amount and character thereof.

#### Postpartum care

The following should be assessed in the mother:

- Uterus
- Perineum
- Lochia
- Breasts
- Voiding
- Pain

#### Assessing the newborn

The following should be assessed/carried out on a newborn:

- APGAR score
- Weight
- Height
- Blood pressure: 65-85 / 45-55 mm Hg
- Pulse: 120 to 160 bpm
- RR: 30-50 breaths every 60 seconds
- T: 80.6 – 99.8 Fahrenheit

#### APGAR score

- **Activity:** 0 (no muscle tone), 1 (some muscle tone), 2 (active motion)
- **Pulse:** 0 (no pulse), 1 (less than 100 bpm), 2 (greater than 100 bpm)
- **Grimace (reflex to stimulation):** 0 (no reaction), 1 (grimace), 2 (grimace and cough, sneeze, crying)
- **Appearance:** 0 (body and extremities pale blue), 1 (body pink, extremities blue), 2 (body and extremities pink)
- **Respiration:** 0 (no breathing), 1 (breathing is slow or irregular), 2 (strong cry from baby).

7-9 is considered a normal APGAR score

### Pregnancy complications

#### Bleeding

This presents in the vagina and could occur during the first trimester. This can occur often and doesn't necessarily mean that there is a problem. In some cases, however, it could indicate miscarriage, cervical cancer, placenta previa, ectopic pregnancy, or premature labor.

#### Gestational hypertension

Mothers can experience high blood pressure while carrying their baby which could include no symptoms, but can lead to blurred vision and headaches. The causes for this are unknown.

#### Gestational diabetes

Mothers can experience high blood sugar during pregnancy. While this doesn't have symptoms, they can experience weight loss, increased thirst, fatigue and increased urination because of it. This is as a result of progressive impaired glucose intolerance from hormonal changes.

#### Ectopic pregnancy

When is when the pregnancy forms in the fallopian tubes, or somewhere outside the uterus. Patients experience pelvic or abdominal pain and vaginal bleeding. The causes of this could be from pelvic surgery, a previous infection causing damage to the fallopian tube, or endometriosis.

#### Preterm labor

Any time a patient goes into labor before 37 weeks, it is preterm. Symptoms include lower back pain, vaginal bleeding, contractions, pressure in the pelvis or abdomen, and cramping. This could result from multiple pregnancies (more than one fetus), hypertension, diabetes, drug abuse, and smoking.

#### Placenta previa

This occurs when the cervix is covered by the placenta with the patient experiencing symptoms such as vaginal bleeding in their second or third trimester as well as vaginal bleeding. The causes of this could be the uterus having an abnormal size or shape, more than one fetus (multiple pregnancies), C-section, or surgery.

#### Preeclampsia

This occurs after the 20<sup>th</sup> week and takes the form of hypertension and proteinuria. Other than those two symptoms, others can include

weight gain, edema, RUQ pain, less urine output, vomiting, nausea, vision irregularities, and headaches. The cause of preeclampsia could include damage to blood vessels, poor nutrition, and autoimmune disorders.

## PEDIATRICS

### Human development and growth

- **Infancy:** Eye movements controlled, double birth weight, grabs objects, smiles, coos, rolls over, and sits.
- **Early childhood:** Talks, walks, common objects identified, toilet training
- **Preschool:** Gross and fine motor skills developed.
- **School-going age:** Motor skills get stronger, normal grammar and pronunciation.
- **Adolescence:** Fast growth, has an understanding of ideas that are abstract, relationships established. In girls, breasts will develop, and there will be hair growth on legs, arms, armpits, and pubic area. In boys, genital growth occurs, as well as hair growth on the chest, face, and other areas described above, while there is a change in voice.
- **Young adulthood:** Minimal physical growth experienced. Peak level reached in strength, flexibility, and physical performance. Lasting relationships develop.
- **Middle adulthood:** Loss of hair and/or graying, wrinkles and fine lines appear, eyesight and hearing decrease, and in women menopause will occur.
- **Late adulthood:** All major body systems and organs begin to slow down.

### Stages of psychosocial development (Erikson)

- **Trust vs mistrust:** This is from birth to around 18 months. Trust is developed when a child's needs are met. Mistrust results when those giving the child care are inconsistent or unreliable.
- **Autonomy vs shame and doubt:** This is from 18 months to 3 years old. Autonomy is reached when new skills are learned. Shame and doubt result when there is a lack of success in this regard.
- **Initiative vs guilt:** This takes place from 3 to 5 years old. In order to feel more control over their environment, a child becomes assertive. Should disapproval from parents result, feelings of guilt result. If parents approve of the attempts, a sense of purpose results.
- **Industry vs inferiority:** This takes place between 6 to 11 years old. New social and learning skills are learned when a child goes to school. Feelings

of inferiority can result if there is failure in this regard.

- **Identity vs role confusion:** This takes place between 12-18 years old. A sense of self or identity. Failure in this regard can lead to an identity crisis or confusion.
- **Intimacy vs isolation:** This takes place between 19 to 40 years old. Feelings of isolation can result if intimate relationships are not developed with others.
- **Generativity vs stagnation:** This takes place between 40 and 65 years old. Adults need to feel like what they do is worthwhile. If not, this could lead to them forming shallow relationships and an overall societal disconnect.
- **Ego integrity vs despair:** This takes place in those older than 65. People need to feel they've had a well-lived life. Feelings of despair can result if they don't deem this to be true.

### Frequent childhood diseases

- **Chickenpox:** Patients present with itchy, fluid-filled blisters on their skin when having this highly contagious virus. Chickenpox can be prevented through a vaccine.
- **RSV (respiratory syncytial virus):** Infects the airways and lungs. This respiratory virus' symptoms include wheezing, sneezing, coughing, runny nose, and a decreased appetite.
- **Pertussis (whooping cough):** This respiratory disease is highly contagious. Those suffering from it will have coughing fits that are violent and controllable with a unique "whooping" sound. Whooping cough can be prevented through a vaccine.
- **Erythema infectiosum (Fifth disease):** A red facial rash characterizes this virus. Patients may have other symptoms including headache, fever, and a runny nose.
- **Hand, foot, and mouth disease:** Patients experiencing this virus will present with blister-like sores. These will appear on the mouth as well as on the hands and feet (in the form of a rash). Fever and malaise are some of the other symptoms that could occur.
- **Croup:** Patients that have this will present with a barking-like cough. They also may have difficulty breathing and symptoms similar to a common cold.
- **Scarlet fever:** Patients present with a red rash that has a rough feel to it if they have this strep infection. Symptoms that may accompany Scarlet fever include abdominal pain, vomiting, chills, fever, and a sore throat.
- **Impetigo:** Itchy-pus-filled blisters are part of this skin infection. It may also include a spreading rash (from

scratching) as well as lymph nodes that swell.

## CARE MODELS FOR NURSING

- **Case method:** For a defined period of time, a nurse will provide complete care for a patient or group of patients.
- **Functional:** Here, each patient has a variety of caregivers assigned to care for them. These caregivers all perform specific functions or tasks.
- **Team:** Both licensed and unlicensed providers are assigned to a team that delivers patient care. The team is led by a team leader.
- **Primary:** The needs of the patient, a plan of care to help them, and evaluation of their response to the care received all fall to a single nurse.
- **Case management:** With this integrated approach to care, a variety of care settings will see the use of a multidisciplinary team.

## NURSING ETHICS

### Ethical principles

- **Autonomy:** When it comes to health care decisions, a patient has the right to make them for themselves. When this infers with another person's health, well-being and rights, exceptions can be made.
- **Justice:** The right to be treated equally, no matter what their race, gender, marital status, diagnosis, economic level, religious beliefs or economic level is something all patients have.
- **Fidelity:** Commitments to others should be kept by all nurses. This includes agreement loyalty as well as any responsibilities that form part of the nursing practice.
- **Beneficence:** Nurses have the responsibility to always do good. This means a holistic approach to care that takes into account the wishes, feelings, and beliefs of any patient.
- **Nonmaleficence:** At all times, nurses shouldn't do any harm to patients under their care. Included in this is helping to work out if treatment benefits add up to more than the risks involved.
- **Veracity:** Never intentionally mislead or deceive a patient and always tell the truth.
- **Confidentiality:** Privacy is essential, especially when it comes to privileged information. No third parties should be told about conversations between nurses and patients.

### Ethical decision-making steps

- Data collected, analyzed and interpreted.

- Put a clear and sharp focus on the problem by bringing all the data together.
- State the dilemma in a clear manner and as succinctly as possible.
- Morally relevant facts should be identified.
- The various courses of action should be considered
- The advantages, as well as disadvantages of these courses of action, should be analyzed.
- A decision is then made on the best course of action
- The decision and outcome are then evaluated.

### EXERCISE

As a key part of heart disease prevention, fighting diabetes as well as some forms of cancer, exercise is critical.

Not only that but it can help with arthritis, back pain as well as fighting depression.

Exercise is broken down into aerobic and strength training. Most adults should do 30 minutes of aerobic training five days a week and 20 minutes of strength training at least two to three times a week.

- **Aerobic exercise:** This helps to work the muscles, lungs, and heart for a sustained period. It includes walking, running, bicycling, swimming, and aerobics, for example. Doing these exercises will improve blood flow, improve the consumption of oxygen, lower weight, increase energy, lower blood pressure, and improve blood sugar control as well as overall mood.
- **Strength exercise:** An example of this is training with weights which will improve overall muscle mass. This training can use the weight of the body, for example, doing pushups or exercise machines. There are many benefits to this including weight loss, elevated mood, controlling blood sugar, pain relief, better balance, and stronger bones.

### RISK REDUCTION

#### Stopping medication errors

- The five rights of medication administration should be followed when it comes to medication. These are: the right patient, the right dose, the right route, the right time, and the right medication.
- All telephone orders should be read back and spelled back.
- If available, always make use of barcode scanning.

- For high-alert medications, independent double-checks should be in effect.
- Before giving new medication to a patient, they should be asked about any drug allergies.
- Patients should receive the necessary education regarding medication. This includes how they should take them as well as what they are for. Patients should demonstrate an understanding with regards to their medication.

### Communication error prevention

- The patient's history, condition currently, treatment modalities, and any recent condition changes must be reported during a shift change or when patients are transferred.
- Clear, direct statements regarding the patient and their current situation should be used when communicating with physicians.
- Use simple language when communicating with a patient, avoiding medical jargon.
- Patients should be asked to repeat back any verbal instructions that medical personnel give to them.
- If necessary, and when available, an interpreter should be used if the patient's home language isn't English.
- Any instruction given to a patient should be as specific as possibly can be.

### Fall prevention

- As soon as spills happen, they should be cleaned up.
- The call light and any personal belongings should be within reach of patients so they don't try to get up and get them.
- The path to the bathroom should be clear of any hazards.
- Nonskid footwear should be provided for and worn by patients
- Adequate lighting is essential
- Fall risk assessment is necessary for all patients
- At-risk patients should never be left unattended.

### INFORMED CONSENT

This is when an informed decision is made by a patient about whether they will undergo a treatment or procedure.

Components of informed consent include:

- **Decision-making capacity:** Is the patient in a position to make a decision and sign the consent form?
- **Disclosure:** All the necessary information should be given to the patient when obtaining informed

consent from them. This includes why the treatment/procedure is necessary, the benefits thereof, any risks or complications that could arise, as well as the alternative treatments and their benefits and risks.

- **Comprehension:** Does the patient have the ability to comprehend the disclosure information provided to them?
- **Voluntary participation:** Without coercion, the person signing the consent form must do so voluntarily.

### INFECTION CONTROL AND PREVENTION

#### Hand hygiene

When it comes to infection prevention and control, hand hygiene is critical.

According to the CDC, hand hygiene should be in the following situations:

- Before working with a patient and again after working with them
- Before any procedures are carried out, for example, administering intravenous medications
- Before contact with vascular access and again afterwards
- Before performing dressing changes and again, once you have completed the change
- If the nurse comes into contact with any contaminated surfaces, body fluids, and blood, thorough hand hygiene should be carried out
- When taking gloves off

Hand hygiene is either washing with antimicrobial soap or using alcohol-based rubs.

#### Standard precautions

To protect against infection transmissions, the CDC drew up a list of standard precautions.

These state that all broken skin, secretions, excretions, body fluids, and blood should be seen as possibly infected.

Hand hygiene must be carried out in the following situations:

- Even if gloves are worn, hands should be washed before dealing with a patient.
- When leaving the patients' environment after treating them.
- After coming into contact with blood, wound dressings, or body fluids.
- Before carrying out an aseptic task, like preparing an injection, for example.

- If moving from a contaminated body site to an area that's clean.
- When gloves are removed.

- If there is a potential to come into contact with contaminated equipment, nonintact skin, mucous membranes, or body fluids, gloves should be worn.
- A gown should be worn to provide protection from blood or body fluids when performing procedures that could put the medical personnel at risk.
- If there is a chance of potential splashing, the necessary face mask, goggles, or face shield should be in place.

### Droplet precautions

If patients are suspected or known to be infected with a pathogen that can be passed on by droplets, the following guidelines are suggested by the CDC.

- A private room is necessary for the patient and it should include a closed door.
- PPE should be used when dealing with the patient including a face mask, gloves, gown, and goggles.
- Hand hygiene should be carried out after dealing with the patient, or after coming into contact with any contaminated objects, or respiratory secretions. If hands are visibly soiled, soap and water should be used to wash them.
- When exiting the room, a patient should always wear a face mask. They should not come into close contact with others, and should always carry out the proper cough etiquette and respiratory hygiene.

### Airborne precautions

The following airborne precautions are recommended by the CDC if patients are infected, or are suspected of being infected by an airborne transmitted pathogen.

- An airborne infection isolation room is the only place where a patient such as this must be placed.
- N-95 or higher level respirator masks must be worn should they be available.
- If spraying could occur, also wear goggles, gloves, and a gown.
- Before working with a patient as well as after, proper hand hygiene should be carried out.
- This is also necessary if coming into contact with contaminated material or objects or any respiratory secretions.
- When the patient exits a room, they should wear a face mask. They must also avoid other patients, and carry out

proper cough etiquette and respiratory hygiene.

### PREVENTIVE CARE

#### Recommended immunizations for birth to 6 years

- Birth: HepB
- 1 month: HepB
- 2 months: HepB, RV, DTaP, Hib, PCV, IPV
- 4 months: RV, DTaP, Hib, PCV, IPV
- 6 months: HepB, RV, DTaP, Hib, PCV, IPV, Influenza
- 9 months: HepB, IPV, Influenza
- 12 months: HepB, IPV, Hib, PCV, Influenza, MMR, Varicella, HepA
- 15 months: HepB, DTaP, Hib, PCV, IPV, Influenza, MMR, Varicella, HepA
- 18 months: HepB, DTaP, Influenza, HepA
- 19-23 months: HepA
- 2-3 years: Influenza
- 4-6 years: DTaP, IPV, Influenza, MMR, Varicella

Note that where vaccines cross over various ages, they are not to be given at each age, but instead, this is the range in which they can be given once, for example, HepA can be given from 12 to 23 months.

### Health screenings

- Starting from the age of 40, women should have mammograms at least every 1 to 2 years.
- From the age of 21, women should have a pap test every two years
- Colorectal cancer screening, starting from the age of 50 as determined by their doctor (women)
- Colorectal cancer screening, starting from the age of 50 as determined by their doctor (women)
- Colorectal cancer screening, starting from the age of 50 as determined by their doctor (men)
- Prostate cancer screening, starting from the age of 50 as determined by their doctor (men)

### NUTRITION

#### Physiologic basics

Nutrient consumption is needed as a way to support digestion, absorption, and metabolism and the physiologic activities associated with them. It also helps to ensure homeostasis.

There are three groups of nutrients:

- **Energy nutrients:** To ensure the maintenance of homeostasis, these release energy.
- **Organic nutrients:** These help regulate body processes as well as building and maintaining tissue within the body.
- **Inorganic nutrients:** Assist by ensuring a platform for nerve impulses, as well as chemical reactions, bone formation, regulating body temperature, and transporting materials.

### Diet therapy

- **NPO (nil by mouth):** As a way to rest the GI tract, this diet may be necessary. This could be used prior to a patient undergoing certain diagnostic procedures, or surgery and their nutritional problem is still unknown.
- **Clear liquids:** Liquids with no residue are given to patients. While dairy products are not allowed, the patient may take in water, apple juice, and gelatin.
- **Liquid or full-liquid diet:** Substances that are in a liquid form at room temperature can be included here. This includes pudding and ice cream.
- **Soft diet:** Reduced fiber and cellulose is the aim here as a way to lower GI mucosal irritation. The following foods are not allowed: raw fruit, plant fiber, whole grains, vegetables, and seeds.
- **High-fiber diet:** Increased fiber and cellulose is the aim here as a way to help the motion of waste that's indigestible through the colon.
- **Diabetic diet:** Helps to control blood sugar. Smaller portions that are eaten throughout the day, including fruit, vegetables, grains, and carbohydrates. The time to eat the last group, however, is determined by a dietician. The following is limited with this diet: alcohol, salt, fatty foods, and those with high sugar content.
- **Sodium-restricted diet:** Patients with hypertension, excess fluid volume, heart failure, renal failure, or myocardial infarction will be placed on this type of diet. It can be classified into three types: mild (2-3g of sodium), moderate (1g), or strict (0.5g).

### Parenteral nutrition

- Via a route outside of the alimentary tract, nutrition is provided to the patient.

- To meet daily nutritional requirements, it's directly into a vein that the solution is infused.
- TPN or total parenteral nutrition takes the form of an intravenous solution. This will include minerals, vitamins, essential fatty acids, amino acids, and dextrose.

### Enteral nutrition

If a patient cannot or will not eat and has a functional GI tract, this can be used to avoid malnutrition.

Tube feeding can be used in patients with:

- Severe diarrhea
- Intractable vomiting
- Intestinal obstruction
- Diffuse peritonitis

When it comes to tube feeding, there are various types available:

- **Jejunostomy:** Here, it is into the jejunum that a tube is surgically inserted.
- **Gasointestinal tube:** Here the tube is passed into the intestines through the nose.
- **PEG or gastrostomy tube:** Here the gastric cavity has a tube inserted into it.
- **Large-bore nasogastric tube:** Here the tube is placed in the gastric cavity through the nostril.

Here are the enteral formulas that are used together with the tubes:

- **Isotonic:** The contents have a high molecular weight and osmolarity that's equal to the body and include protein, fats, and carbohydrates.
- **Elemental:** A hypertonic concentration that has minimal triglycerides. It does contain amino acids and monosaccharides.
- **Fluid restriction formula:** This is made up of kilocalories in a highly concentrated form.

### PAIN MANAGEMENT

#### Acute pain v chronic pain

With both forms of pain, there will be both physiologic and behavioral evidence present.

- **Acute pain:** Physiologic evidence of acute pain includes dilated pupils, higher blood pressure, higher pulse, and increased respirations. Behavioral evidence includes distress, worry, distraction, and restlessness.
- **Chronic pain:** Physiologic evidence of chronic pain includes no diaphoresis, normal respirations, pulse, pupil size,

and blood pressure. Behavioral evidence includes depression or despair, reduced or no physical activity, and feelings of hopelessness.

#### Pain scales

There are many different pain scales that can be used to determine the pain level of a patient.

- **Visual analog scale:** Starting with "No pain" on the left and "Worst pain" on the right, this is a linear scale where the patient is asked to mark their pain level point with an X.
- **Numerical scale:** This scale goes from 0 (no pain) to 10 (worst pain) and the patient is asked to give their pain a number.
- **Faces scale:** This is useful when working with children and uses various face emojis to signify pain from "No Pain" which is a smiley face to "Worst pain" which is a sad face with a tear.

#### Pain medications

Always give pain medication to patients as they are prescribed.

If possible, give them before the pain becomes more severe as this makes them more effective.

The patient's pain level should be assessed at regular intervals to see if pain medication is needed when prescribed by PRN.

#### CALCULATIONS: MEDICATION DOSAGE

##### Formulas

- **Amount to administer** = Dose ordered/dose on hand
- **Solution concentration** = dosage in solution/volume of solution
- **IV dose rate calculation:** Volume/hour = dose ordered/solution concentration

#### Oral medications: Liquids

To calculate the dosage for liquids, use the following formula.

$$\text{Desired/have} \times \text{quantity} = x$$

Here's an example. Let's say an order is for Amoxicillin 500 mg PO daily and available is Amoxicillin 200 mg / 5ml.

Using the formula, after we plug in the values we have  $(500 / 200) \times 5 = x$  which is  $2.5 \times 5 = 12.5\text{ml}$ .

#### Oral medications: Tablets and capsules

Capsules come in two kinds:

- Those with a soft gelatin shell
- Those with a hard, two-piece gelatin shell. In some cases, these may have to be opened to release the pellets or powder within, for example, when combined with soft food.

While scored tablets can be split, those that aren't should never be. They should never be altered in any way such as by crushing them. This applies to capsules as well.

To find the dosage for tablets and capsules, the following formula can be used:

$$\text{Desired/have} \times \text{quantity} = x$$

Here's an example. Let's say an order is for Ibuprofen 1,000 mg PO daily and available is Ibuprofen 200 mg tablets.

Using the formula, when we plug in the numbers we have  $(1,000 / 200) \times 1 = x$  which is  $5 \times 1 = 5$  tablets.

#### Parenteral medication (Intravenous, intramuscular and subcutaneous)

When dealing with amounts that are less than 1mL, you should always round to the nearest hundredth.

If greater than 1 mL, when rounding, it should be to the nearest tenth.

The following formula is used to calculate dosage for liquids.

$$\text{Desired/have} \times \text{quantity} = x$$

Here's an example. Let's say an order is for Bactocill 300 mg IM every 8 hours, and available is Bactocill 1g / 3mL.

Start by making the necessary conversions, so 1g = 1,000 mg.

Using the formula, when we plug in the numbers we have  $(300 / 1,000) \times 3 = x$  which is  $0.3 \times 3 = 0.9$  mL which is rounded to the nearest 100 because the answer is less than 1mL, so therefore 0.90 mL.

#### IV Flow rate

$$\text{Flow rate (gtt / min)} = \frac{\text{Volume (mL)} \times \text{Drop factor (gtt / mL)}}{\text{Time (min)}}$$

Let's look at an example.

Take Nifedipine 10 mg in mL over 1 hour with a drop factor of 15.

The first step is to convert hours to minutes, and we know that an hour = 60 minutes.

The rate is then calculated as follows:

$$25 \text{ mL} \times 15 / 60 = 375 / 60 = 6.25$$

Round this up to the nearest whole number and the answer is 6gtt/min.

### Age and weight-adjusted dosages

In some cases, doses may have to be adjusted according to the age and weight of the person receiving the medication.

- **Geriatric EX:** Let's take the example of John who is 82 years old and weighs 174 pounds. He must take amikacin sulfate; ordered dose is 7.5 mg / kg and the available dose is 250 mg / mL. Start by converting weight to kilograms, so 174 pounds is 79.1 kg. Now to work out the dose, you can multiply 7.5 mg / kg x 79.1 kg = 593.3 mg. Now use (D/H) x Q. So  $(593.3 / 250) \times 1 = x$ ,  $2.373 \times 1 = 2.4$  ml.
- **Pediatric EX:** Let's see an example of a patient that is a child. That patient weighs 25 pounds and is 14 months old. Oxacillin nitrate is ordered with the ordered dose of 50 mg/kg every 6 hours. The available dose is 250 mg/5 mL. So we begin by converting the weight to kilograms = 11.4 kg. Now multiply 50 mg / kg by 11.4 kg to find the dose = 570 mg. Then use (D/H) x q:  $= (570 / 250) \times 5 = x$  or  $2.28 \times 5 = 11.4$  ml every six hours.

### ADMINISTRATION ROUTES OF MEDICATION

There are numerous ways in which medication can be given to a patient:

- **Oral:** This is via tablet, capsule, or liquid. The GI tract will absorb the medication
- **Intravenous (IV):** This is via a vein and into the bloodstream where medication is injected.
- **Intradermal:** This is also an injection but it's under the dermal layer of the skin that the medication is injected.
- **Intramuscular (IM):** This offers fast systemic action and can be used in large doses. Here, the medication is injected into a muscle.
- **Intrathecal:** This affects spinal fluid as the injection is into the spinal canal.
- **Subcutaneous (subcut):** This is an injection that's below the dermis and into tissue.
- **Sublingual:** Here medication is placed under the tongue where it is absorbed.
- **Rectal or vaginal:** Usually for local distribution, this takes the form of creams or suppositories.
- **Inhalation:** Here a gaseous form of medication offers rapid absorption into the lungs.

### LIFESPAN CONSIDERATIONS

We will look at a few categories here.

#### Geriatric patients

- Due to deteriorating organs, always assume there will be increased drug sensitivity.
- Depending on the individual's condition, reactions to medication could vary.
- On the whole, there are slower rates of absorption which could mean that the therapeutic response is delayed.
- There is also a likely slowing in hepatic metabolism which could mean the therapeutic response is longer.
- There is a likely slowing in renal excretion. This means that adverse effects could result due to the accumulation of drugs.
- Before drug administration and to assess renal function, creatinine clearance should be determined beforehand.
- A common problem in this age group is failure to follow a prescribed regimen.
- Any drug interaction should be anticipated, assessed, and managed carefully at all times.

#### Pediatric patients

- Due to immature organ systems, one should always assume increased drug sensitivity.
- Absorption rates will differ because infants have irregular gastric patterns.
- Topical drugs can be absorbed extremely quickly because infants have thin skin.
- There is a likely chance of increased sensitivity to central nervous system drugs, and a risk of toxicity, because the blood-brain barrier of an infant is not fully developed.
- IM drugs are absorbed slower in neonates than in adults while IM drugs are absorbed faster by infants.
- A high-free concentration of drugs could result because infants have reduced protein-binding ability.
- It's only after the age of one that the liver and kidneys are developed fully. Because of this, in infants, always assume reduced ability for both renal and hepatic metabolism.
- Drug metabolism in a child of one year of age is higher than that of adults.
- There could be unique side effects to certain drugs when given to children.

#### Breast-feeding or pregnant women

- Consider using higher doses as hepatic metabolism and renal excretion rates are accelerated.
- There is a lowering of intestinal excretion rates. This means lower

doses should be considered because of longer absorption times.

- Always consider that the drugs can enter the placenta and reach the fetus.
- Before any drugs are administered, always check the FDA risk categories for pregnant and breastfeeding women.
- The greatest risk of drug-induced fetus malformation comes between weeks three to eight of the pregnancy.
- When breastfeeding, any doses should be taken afterwards so as to ensure that minimal concentrations are passed into the milk.

### REACTIONS TO BLOOD TRANSFUSIONS

- **Transfusion-related lung injury:** Here leakage into the lungs results when antibodies activate granulocytes. Signs and symptoms of this will include tachycardia, fever, chills, cyanosis, hypotension, dyspnea, and tachypnea.
- **Plasma protein incompatibility:** This results from incompatibility of Immunoglobulin A. Signs and symptoms include hypotension, flushing, fever, chills, and dyspnea, abdominal pain, diarrhea.
- **Hemolytic:** This can result if blood is stored incorrectly, there is a mistake in the crossmatching, from intradonor incompatibility and RH or ABO incompatibility. Signs and symptoms include renal failure, shock, burning feeling when receiving blood, blood oozing at infusion site, dyspnea, flushed face, chest pain, fever, shaking, chills, hypotension, flank pain, oliguria, and hemoglobinuria.
- **Febrile:** This can result from bacterial lipopolysaccharides or antileukocyte recipient antibodies directed against donor white blood cells. Signs and symptoms include flank pain, chest tightness, increased pulse rate, cough, palpitations, flushed face, chills, headache, and fever.
- **Bacterial contamination:** This can result from staphylococcus, pseudomonas, and other organisms that can live at cold temperatures. Signs and symptoms include chills, fever, vomiting, diarrhea, shock, renal failure, and abdominal cramping.
- **Allergic:** This can occur if there is an allergen in the donor blood or if it is hypersensitive to certain drugs. Signs and symptoms include fever, vomiting, nausea, and anaphylaxis.

### COMPLETE BLOOD COUNT (CBC)

- **Red blood cells (RBCs):** Male – 4.7 - 6 x 10<sup>6</sup> / mL. Female – 4.2 - 5.4 x 10<sup>6</sup> / mL.
- **Hematocrit (Hct):** Male 42% - 52%. Female 37%-47%.



- **Hemoglobin (Hgb):** Male – 13.5 - 18 g / dL. Female – 12-16 g / dL
- **RBC indices:**
  - Mean corpuscular volume (MCV) – 78 - 100 fL
  - Mean corpuscular Hgb (MCH) – 27 - 31 pg
  - Mean corpuscular Hgb conc. (MCHC) 33 - 37 g / dL
- **White blood cells (WBC):** 4 k-10.5k / mL
- **Differential WBCs:**
  - Neutrophils: 1.5k - 6.6k / mL
  - Bands: < 1K / mL
  - Eosinophils: < 0.7K / mL
  - Basophils: < 0.1K / mL
  - Monocytes: < 1K / mL
- **Lymphocytes:**
  - T lymphocytes: 60% - 80% of lymphocytes
  - B lymphocytes: 4% - 16% of lymphocytes
- **Platelets:** 150K-300K / mL

#### EXTENSIVE METABOLIC PANEL

In all of these below, the normal adult range is given along with conditions that could result from abnormal findings (both increased and decreased ranges).

- **Blood urea nitrogen (BUN):** 6 – 20 mg / dL. Increased levels could mean congestive heart failure, urinary tract obstruction, shock, kidney failure, kidney disease, heart attack, hypovolemia, GI bleeding, too much protein in the GI tract, and congestive heart failure (CHF). Decreased levels could mean low protein in the diet, overhydration, malnutrition, or liver failure.
- **Sodium (Na):** 135 - 145 mEq / L: Increased levels could mean diabetes, dehydration, diaphoresis, CHF, diarrhea, hypertension, ostomies, toxemia, and vomiting. Decreased levels can mean diarrhea, ascites in cardiac failure, an obstruction in the bowel, cirrhosis, emphysema, burns, and GI malabsorption.
- **Potassium (K):** 3.7 - 5.2 mEq / L. Increased levels could mean anxiety, asthma, burns, anemia, acidosis, adrenocortical insufficiency, dialysis, hypoventilation, and dysrhythmias. Decreased levels could mean vomiting, diarrhea, intestinal fistulas, alcoholism, GI suction, alkalosis, bradycardia, cancer of the colon, CHF, diuretics, Crohn's disease, and cirrhosis.
- **Chloride (Cl):** 97 - 107 mEq / L. Increased levels could mean Alcoholism, anemia, CHF, dehydration, respiratory alkalosis, head trauma, and fever. Decreased levels could mean

- CNS disorders, burns, edema, GI loss, emphysema, and metabolic alkalosis.
- **Carbon dioxide (CO<sub>2</sub>):** 23 - 29 mEq / L. Increased levels could mean breathing disorders, hyperaldosteronism, vomiting, and Cushing's syndrome. Decreased levels could mean Diarrhea, Addison's disease, ethylene glycol poisoning, salicylate toxicity, methanol poisoning, metabolic acidosis, lactic acidosis, kidney disease, and ketoacidosis.
- **Glucose:** 70 - 100 mg / dL (fasting). Increased levels could mean prediabetes, diabetes, hyperthyroidism, pancreatic cancer, and pancreatitis. Decreased levels could mean insulin overdose, malnutrition, hypothyroidism, and hypopituitarism.
- **Creatinine:** 0.6 - 1.3 mg / dL: Increased levels could mean urinary tract obstruction, CHF, shock, rhabdomyolysis, acute tubular necrosis (ATN), dehydration, diabetic nephropathy, glomerulonephritis, kidney failure, muscular dystrophy, preeclampsia, and pyelonephritis. Lower levels could indicate Late state muscular dystrophy, and myasthenia gravis.
- **Calcium (Ca):** 8.5 - 10.2 mg / dL. Increased levels can indicate ATN, bacteremia, respiratory acidosis, and chronic hepatic disease. Decreased levels could indicate alkalosis, burns, cachexia, celiac disease, chronic renal disease, diarrhea, and GI malabsorption.
- **Total protein:** 6.2 - 8.2 g / dL: Increased levels could indicate multiple myeloma, Waldenstrom's disease, hepatitis B or C, HIV, and chronic inflammation. Decreased levels could mean agammaglobulinemia, hemorrhage, burns, glomerulonephritis, liver disease, malabsorption, malnutrition, nephritic syndrome, protein-losing, and enteropathy.
- **Albumin:** 3.4 - 5.5 g / dL. Increased levels could mean dehydration. Lower levels could mean liver or kidney disease.
- **Total bilirubin:** 0.3 - 1.9 mg / dL. Increased levels could mean gallstones, pancreatic or gallbladder cancer, biliary stricture, Gilbert's disease, hepatitis, and cirrhosis.
- **AST/SGOT:** 10 - 34 U / L. Increased levels could mean mononucleosis, kidney failure, heart attack, acute pancreatitis, liver cancer, hepatitis, and cirrhosis.
- **ALT/SGPT:** 7 - 56 U / L. Increased levels could mean mononucleosis, heart attack, acute pancreatitis, liver cancer, hepatitis, and cirrhosis.
- **Alkaline phosphatase:** 44 - 147 U / L. Increased levels could mean hyperparathyroidism, lymphoma,

leukemia, bone cancer, Paget's disease, biliary obstruction, hepatitis, and cirrhosis. Lower levels could indicate Wilson's disease, protein deficiency, and malnutrition.

#### DOCUMENTATION

This is critical in a medical facility as it provides evidence of the following:

- All the interactions between the patient, their families, healthcare organizations, and health professionals that are part of the care team are recorded here.
- Any patient education carried out as well as procedures, treatments, and tests conducted.
- The response of each patient to the various diagnostic tests, interventions, treatments, and procedures carried out on them.

Because it presents the care administered to a patient by a nurse in a logical manner, systematic documentation is critical.

It does this as follows:

- The patient's specific condition or any alterations that have occurred are identified through assessment data. This is the foundation on which the individual nursing care plan is built.
- The formation of the nursing diagnosis, as well as the priorities in nursing care, are determined by any alterations in health patterns and from risk factors.
- Development of patient goals, both short and long term are possible by identifying the nursing diagnosis, along with the expected outcomes. Not only that, but this also is the start of nursing action and intervention creation.
- The actions necessary to resolve the nursing diagnosis is identified by the plan of care.
- Evidence for the act of nursing is seen in the actions carried out to assist the patient in achieving the expected outcomes by the nurse.

Depending on the health care facility, documentation can differ.

- The nursing process, however, will always be reflected in the nursing documentation. This documentation also includes the nursing situation as well as the patient's individualized context.
- Each phase of the nursing process is represented in this documentation which should always be logical, focused, and relevant to the care the patient receives.

#### Documentation guidelines

- Always make sure that the patient is identified and that you are using the right patient chart. The name and identifying information of the patient should be on each page of their records.
  - To ensure an accurate recall of data, medical staff should document right after they have finished dealing with the patient.
  - Each entry should receive the correct date and time.
  - All entries should be signed with the full name of the nurse as well as their professional credentials.
  - There should be no space left between entries.
  - Use a single line to cross out any errors made. The correction should also include a date and time. Never erase or use correction fluid on errors.
  - Even if incorrect, never change an entry made by another person.
  - Indicate patient responses by making use of quotation marks.
  - Always use chronological order when documenting.
  - Always write legibly.
  - Permanent black ink should always be used.
  - Use phrases and abbreviations where necessary to help document in a clear and concise manner.
  - All telephone calls related to the patient's care, both received and made, must be documented.
  - The use of words such as "good", "bad" and other judgmental language should be avoided when documenting.
  - Statements such as "patient is lazy", or "patient is uncooperative" or other evaluative statements should not be used.
  - If interval times are stated, they should be done so precisely, for example, "every 2 hours".
  - While documenting, relative statements shouldn't be made. Instead, always be as specific as possible.
  - When appropriate, draw pictures in the documentation.
  - Always use anatomical landmarks when referring to findings.
- Assessment and analysis (based on the data collected, this is the conclusion reached)
  - Plan (to change the status of the problem the patient is experiencing, this is the action to be taken).
  - **PIE:** This is another narrative charting using a structured manner.
    - Problem
    - Intervention
    - Evaluation
  - **CBE:** This stands for charting by exception in which only deviations from pre-established norms are documented.

#### Documentation methods

- **Narrative charting:** This uses a story format and it's used to describe various aspects including the status of the patient, the intervention and treatment received, and the response.
- **SOAP:** This is narrative charting using a structured manner.
  - Subjective data (for example, what the patient says about their problem)
  - Objective data (for example, lab results and assessment findings)