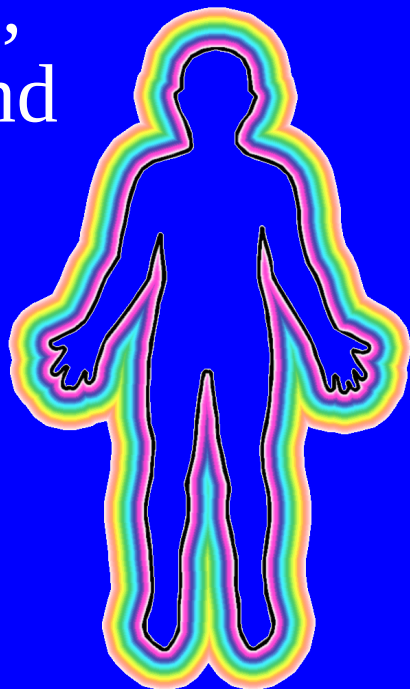
Nursing Care of the Surgical Patient

Charlotte Buoni, DNP, MSN, RN, CCRN, CNE

Surgical Overview

What is Surgery?

- A planned physical alteration of the human body designed to arrest, alleviate, or eradicate some pathological process.
- The Art & Science of treating diseases, injuries, or deformities by operation and instrumentation
- An anatomical alteration of the body



- Surgery performed for:
  - Diagnosis
  - Cure
  - Palliation
  - Prevention
  - Exploration
  - Constructive
  - Transplant

Phases of Surgery

- **<u>Perioperative</u>**
  - "peri" Greek prefix
  - *Around or About*
  - Inclusive term meaning all phases of the surgical experience

Phases of Surgery

- **<u>Preoperative</u> : time decision is made to have surgery until transported to the OR**

Phases of Surgery

- **<u>Intra-operative:</u> administration of anesthesia through completion of surgical procedure**

Phases of Surgery

- **<u>Post-operative</u>: Post-anesthesia care unit until recovery is complete**

The Surgical Nurse

- **Perioperative nurse**
  - allows nurse to function in variety of roles within the surgical process

Perioperative nursing

Defines role of nurse in each of 3 phases

- Pre-operative
- Intra-operative
- Post-operative

- Perioperative nursing stresses ***continuity of care*** for total surgical experience

- Perioperative nursing is based on **Nursing Process**
  - _____
  - _____
  - _____
  - _____

AORN - Association of periOperative Registered Nurses

- Purpose - gain new knowledge and improve nursing care in the OR
- Develop Standards of Practice for the OR
  - used to measure quality
- Comprehensive approach to meet needs of surgical patient

Standardized Policies and Procedures

- Important for:
  - patient safety & welfare
  - easier to teach to others
  - learning easier when consistent
  - deviations have significance
- Help maintain quality of practice

Settings for Surgery

Surgeries are performed in hospitals, free standing surgical centers, and physician offices.

- Inpatient - patient admitted and surgery performed in the hospital surgical suite

- Ambulatory surgery - many surgeries can be performed without patient having to be admitted
  - Approximately *60-75%* of surgeries performed as outpatient

Types of Ambulatory Surgery Centers

- **Hospital integrated**:
  - Outpatient integrated with inpatients in all 3 phases
  - Lab & diagnostic testing done as outpatient
  - Lowers hospital costs to patient & 3rd party payers

- **<u>Hospital affiliated</u> facility**
  - located within hospital complex, adjacent to or a satellite location
  - separate department for all 3 phases
  - Physically & organizationally separate from hospital OR unit
  - Exclusively outpatient

- **<u>Free Standing Unit</u>**
  - independently owned & operated
  - not affiliated with hospital

Ambulatory Surgery

Advantages

- less costly
- inpatient beds for very ill

∀↓ trauma of separation/away from home

∀↓ disruption of normal daily activities

- Patient assessment & pre-op teaching done on outpatient basis

- Requires good teaching by RN
- Interventions carried out at surgery center
- Following procedure, patient recovered and monitored until safe discharge *to caregiver* achieved.

Ambulatory Surgery Criteria

- *Age* : children, young & middle age adults without complex health problems.

- *General health status:* physical & emotional, including home situation
- *Insurance guidelines*
- *Patient willingness*

Classifications of Surgery

Degree of Risk

Purpose

Degree of Urgency

Classified According to Degree of Risk:

- **Minor Surgery:** simple surgery that presents little risk to life

Classified According to Degree of Risk:

- **Major Surgery:** involves extensive reconstruction or alteration in body part.

Classifications of Surgery

- Classified According to Purpose:
  - (Review notes, class preparation assignment, assigned readings)

Classified According to Urgency

- **Emergency: unplanned.**
  - Performed immediately
  - Preserve life or function of patient

Classified according to Surgical Urgency

Urgent: Unplanned.

- Requires surgical intervention within 24-48 hrs

Classified according to Surgical Urgency

- **Elective (Required):** planned.
  - Indicated for health problems but *not necessary* *immediately* to preserve life or function
- **Elective (Cosmetic):** planned
  - Recommended or individual preferred surgical intervention.

COMMON SURGICAL SUFFIXES

- ECTOMY removal of an organ or gland
- LYSIS destruction of
- OSTOMY providing an opening
- OTOMY cutting into
- PLASTY formation or plastic repair
- SCOPY looking into

Pre-Operative Phase

PRE-OPERATIVE PHASE

Pre-operative needs include:

- **Informed Consent**
- **Psychosocial preparation**
- **Health Assessment**
- **Surgical risk**
- **Plan care**
- **Pre-op teaching**
- **Physical preparation**
- **Preoperative Medications**

Consent for Surgical Intervention

- Patient MUST have a clear understanding of the surgery, risks, and benefits
  - **Must have clear judgment**
  - **NO impairments**

- The consent form protects:
  - Patient
  - **Hospital, staff, & surgeon**

*For Consent to be **Informed:***

- full explanation of the procedure by the _____ *in terms the patient can understand* _____to signing the permit.
- Patient must be informed of risks & benefits of the surgery.
- Language barriers addressed appropriately
- **The nurse's role is _____**

_____

Consent form must be properly signed

- _____
- _____
- _____
- If patient unable to write, may sign X with two adult witnesses
- Witness signature indicates _____ _____
  - Does not verify patient's competency or understanding of risks, benefits, or alternatives

- If patient unable to sign, authorized representative may give verbal consent via telephone to physician
- _____witnesses must sign to indicate consent given by phone
- Nursing role…
- Informed consent is valid for **60 days**

Consent in an Emergency

- Treatment may be given in medical emergencies without informed consent
  - True or False?
- _____
- _____

Who may give consent

- Parent or guardian of minor
- Married minor
- Married minor for spouse if unable to sign
- Minor parent for his/her child

Psychosocial Preparation

Psychosocial Preparation

- Surgery is **always** a major experience for the patient & family

- Surgery is a ***stressor*** that produces psychosocial and

- Anxiety may be less if patient perceives surgery as having positive outcomes.
  - Curative
  - Relief of symptoms
  - More attractive physical appearance

Anxiety

- *Anxiety can impair cognition, decision making, and coping*

- Always assess level of anxiety **first** to address before proceeding with preop preparation

- Lack of emotional response to surgery may indicate denial-
  - pt may detach self from process or show lack of interest

- Repeatedly asking questions, talking incessantly or not talking
  - may indicate hidden fears

Fears Related to Surgery

General

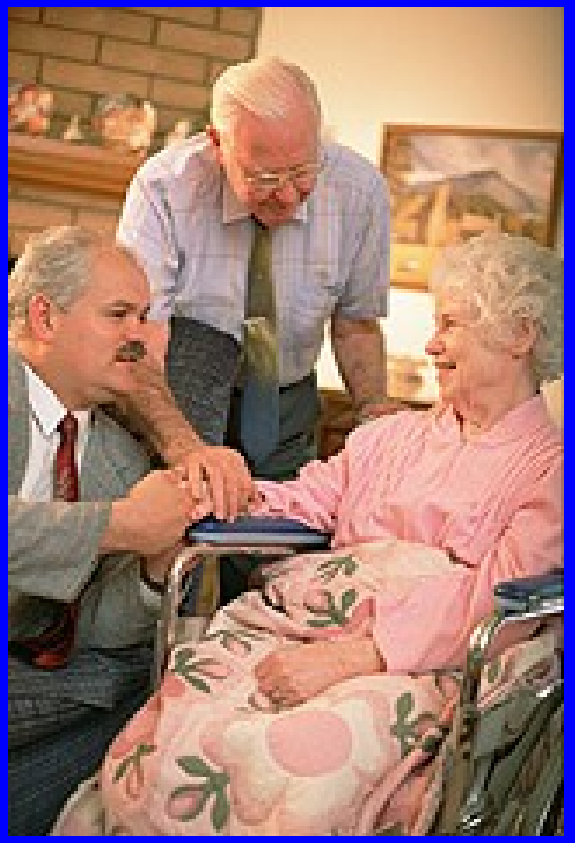
- _____
- _____
- _____
- _____

Specific

- _____
- _____
- _____
- _____
- _____
- _____

Assessment of Pre-Op Anxiety

- Subjective Data: patient level of understanding/perceptions
  - site
  - type of surgery
  - reason for surgery
  - extent of hospitalization
  - tests required
  - limitations



Assessment of Pre-Op Anxiety

- pre-op routines and post-op routines
- previous surgical experiences
- religion or cultural beliefs
- tests required
- source of support
  - family/significant other

Objective Data

- pick up clues of anxiety through <u>objective data:</u>
  - speech patterns
    - repetition of themes
    - change topic
    - avoid topics
  - degree of interactions with others

- Physical indications of anxiety
  - pulse / respirations
  - hand movements
  - perspiration
  - activity level
  - frequent voiding
  - change in sleep patterns

- What are some nursing diagnoses we might use related to our psychosocial assessment?
- Expected Outcomes?

NANDA Nursing Diagnoses r/t Psychosocial Assessment

Expected Outcomes

Implementation of Nursing Action

Level of understanding of surgical procedure

- Assess what the patient really knows
  - do they really know what to expect?

- Explore patient's expectations and perceptions
  - If know what myths & misconceptions are, then can help patient deal with them

Patient: “I’m so nervous about my surgery”.

Patient: “I don’t want surgery because I’ll die like my father did.”

Avoid “why” questions, false reassurance

Pre-Op Teaching

Pre-op Teaching

Studies in nursing literature support the importance of pre-op psychological preparation.

What can pre-op teaching do?

Pre-op Teaching

Generally three types of information

1. **Sensory** – see, hear, smell & feel during surgery
2. **Process** – general flow of what will happen
3. **Procedural** – specific details of what will happen (Mark surgery site, IV started, catheter inserted, etc.)

Pre-op Teaching

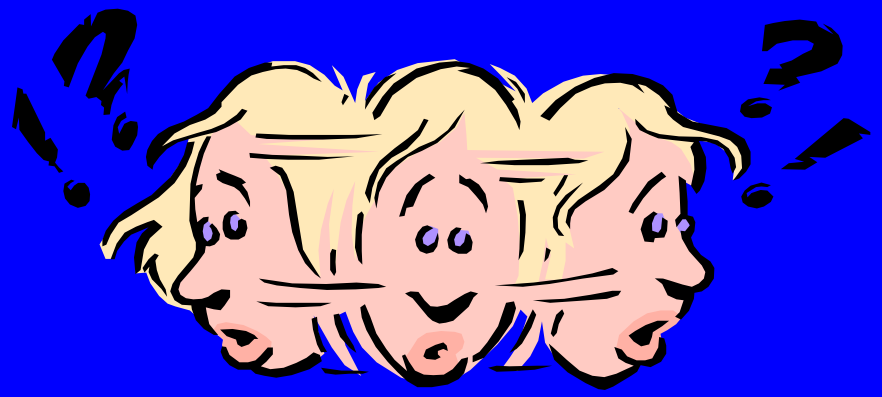
- Provide information & instruction
  - Purpose of surgery
  - What and why of preoperative tests
  - Preoperative routines
  - Schedules
  - What to expect in the recovery period
  - Family instructions
  - Probable postoperative therapies

Pre-op Teaching

- Simple explanations are best
- Always give written information to review later and reinforce teaching

REMEMBER…….

- **Giving information does not mean it is perceived or understood!**



Evaluation of Pre-op Teaching

- Performance of post-op exercises
  - Return demonstration
  - Verbalized rationale

- Ability to sleep
  - Insomnia may indicate anxiety

- Willingness to cooperate
  - Participates in pre-op teaching
  - Follows instructions
  - Non-adherent may signal anxiety or denial

Summary of pre-operative psychological preparation

- _____
- _____
- _____
- _____
- _____
- _____

Health Assessment

Pre-op health assessment:

- Physical assessment
- Pre-surgical test results
- Identification of surgical risk factors

Physical Pre-op Assessment

- *Baseline information/data used for comparison throughout the perioperative experience*

Baseline Data

- General health/previous surgeries
- Allergic responses
- Height & Weight (Body Surface Area)
- Medications/Smoking/ETOH
- Dentures, glasses, hearing aids, etc
- Disabilities or Impairments

Baseline Data

- Mobility limitations
- Level of consciousness
- Mental status
- Coping/support
- Pregnant

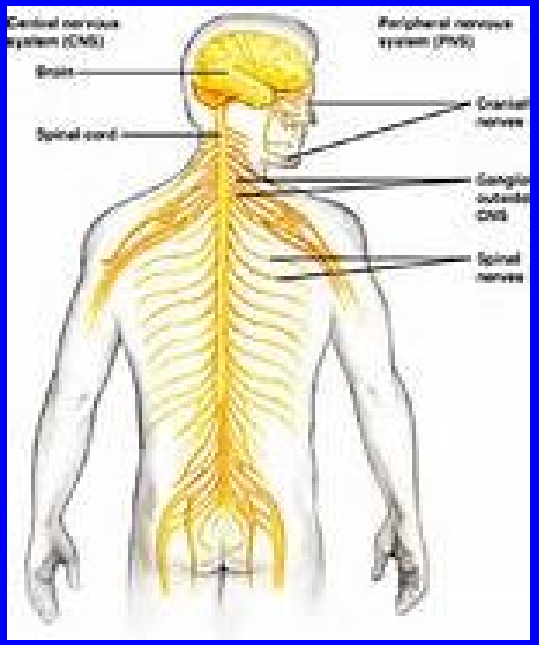
Nutritional Status: *directly affects intra-op success & post-op recovery with tissue repair & resistance to infection*

Review of Systems

- Neurologic
- Respiratory
- Cardiovascular
- Renal
- Endocrine
- Hepatic
- Skin Integrity
- Musculoskeletal
- Immune

Neurologic System

- _____
- _____
- _____
- _____
- _____

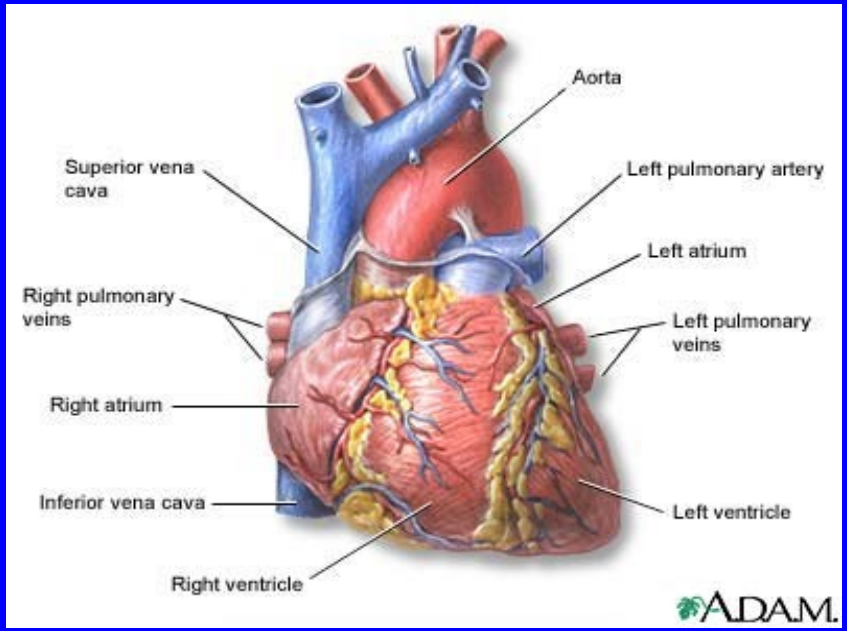


Pulmonary

- _____
- _____
- _____
- _____
- _____
- _____

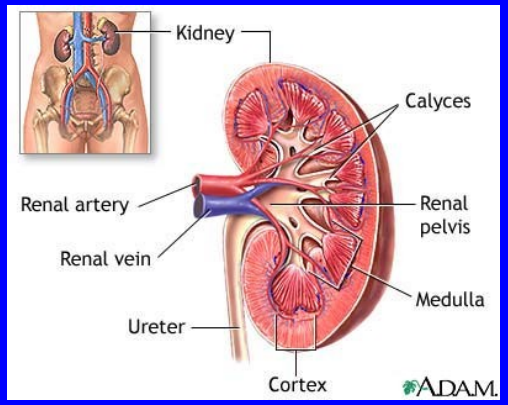
Cardiovascular

- _____
- _____
- _____
- _____
- _____
- _____



Renal

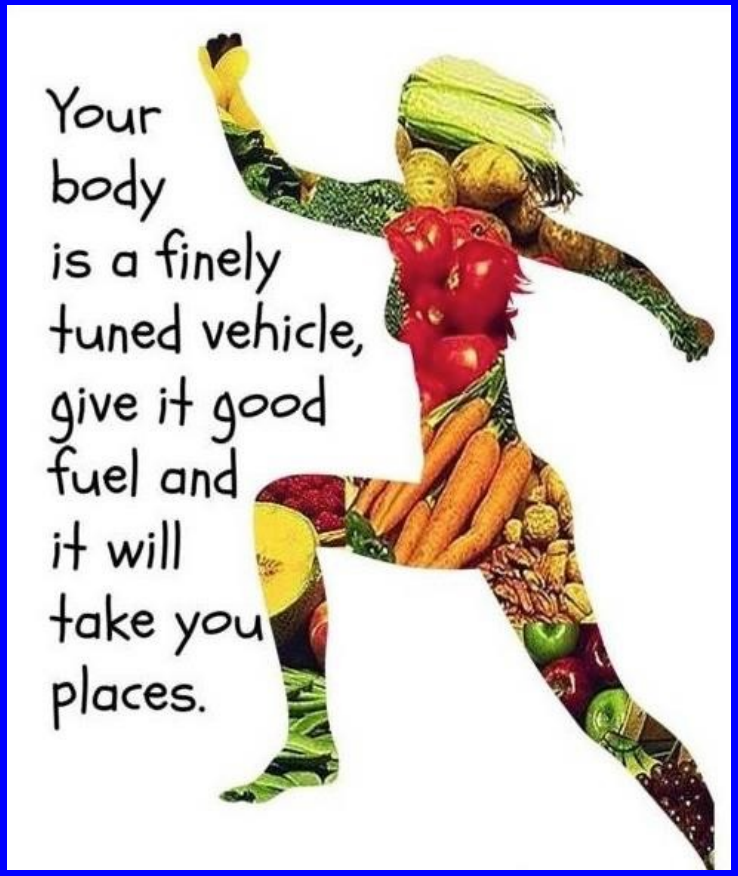
- _____
- _____
- _____
- _____


Kidney
Calyces
Renal artery
Renal pelvis
Renal vein
Medulla
Ureter
Cortex
A.D.A.M.

Endocrine

- _____
- _____
- _____

Nutritional Status



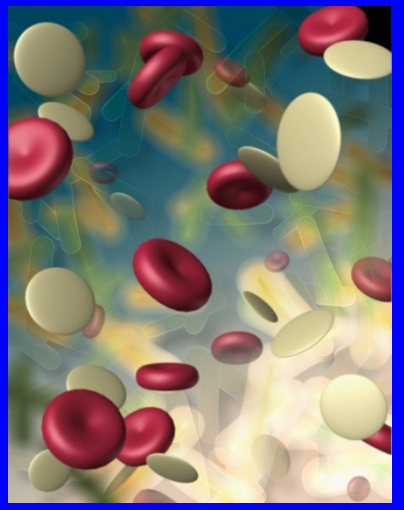
Skin Integrity

- _____
- _____
- _____
- _____
- _____

Musculoskeletal

Immune system

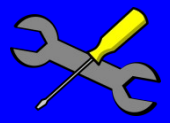
- _____
- _____
- _____
- _____



Hepatic Function

- _____
- _____
- _____
- _____

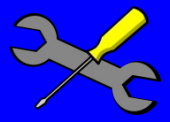
Pre-operative tests

- Lab work 
- Diagnostic studies

- Why is this important?

Pre-operative Labs:
Complete Blood Count (CBC)

- WBC - Total white blood count
- Fight infection
  - 4000 – 10000 *(4 – 10 on lab print-out*)
  - Neutrophils
  - Lymphocytes
  - Monocytes
  - Basophils
  - Eosinophils

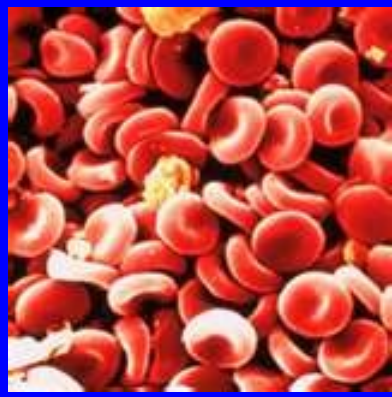


Complete Blood Count

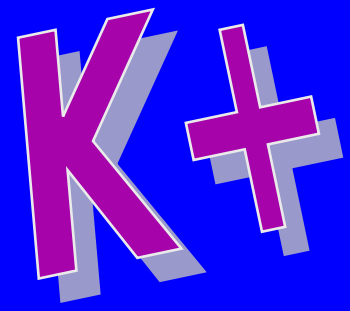
- RBC – Red blood cell
  - Contain hemoglobin for transport and exchange of oxygen
  - Male: 4.7 – 6.1
  - Female: 4.2 – 5.4
- Hemoglobin
  - Male: 14 – 18
  - Female: 12 – 16

Complete Blood Count

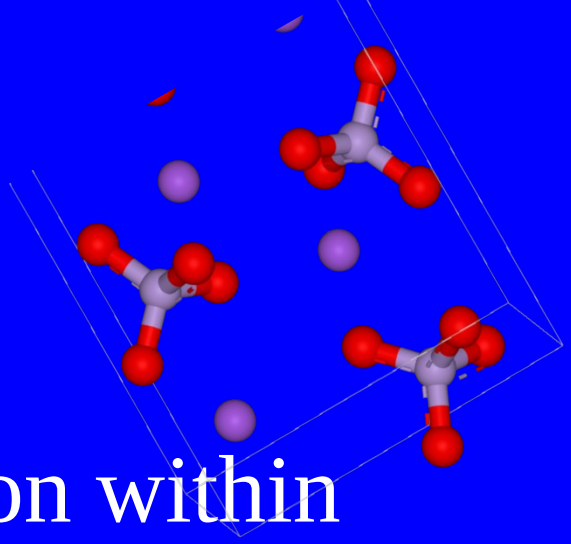
- Hematocrit – percentage of total blood volume made up by RBCs
  - Male: 42 – 52%
  - Female: 37 – 47%
- Platelets – essential to blood clotting
  - 150,000 – 400,000



Other Components: RDW, MCV, MCHC

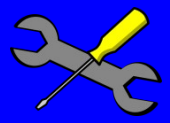


Electrolytes



- Potassium (K+) – major cation within cells
  - Normal 3.5 – 5.0
  - Excreted by the kidneys
  - Minor changes have significant cardiac consequences

Chem 7: Electrolytes



- Sodium (Na+) – major determinant of extracellular osmolality.
  - Normal 136 – 145
  - Balance between dietary intake and renal excretion
  - Many other factors also regulate Na in body

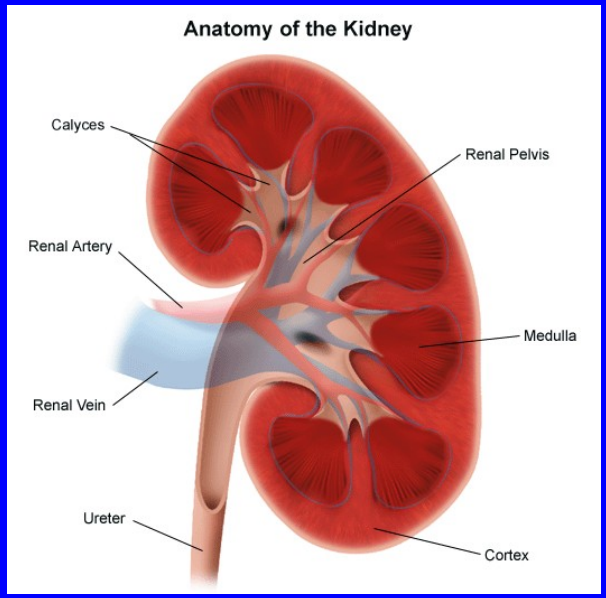
Electrolytes

- Carbon dioxide – normal 23 – 30 mEq
  - Assists in evaluating pH status of patient and other electrolytes
- Chloride – normal 98 – 106 mEq
  - Gives indication of acid-base balance
  - Maintain electrical neutrality with Na+
- Calcium – normal 7.6 – 10.4 mg/dl
  - Evaluates parathyroid function, calcium metabolism, monitor renal patients, other uses

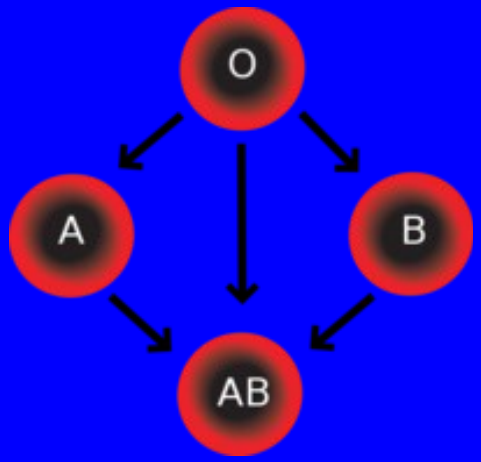
Others

Kidneys

- BUN (blood urea nitrogen)
  - Normal 10 – 20
  - Monitors kidney function
- Creatinine
  - normal 0.5 – 1.1
  - Monitors kidney function
- Urinalysis –
  - UTI, renal function, diabetes



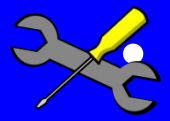
Others



- Type & cross match
  - if at high risk for blood loss
- ABGs – arterial blood gases
- Pregnancy Test
  - Female patients of childbearing age

Others

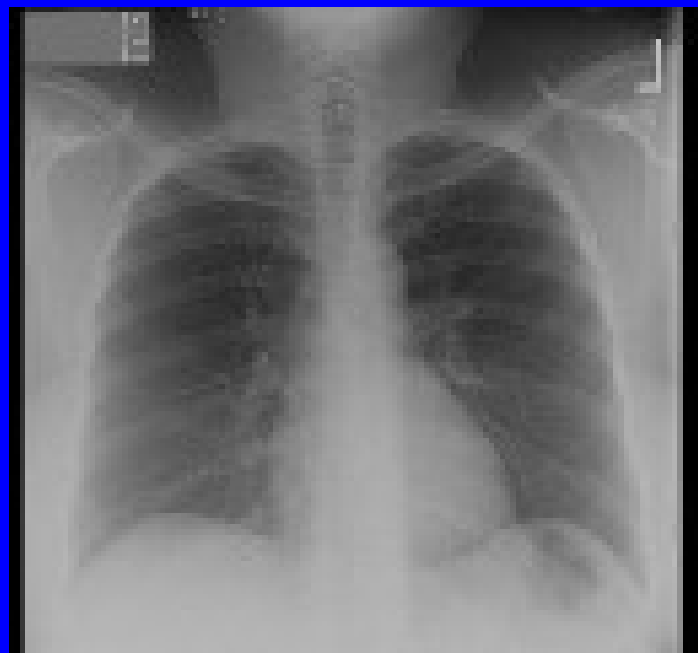
- PTT, PT/INR, Bleeding time
  - Clotting factors



- FBS – fasting blood sugar
  - Resulted as GLU on chem 7
  - Normal values 70-99

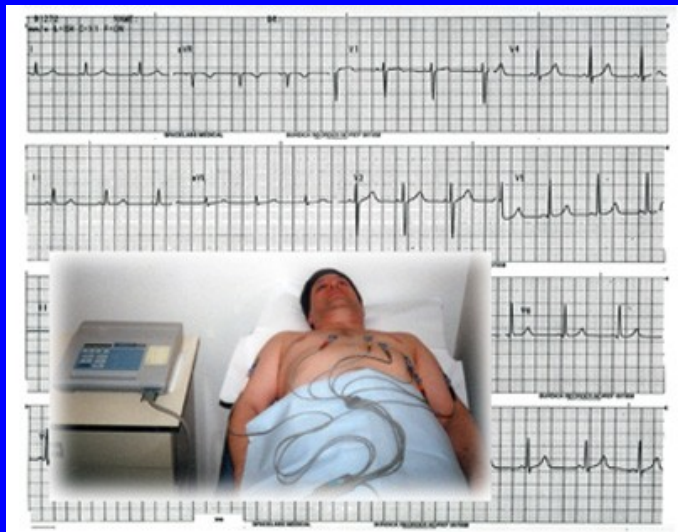
Diagnostic Tests

- CXR - examine condition of heart & lungs
  - any lung abnormalities may require a different type & dose of sedatives/anesthesia
  - Heart size



- EKG- measures heart electrical activity
  - rate, rhythm & other factors
  - Can identify pre-existing cardiac problems
  - Done if over 40 years old or history of heart disease

- PFT – pulmonary function test



Routine Pre-surgical Tests

- Nurse's responsibility is:
  - _____
  - _____
  - _____
- _____

Surgical Risk Factors

- The degree of surgical risk depends on:
  - physical/mental condition of patient
  - extent of pre-existing disease
  - severity of required operation

Surgical Risk Factors

- AGE: Very young and very old at greatest surgical risk
  - Elderly patient has fewer physiological reserves to meet the demands of surgery

General Health

Use of Drugs/ETOH

Allergies

Nutrition

- Malnutrition: state of impaired functional ability of essential nutrients & calories within cells

- Protein is essential component to build & repair tissues and fight infection

Obesity:

excessive accumulation of fat

Fluid & Electrolyte Balance

- Hormonal reaction results in sodium & water retention *and* potassium loss
  – within 2-5 days of surgery.

- Pre-op abnormalities increase risk of post op imbalance.

Mental outlook and status

- Mental illness and developmental disabilities affect ability to cope with and understand surgery
- Dementia, Alzheimer's Disease
- Anxiety

Economic & occupational status

- Will surgery affect work status or impact ability to return to same job.

- Insurance coverage
  - authorizations, pre-certifications

- Ability to pay

- Required second opinion

Radiation Therapy

- Side effects that may affect surgery/healing
  - thins skin layers
  - breaks down collagen for less healing potential
  - scars tissue - fibrotic & changes vascularity

- Ideally, wait 4-6 weeks after radiation to do surgery.

Planning & Interventions

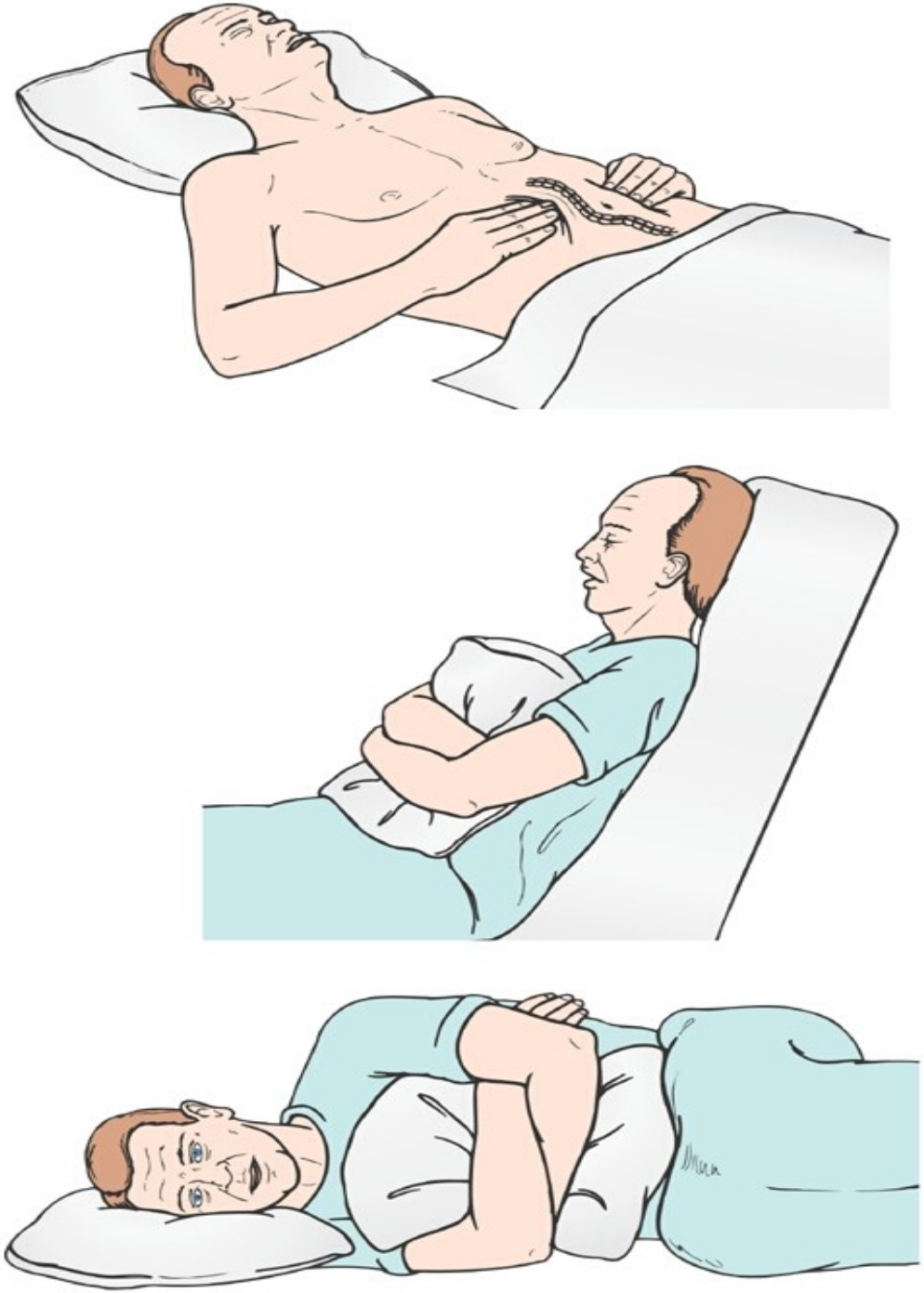
- Provide information & instruction for optimal physiological needs.
- Degree of pre-op physical preparation depends on patient status, type of surgery, & physician preference.
- Planning= expected outcome

Overall goal of pre-op period:

To ensure patient is mentally & physically prepared for surgery.

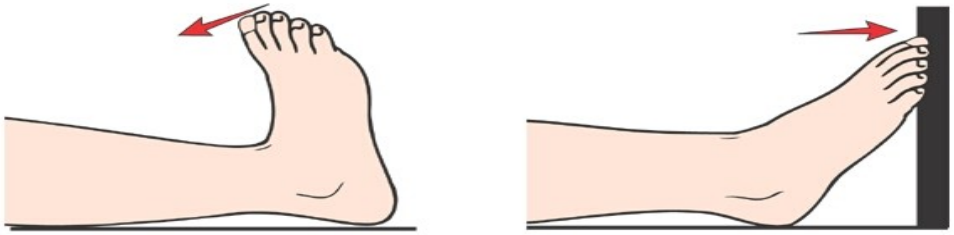
Pre-op Exercises Teaching

- Deep breathing
- Coughing
- Splinting
- Extremity exercise
- TEDS and/or EPCs
- Turning
- OOB
- Incentive Spirometry or special equipment

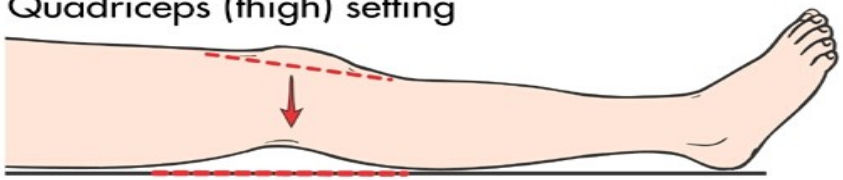


Essential

Gastrocnemius (calf) pumping

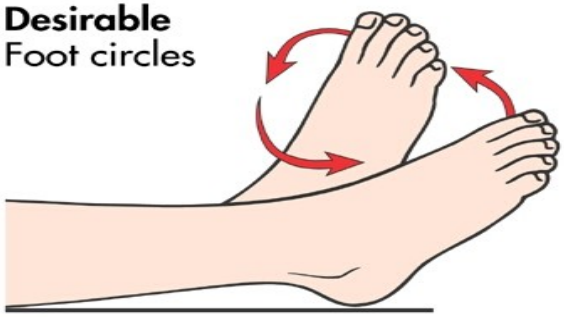


Quadriceps (thigh) setting

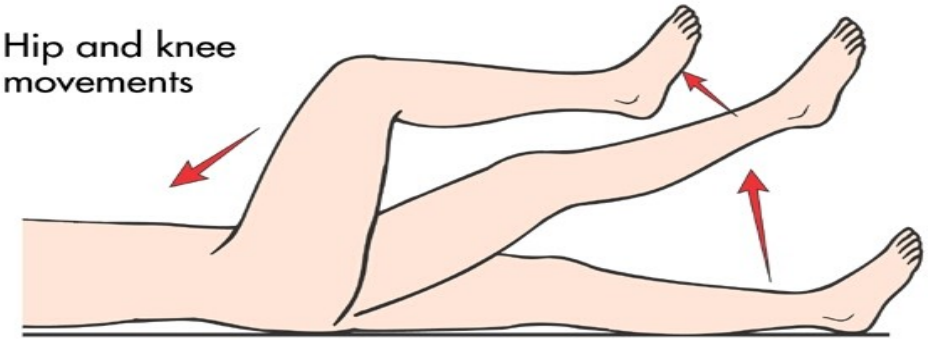


Desirable

Foot circles



Hip and knee movements



- Antiemboli Stockings
  - Firm elastic stockings
  - Compresses veins in legs to facilitate venous blood return
  - Prevents edema and thrombi from forming

- Sequential Compression Devices / SCD's
- EPC's
  - Inflate and deflate
  - Promote venous flow
  - Prevent thrombi

Goal of Pre-op Exercises

- _____
- _____

Expected Outcomes

- Knowledge: disease process
- Knowledge: prescribed activities
- Knowledge: Health resources
- Fear control
- Anxiety control
- Comfort level
- Coping
- Decrease risk of complications

Physical Preparation Evening Prior

- Bowel Elimination
  - Collapse or “decompress” bowel so will not obstruct access to organs or be nicked during surgery
  - prevents incontinence and contamination of surgical area when sphincter relaxed under anesthesia

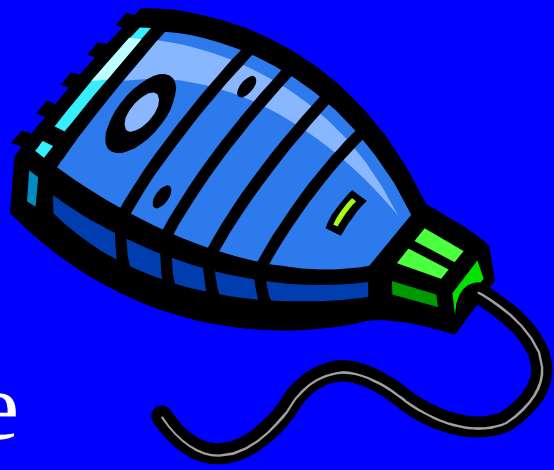
- Prevents post-op constipation related to decreased peristalsis
- Prevents uncomfortable straining first few days post-op
  - dangerous for rectal, prostate & eye surgery
- After surgery, peristalsis doesn’t return for 24 – 48 hours

- Bowel Prep
  - Laxative and stool softeners day prior
  - Enema or suppository evening prior
  - If ordered, cleansing enema until clear
    - Administer well before bedtime so patient can rest

- Remember: with outpatient surgeries, all preps are done by the PATIENT at home so require good teaching.
  - Many people don’t know how to give themselves an enema
  - **Don’t assume your patient knows!….**
  - Always assess their knowledge level

Skin preparation

- **Want to decrease the number of microorganisms at surgical site**
- Maintain skin integrity
- Shower or surgical bath with regular or antiseptic soap evening before or in morning of surgery
- Surgical bath should include shampoo if possible
- Nails should be trimmed and free of polish



- Removing hair at surgical site
- Always done in the OR just prior to surgery
- Special electrical razor, clippers, or depilatory

Sleep & Rest

- Adequate rest helps patient manage stress and helps the healing process

NPO after MN

- Nothing by mouth after midnight

- Evidence Based Practice
  - New research shows not necessary
  - Guidelines changing
  - Clear liquids up to 2 hours prior
- Must follow what the physician orders!

NPO after MN

Food & fluid

- NPO
  - ensure upper GI tract empty
  - reduces possibility of vomiting & aspiration during anesthesia
  - encourage patient to eat nourishing meal evening before & maintain good fluid intake

NPO after MN

- Home/ Routine medications
  - Usually held prior to surgery
  - Some may be held for days prior
  - Some ok to give the morning of

- When in doubt, clarify with surgeon

Physical Preparation Day of Surgery

- **OR checklist** identifies what is required prior to patient going to OR.

CANNOT enter OR without

- ID band on
- H & P in chart
- OR Checklist completed

Vital signs

- Taken preoperatively as part of final preop assessment for baseline data

- Report any abnormal findings to surgeon

Hygiene & Attire

- Surgical bath
- Mouth care
- Remove all makeup & nail polish
- Remove all hairpins, clips, wigs, etc.
- Remove all prosthetic devices
- Remove all clothing -undergarments/socks
- Clean hospital gown on
- Surgical cap placed on head when ready to go

Care of Valuables

- Remove ALL jewelry (ask about places not readily visible!)
  - Can not have ANY metal on
  - Potential for electrical shock or burns from equipment

Special Orders

- Complete any special orders
  - Insertion of urinary catheter
  - NG tube
  - IV
  - Other

- Document all pre-op preparations on OR checklist and in EMR

Pre-operative Medications

Purposes of Pre-op Medication

- Relieves apprehension & anxiety
- Promotes sedation & amnesia
- Provides analgesia
- Facilitates induction of anesthesia
- Prevents nausea & vomiting
- Prevents autonomic reflex response
- Decreases anesthetic requirements
- Decreases respiratory & GI secretions
- Prevents post-op infections

Once pre-op meds are given:

- patient must remain in bed
- side rails up
- attach call bell
- document explained to patient need to remain in bed
- What will you do if the patient has to go to the bathroom?

Transportation to OR

- When OR is ready, staff will call and then come get patient
- Patient will be transferred to OR either in own bed or on stretcher.
- Cover patient's head with OR cap
- Allow time to say good-bye to family
- Fasten all safety straps, side rails up
- Chart goes with patient to OR

- Family may accompany to OR holding room or go to waiting area

- OR personnel will communicate with them during surgery.

- Provide emotional support & reassurance

Family Instructions

- Instruct family what to expect when their loved one comes out of surgery
  - Not awake
  - May say incoherent things
  - Pale
  - Special equipment
  - Frequent vital signs