

PERI-OPERATIVE NURSING



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PERI-OPERATIVE NURSING CARE

- The care provide during surgical intervention (pre-operative, intra-operative and post-operative period) is known as Peri-operative Nursing Care.
- Peri-operative Nursing Care includes :
 1. Pre-operative Nursing Care
 2. Intra-operative Nursing Care
 3. Post-operative Nursing Care.



1. PRE-OPERATIVE NURSING CARE

- The care before surgical intervention.
- The phase begins from decision proceed with surgical intervention is made and ends with transfer of patient on to the operating room table.
- It **includes** the following **nursing care** :
 1. Assessment of the patient.
 2. Informed consent by the patient.
 3. Reduce the anxiety level of the patient.
 4. Maintain nutritional level of the patient.
 5. Catheterization should be done.
 6. Provide knowledge to the patient regarding the procedure.
 7. Record and report vital signs and other investigations.
 8. Provide psychological support to the patient and the family members.
 9. Provide pre-operative medications to the patient such as pre-anesthetic drugs, antibiotics.



EVALUATION OF PRE-OPERATIVE CHECKLIST :

- History collection
- Physical examination
- Drug allergy
- Laboratory investigations
- ECG(Electrocardiograph)
- Record/report the vital signs
- Proper documentation
- Checking of all articles/instruments.

PREPERATION OF THE PATIENT ON THE DAY OF SURGERY:

- Psychological preparation
- Informed consent
- Physical preparation – CBC, X-ray, urinalysis.
- **PRE-OPERATIVE TEACHING:**
 - IT INCLUDES INSTRUCTION ABOUT THE PRE-OPERATIVE PERIOD, THE SURGERY ITSELF, AND THE POST-OPERATIVE PERIOD.
 - PAIN MANAGEMENT.



2. INTRA-OPERATIVE NURSING CARE

- Care starts from surgical intervention and ends with admission to Post Anesthesia Care Unit [PACU].
- It **includes** the following **nursing steps** :
 1. Maintains aseptic, controlled environment.
 2. Proper positioning of the patient.
 3. Completes intra-operative documentation.
 4. Ensures that the sponge, needle and instruments are correct and working.
 5. Report changes in patient's vital signs.
 6. Maintain fluid loss by IV infusion.
 7. Provide psychological support to the patient.
 8. Assessing patient's emotional status.
 9. Assist the surgeon during operation.



3. POST-OPERATIVE NURSING

CARE

• The post-operative period can be divided into :

- Immediate post-operative (day of surgery)
- Early post-operative (next day)
- Late post-operative period.

▪ GENERAL POST-OPERATIVE CARE

includes:

- Monitoring of vital signs.
- Ensure the surgical wound care.
- Care of inserted devices.
- Positioning
- Rehabilitation
- Pain management
- Sleep and post-operative care
- Maintain hygiene
- Monitoring of nausea and vomiting symptoms.
- Monitoring flatulence
- Administration of fluids
- Monitoring of dietary therapy .



POST-OPERATIVE COMPLICATIONS:

- Post-operative complications are events that disrupt the post-operative course and occur in connection with Anesthesia or surgery.
- The post-operative complications are categorized into :
 1. Early post-operative complications
 2. Late post-operative complications

1. EARLY POST-OPERATIVE COMPLICATIONS:

- The complications occurs immediately after surgery, usually in relation to general anesthesia, but may also be related to the actual surgical procedure.
- These complications can includes:
 - **RESPIRATORY DISORDERS** like Laryngospasm, Bronchospasm, Upper airway obstruction, inadequate breathing, Edema, Vocal cord paresis.
 - **CARDIOVASCULAR DISORDERS** like Hypotension, Hypertension, Shock, Arrhythmias, Myocardial infarction (Heart Attack).
 - Hypothermia and shivering.
 - Hyperthermia
 - Post-operative nausea and vomiting.
- Most of these complications occur in the OT and are treated by the Anesthesiologist or the Surgeon (bleeding).



2.LATE POST-OPERATIVE COMPLICATIONS:

- The patient may suffer late complications in days later after the surgery, either in the ICU or on the ward.
- Late complications include:
 - Ventilation complications
 - Cardiovascular disorders
 - Bleeding disorder complications
 - Surgical wound complications
 - Renal complications
 - Impaired hepatic function
 - Allergic reaction
 - Complications related to invasive inputs.
 - Nervous system disorders
 - Mental disorders – post-operative delirium.

PREVENTION OF COMPLICATIONS:

- Correct pre-operative preparation: Breathing exercises, Transfusion, Bandages.
- Post-operative period: Artificial ventilation, Drainage, NG tube feeding.



LEGAL ASPECTS

INFORMED CONSENT

- DEFINITION:

Informed consent is a process of communication between the client and the healthcare provider that often leads to agreement or permission for care, treatment, surgeries, and other services.

- NEEDS / IMPORTANCE / PURPOSES :

- Every patient has the right to get information and ask questions before procedures and treatment.
- To make a voluntary decision about participation by the patient.
- The informed consent process make sure that client's health care provider has given information about client's condition along with testing and treatment options before the client decide what to do.
- Be informed purpose, risks and benefits, and about the alternative therapies.
- Informed consent allows improved quality of care and increase safety.



OPERATION THEATRE (OT)

- DEFINITION:

Operating room or OT is a secure place in the hospital or a special facility within the hospital where surgical operations are carried out in an aseptic environment.

- ORGANIZATION & PHYSICAL LAYOUT OF OT:

- There is no standards design exists for OT.

- Inside the OT must conform to basic parameters so as to maintain the sterile OT environment:

- The main objective of planning should be

- Maximum standard of safety
- High standard of asepsis
- Optimise utilization of OT and staff time
- Optimise working condition
- Allow flexibility
- Maintenance.



ZONES IN OT

- **STERILE ZONE :**

- Operating gown
- Scrub room (proper hand washing).
- Anaesthesia's induction room .

- **CLEAR ZONE:**

- Pre-operative room
- Recovery room
- Staff room
- Store

- **PROTECTIVE ZONE:** area include

- Reception
- Waiting area
- Trolley
- Changing room

- **DISPOSAL ZONE:**

- Dirty utility
- Disposal corridor.



OT TEAM

- **STERILE TEAM MEMBERS:**

- Surgeons
- assistant surgeons
- Scrub person (registered nurse/theatre head nurse).

- **UNSTERILE TEAM MEMBERS:**

- Anesthetic team
 - Chief anesthetist
 - Assistant anaesthetist
 - Anesthetist nurse.
- Others nursing staff
- Radiologist, technician.



PHYSICAL LAYOUT OF OT:

1. **Staff amenities:**
 - Separate area should be provided for male female staff containing lockers, showers, toilets.
2. **Anaesthetic room:**
 - It is provide cleaning, testing and storing anaesthesia equipment.
3. **Blood store:**
 - Provision for refrigerated blood storage.
4. **Set up room:**
 - It is a clean work room where clean/sterile material are arranged piror to use in operating room.
5. **Laboratory/ x-ray room:**
 - An area preparation and examination is provided with operation unit.
6. **Storage:**
 - For equipment and supplies utilized in the unit, adequate store room should be provided.



INFECTION CONTROL IN OT (THERAPEUTIC ENVIRONMENT)

▪ OPERATING ROOM:

- The unrestricted, semi-restricted and restricted areas within the department in which surgical and or invasive procedures are performed.

▪ OPERATING ROOM(OR) THEATRE:

- A restricted area in which surgical or invasive procedures are performed, including but not limited to the scrub area.

▪ PURPOSE:

- To maintain standards in infection control measures and minimize hospital acquired infections in patients and staff.
- To define policy and procedure regarding nosocomial infections.

▪ METHODS OF INFECTION CONTROL:

1. *DISINFECTION*
2. *STERILIZATION*
3. *FUMIGATION*
4. *CARBOLIZATION*



1. DISINFECTION:

- Disinfection describes a process that eliminates many or all pathogenic microorganisms, except bacterial spores, on inanimate objects in OT by using disinfectants.

2. STERILIZATION:

- Steam or autoclave sterilization is the most common method of OT instrument sterilization.
- Instruments are placed in a surgical pack and exposed to steam under pressure.

3. FUMIGATION:

- Fumigation is a process of gaseous sterilization which is used for killing of micro-organisms and prevention of microbial growth in air, surface of wall or floor.

4. CARBOLIZATION:

- Carbolization is a procedure to wash or treat with carbolic acid all the furniture and floors of OT.



ANESTHESIA

- MEANING:

- Anesthesia means “loss of sensation with or without loss of consciousness” .
- Medications that cause anaesthesia, are called Anesthetics.

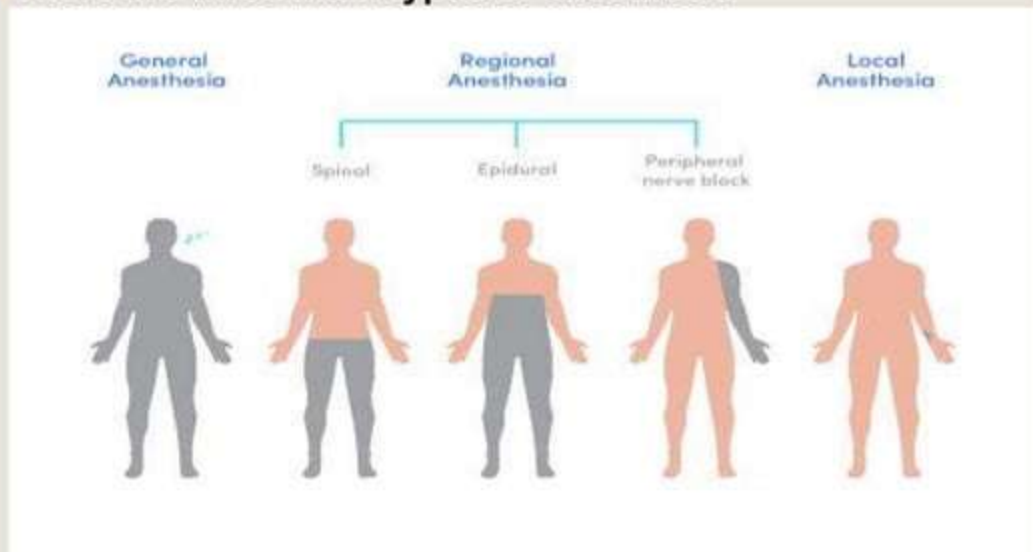
- DEFINITION:

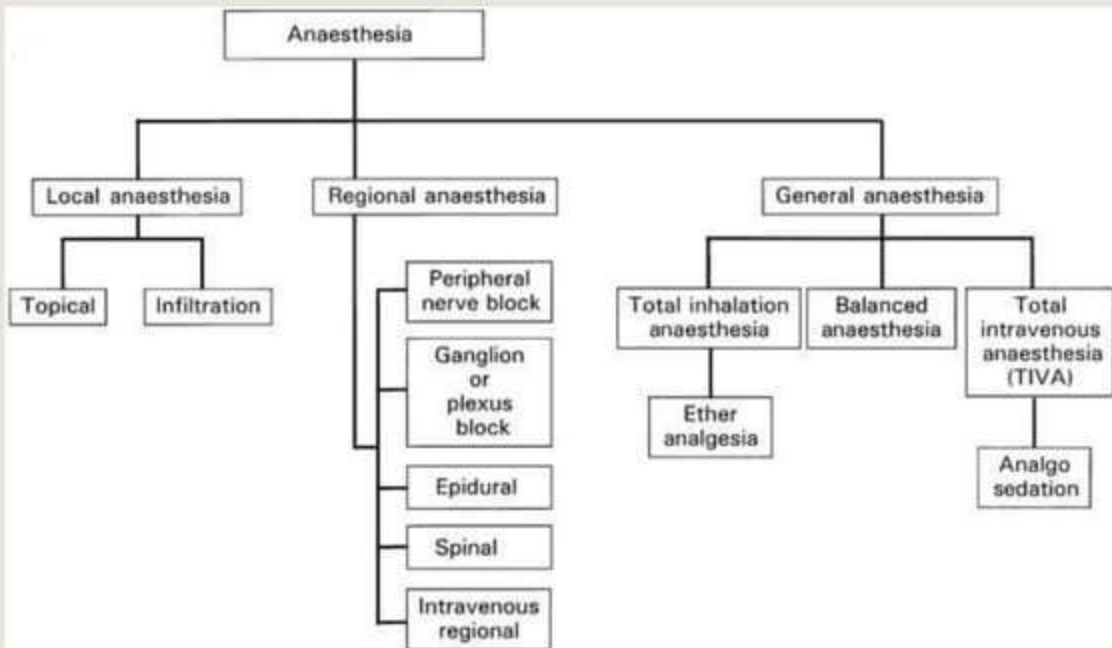
- Anesthesia is defined as a temporary state consisting of unconsciousness, loss of memory, lack of pain, and muscle relaxation.
- Anesthesia is defined as a loss of feeling or awareness caused by drugs or other substances which keeps patient free from feeling pain during surgery or other procedures.



TYPES OF ANESTHESIA:

- There are three main types of anesthesia –





1. GENERAL ANESTHESIA:

- General anesthesia is a reversible unconsciousness state involves sensual loss of the overall body required for extensive surgeries.
- General anesthesia is commonly produced by a combination of IV drugs and inhales gaseous Anesthetics.
- STAGES OF GENERAL ANESTHESIA:
 1. **Analgesia stage (Induction) :-**
 - Begins with administration of anesthetic agents and ends with loss of consciousness.
 - Good stage for MAC.
 2. **Excitement or Delirium stage :-**
 - Loss of consciousness to loss of eyelid reflex and regular breathing.
 - Patient movements are uninhibited.
 - Might see vomiting, laryngospasm, hypertension, tachycardia.
 3. **Surgical Anesthesia Stage :-**
 - From regular breathing and loss of eyelid reflex to cessation of breathing.
 - Patient unresponsive and hearing is last to go.
 4. **Medullary Depression stage :-**
 - Severe CVS and respiratory depression .
 - The patient require pharmacological and ventilatory support.



2.REGIONAL ANESTHESIA:

- Regional anesthesia numbs a large area, or region, of the body and is used for more extensive and intensive surgery.
- A regional anesthetic is injected to block or anesthetize a nerve fibres.
- It implies a major nerve block, such as spinal, epidural, caudal or major peripheral block; administered by an anesthesiologist.
- SPINAL ANESTHESIA:
 - This anesthesia is very suitable for surgeries involving lower parts of the body.
 - It is highly preferred in surgeries of lower half of the body and for the clients unsuitable for general anesthesia.
- INDICATIONS:
 - Orthopedic surgery on the pelvis, hip, femur, knee, tibia and ankle, including arthroplasty and joint replacement.
 - Vascular surgery on the legs.
 - Endovascular aortic aneurysm repair.
 - Inguinal hernia and epigastric hernia .
 - Haemorrhoidectomy
 - Transurethral resection of the prostate and transurethral resection of bladder tumours.
 - Pain management during vaginal birth and delivery.



▪ EPIDURAL ANESTHESIA:

- This is also a major conduction anesthesia involving epidural space.
- This is the space in the spinal cord which is outside the dura-matter .
- An epidural is the most common type of anesthetic used for *pain relief during labor.*
- Epidural anesthesia is often used as an alternative to general anesthesia for surgery in the pelvic area or legs.
- Advantages:
 - being awake and responsive during the operation,
 - less nausea and vomiting, and
 - a quicker recovery afterwards.
- Disadvantages:
 - Low blood pressure
 - Loss of bladder control.
 - Itchy skin.
 - Feeling sick.
 - Inadequate pain relief.
 - Headache.
 - Slow breathing.
 - Temporary nerve damage.



3. LOCAL ANESTHESIA:

- This is the most common form of anaesthesia used in day to day hospital procedures.
- It is usually a one-time injection of medicine that numbs a small area of the body.
- This method interferes with neural transmission to produce its effects.
- Local anesthetic agents such as lignocaine, lidocaine, xylocaine, is infiltrated into the skin and the subcutaneous tissue site where amnestic effect is to be achieved.
- There are two main types of local anesthetics, depending on how they're administered:
 1. Topical anesthetic
 2. Injection



1. Topical anesthetics:

- Topical anesthetics are applied directly on skin or mucus membranes, such as the inside of mouth, nose, or throat.
- They can also be applied to the surface of eye.
- Topical anesthetics come in the form of LIQUIDS, CREAMS, GELS, SPRAYS, PATCHES.

2. Injection:

- Local anesthetics can also be given as an injection. Injectable anesthetics are typically used for numbing during procedures, rather than pain management.
- Procedures that might include an injection of a local anesthetic include:
 - dental work, such as a root canal
 - skin biopsy
 - removal of a growth under your skin
 - mole or deep wart removal
 - pacemaker insertion
 - diagnostic tests, such as a lumbar puncture or bone marrow biopsy.



DRUGS USED IN ANESTHESIA:

1) PRE-ANESTHETIC AGENTS:

- Anti-cholenergics:- Reduces saliva secretions. E.g.: Atropine sulphate [0.6 mg IM], Glycopyrrolate [0.1 – 0.3 mg IM].
- Sedative-hypnotics:- Phenobarbital
- Anti-emetics:- Promethazine, Hydroxyzine, Phenothiazine.
- Anti-anxiety Drugs:- Benzodiazepine, Hydroxypine [25 – 50 mg].
- Opiates:- Morphine [10 - 15 mg], Pethidine [50 - 100 mg].
- Antibiotics: Amoxycillin, Ampicillin, Taxim etc.

2) ANESTHETIC AGENTS:

- Inhalation anaesthetics: Nitrous oxide, ether, halothane, ethyl chloride, cyclopropane etc.
- Intravenous anaesthetics: (general anaesthesia)
 - Narcotic IV Agents: Fentanyl, Alfetamine, Sufentanil citrate.
 - Non-narcotic IV Agents: Thiopentone sodium, Methohexitone sodium, Pentobarbitone, hexobarbitone.



STANDARD SAFETY MEASURES

- Maintaining stringent safety measures is crucial not only for the protection of patients but also for the safety of healthcare personnel.
- Here are some standard safety measures specifically tailored for healthcare environments



Infection Control

This includes regular handwashing, using hand sanitizers, and adhering to strict guidelines about sterilization and disinfection of tools, equipment, and surfaces. Personal protective equipment (PPE) like gloves, masks, gowns, and eye protection should be used appropriately.

Patient Handling Techniques

Proper training in lifting and moving patients can prevent injuries. Using assistive devices like hoists or transfer boards when moving patients who are unable to move themselves can help reduce the risk of falls or strains.

Safe Medication Management

Implementing double-check systems for administering medications, maintaining clear labeling, and keeping accurate records to prevent medication errors.

Emergency Preparedness

Regular training in emergency response procedures, including CPR, use of defibrillators, and evacuation protocols. Ensuring that all staff know the locations of emergency equipment and exit routes.

Needlestick Prevention

Using safety-engineered devices such as needles with protective sheaths, and following proper sharps disposal procedures to minimize the risk of needlestick injuries.



Violence Prevention

Training staff to recognize signs of aggression or distress in patients and implementing de-escalation techniques. Establishing clear protocols for dealing with aggressive behavior.

Chemical Safety

Proper storage and handling of chemicals, including cleaning agents and medications, with adherence to Material Safety Data Sheets (MSDS) for handling hazardous substances.

Fire Safety

Regular fire drills and training on the use of fire extinguishers and other fire suppression equipment. Ensuring fire exits and corridors are kept clear.

Confidentiality and Privacy

Adhering to policies that protect patient confidentiality and privacy, including securing personal health information and being aware of regulations such as HIPAA (in the US) or other local data protection laws.

Mental Health and Wellbeing

Supporting the mental health of staff through programs that address burnout, stress management, and emotional support, recognizing that the healthcare environment can be particularly challenging.

➤ CONCLUSION:

Maintaining safety in healthcare settings is pivotal for safeguarding both patients and healthcare workers like nurses. By rigorously implementing standard safety measures such as infection control protocols, safe medication management, patient handling techniques, and emergency preparedness, healthcare facilities can minimize risks and enhance overall safety



PAIN MANAGEMENT TECHNIQUES

- Pain management is an aspect of medicine and healthcare involving relief of pain (pain relief, analgesia, pain control) up to an tolerate state.

- **TECHNIQUES:**

1. PHARMACOLOGICAL PAIN MANAGEMENT TECHNIQUE:

- A wide range of drugs (ANALGESIC DRUGS) are used to manage pain resulting from inflammation in response to tissue damage, chemical agents/pathogens or nerve damage (neuropathic pain).

2. NON-PHARMACOLOGICAL PAIN MANAGEMENT TECHNIQUE:

- Non- pharmacological pain therapy refers to interventions that do not involve the use of medications to treat pain.
- The goal of non-pharmacological interventions are to decrease fear, distress, anxiety an to reduce pain and provide patients with a sense of control.



PHARMACOLOGICAL PAIN MANAGEMENT TECHNIQUES

➤ Non-Opioid Analgesics:

- Drugs used primarily for mild to moderate pain.
- **Examples:**
 - **Acetaminophen (Tylenol):** Effective for pain and fever, non-anti-inflammatory.
 - **NSAIDs (Nonsteroidal Anti-Inflammatory Drugs):** Includes ibuprofen and naproxen, which reduce inflammation, pain, and fever.

➤ Opioid Analgesics:

- Used for moderate to severe pain when non-opioid analgesics are ineffective.
- **Examples:**
 - **Morphine:** Commonly used for acute pain post-surgery or severe chronic pain.
 - **Hydrocodone and Oxycodone:** Used for various pain management scenarios.

➤ Adjuvant Analgesics:

- Medications that are not primarily analgesic but can be effective in pain management.
- **Examples:**
 - **Antidepressants (Amitriptyline, Duloxetine):** Used for neuropathic pain and fibromyalgia.
 - **Anticonvulsants (Gabapentin, Pregabalin):** Effective for nerve pain.

➤ Local Anesthetics:

- Block nerve impulses to reduce pain in a specific area.
- **Examples:**
 - **Lidocaine:** Available in various forms including patches and injections.
 - **Bupivacaine:** Common in spinal anesthesia or epidurals.



➤ **Muscle Relaxants:**

- Used to alleviate muscle spasms and pain.
- **Examples:**
 - **Cyclobenzaprine:** Often prescribed for short-term relief of muscle pain.
 - **Baclofen:** Used for muscle spasticity in neurological conditions.

➤ **Topical Pain Relievers:**

- Applied directly to the skin for localized pain relief.
- **Examples:**
 - **Capsaicin Cream:** Derived from chili peppers, helps in relieving joint and muscle pain.
 - **Salicylate Creams:** Contain compounds similar to aspirin.

➤ **Infusion Therapy:**

- Administered in severe cases via intravenous or direct nerve injections.
- **Examples:**
 - **IV opioids (Morphine, Fentanyl):** Controlled administration in hospital settings.
 - **Nerve block injections:** Involves anesthetics or steroids for profound pain relief.

Conclusion:

Pharmacological pain management is a diversified field that necessitates a tailored approach based on individual patient needs and types of pain. Effective management involves careful selection, dosing, and monitoring of medications to maximize pain relief while minimizing adverse effects.



NON-PHARMACOLOGICAL PAIN MANAGEMENT TECHNIQUES

1. Cold and Heat:

These two methods are the traditional techniques of relieving pain for certain kinds of injuries. The homemade hot or cold pack are the good versions of treatments, which can penetrate deeper into the muscle and tissue.

2. Exercise:

Physical activity plays a crucial role in relieving pain and increase mobility in some chronic conditions such as arthritis and **fibromyalgia**. Some gentle aerobic activities are walking, swimming, or cycling.

3. Physical therapy and occupational therapy:

These two specialties are powerful tools to fight against pain. These are helpful to preserve or improve your strength and mobility.

4. Mind-body techniques:

These techniques include meditation, mindfulness, and breathing exercises which helps to restore a sense of control over the body. It turns down the "fight or flight" response, which can worsen chronic muscle tension and pain.



5. Yoga and tai chi:

These two exercise practices incorporate breath control, meditation, and gentle movements to stretch and strengthen muscles. It helps to manage pain caused by a host of conditions, from headaches to arthritis to lingering injuries.

6. Biofeedback:

This technique involves learning relaxation and breathing exercises by watching a graph, a blinking light, or even an animation on a biofeedback machine. Watching and modifying the visualizations gives a degree of control over body's response to pain.

7. Music therapy:

Music can help to relieve pain during and after surgery and childbirth. Listening to any kind of music can distract a person from pain or discomfort.

8. Therapeutic massage:

Not just an indulgence, massage can ease pain by working tension out of muscles and joints, relieving stress and anxiety, and possibly helping to distract you from pain by introducing a "competing" sensation that overrides pain signals.



A close-up photograph of a person's hand holding a small, white rectangular card. The hand has bright pink nail polish. The card is held horizontally and features the words "Thank You!" written in a black, cursive script. The background is a soft-focus, light-colored fabric, possibly a sweater or shirt, with a subtle pattern. The lighting is warm and natural, highlighting the texture of the skin and the fabric.

Thank You!