TAKING CARE OF THE PRE-OPERATIVE AND POST-OPERATIVE CLIENT

INTRODUCTION

Taking care of a client who is going to have surgery or who recently had surgery can be two of the most important responsibilities you will have as a Certified Nursing Assistant (CNA). Even for relatively young and healthy individuals, surgery is a psychologically and physically stressful experience and the stress does not end after the operation is completed. Surgery may be a cure for an illness, but being cured is not the end of the story. In the hours and days after a surgical procedure, clients are often in pain and they often feel weak, and nauseous, and the recovery period can be prolonged. There are also many possible complications that can happen after surgery. These can delay the client's recovery and they can be dangerous. If the client is elderly or has many medical problems, both the operation and the post-operative period can be risky. Surgery, unless it is a very minor procedure, is serious proposition that is associated with complications and risks.

STATEMENT OF PURPOSE

This module will provide CNAs with the information they need to provide comprehensive pre-operative and post-operative care.
TAKING CARE OF THE PATIENT BEFORE SURGERY

The period of time before a surgical procedure is called the pre-operative period, and the period of time after surgery is called the post-operative period. Patients must be prepared for both because surgery and the hours and days after an operation can be very stressful. Good preparation before surgery will make the post-operative period more comfortable for the patients and it will help post-operative complications.

Preparing a patient for surgery in the pre-operative period should focus on these areas: pre-operative tasks and education, and psychological preparation and support.

PREOPERATIVE TASKS AND EDUCATION

Surgery and the post-operative period typically receive a lot of attention, but the pre-operative period is very important as well. Preparing a patient for surgery will help the patient recover physically and psychologically and prevent post-operative complications, and many of the pre-operative tasks are essential for physical recovery and preventing post-operative complications.

Informed Consent

One of the basic rights of all patients is the right to accept or refuse medical and surgical treatment. Surgery, invasive procedures, or any medical or surgical treatment that is not considered to be routine can only be performed if a healthcare professional - in this case a surgeon and/or anesthesiologist - has obtained the patient’s consent. Patient consent is not typically required if a
procedure is considered to be routine, eg, a venipuncture for obtaining a blood sample.

Of course, simply obtaining consent is not sufficient. It would not be enough for a surgeon to ask permission to remove a gall bladder and for the patient to agree. The consent to perform surgery or an invasive procedure must be accompanied by information. It must be informed consent.

Informed consent indicates that prior to surgery the patient has been informed by the surgeon, and the patient understands, the following:

1) His/her diagnosis
2) The nature of the surgery/procedure.
3) Why the surgery/procedure is being done.
4) The risks and benefits of the surgery/procedure.
5) The risks and benefits of not having the surgery/procedure performed.
6) What outcome she/he can expect.
7) What the post-operative period and the recovery period will be like.
8) Alternatives to the surgery/procedure and their risks and benefits.

All of this should be discussed with the patient and the patient will then sign a surgical consent form. The surgical consent form is basically an agreement that is signed by the physician and the patient or by the patient and a witness. The surgical consent form indicates that the information outlined in the numbered list above has been discussed with the patient and that the patient understands what was discussed.
Learning Break: If the patient is unable to understand the risks and benefits of a surgery or procedure and there is an immediate danger to life and health a consent form or a surgical consent form is not needed. Children, minors, and people who are intellectually or psychologically incapable of understanding the risks and benefits of a surgery or procedure cannot sign an informed consent/surgical consent form because they are incapable of being informed.

The surgical consent form is signed by the patient. Sometimes the surgeon will sign the form, but many times a nurse will sign the form after she/he has witnessed the patient signing it. When someone signs a surgical consent form or an informed consent form as a witness that simply indicates that that person has correctly identified the patient and he/she witnessed the patient signing the form. It does not mean that the witness explained the procedure, the risks and benefits, etc. That information is documented in the patient’s chart by the physician. The witness is only agreeing that he/she saw the patient signing the form, and the patient signing indicates that he/she has been informed.

This concept is a bit difficult to understand and the issue could be avoided by having the physician witness the signing after informing the patient, but in many busy health care facilities this does not happen. The important issue is not the signing or the witnessing; the important issue is the patient being informed and that is the responsibility of the physician.

Learning Break: What should you do if you are asked to witness an informed consent form? This situation is extremely unlikely to happen but if it does it would be sensible for you to decline or discuss the situation with your supervisor.
Pre-Operative Checklist

The pre-operative check list is the final document that must be completed before the patient is transferred to the operating room. It indicates that all the necessary preparations for surgery have been completed, and this document must accompany the patient when he/she leaves for surgery. Figure 1 provides an example of a typical pre-operative checklist. Most of these items are standard for a pre-operative checklist but the form can be varied to meet the patient’s needs. For example, some patients will need to have bowel preparation prior to surgery and if so, this should be documented in the chart and on the pre-operative checklist.

**Figure 1: Pre-Operative Checklist**

- Patient name
- Date of birth
- Positive identification of the patient by two witnesses
- Verification of an identity band that correctly identifies the patient
- Name of the surgery
- Vital signs
- Last time of voiding
- Contact lenses, dentures, and hearing aids removed (if applicable)
- Jewelry removed
- Drug allergies
- Pre-operative medications, eg, names, doses, times administered
- Verification that the patient has been NPO for the length of time ordered by the physician
- Laboratory test results
- X-ray test results
- ECG

Completion of the pre-operative checklist is the responsibility of a nurse, nurse practitioner, or physician’s assistant. That person examines the patient and reviews the chart to make sure that all of the required information is in the chart and all of the required tasks (eg, vitals signs taken and recorded) have been
done. However, if you are caring for a patient who will be having surgery you should make sure that the pre-operative checklist is on the chart and it has been completed. The day of a surgery can be hectic and rushed and mistakes are possible.

**NPO Before Surgery**

The letters **NPO** are abbreviation for a Latin phrase, nil per os - nothing by mouth. This is an important pre-operative concept and will be discussed here in detail.

Patients who will be having surgery are required to refrain from eating or drinking for a specified period of time before the operation surgery, unless the surgery is very minor and/or only a local anesthesia will be used. General anesthesia can cause vomiting, and vomiting during surgery or in the first few hours after surgery can cause aspiration of stomach contents into the lungs. This can be a serious operative or post-operative complication and it is easily avoided by keeping the patient NPO.

The traditional phrase applied to these situations was NPO after midnight. That may still be true in some cases, but the hour at which NPO begins is not as important as the amount of time the patient is NPO before the surgery. In most cases surgeons and anesthesiologists prefer that the patient has no solid food for eight hours before an operation and no liquid for four hours but these time limits vary on a case by case basis. In addition, these restrictions can be relaxed if needed. For example, someone who takes an anti-hypertensive and a
hypoglycemic drug for control of diabetes may be allowed to take her/his medications an hour or two before surgery if they only use a small sip if water.

**Learning Break:** Although there can be exceptions, it is much safer to keep a patient NPO unless you have been specifically told by a nurse, PA, or MD that it is acceptable for a pre-operative patient to have something by mouth. If in doubt, keep the patient NPO.

**Skin Preparation**

An intact skin is the body’s first line of defense against infection. However, surgery involves breaking that line of defense with an incision. In addition, the surface of the skin is home to countless numbers of bacteria, the so-called normal flora of the skin, and these bacteria are the source of most surgical wound infections. So although surgery involves sterile technique, even the most conscientious use of sterile technique cannot prevent all surgical wound infections. Because of these risk factors, preparation of the skin by a thorough cleaning before surgery is often performed to decrease the risk of infection and it is a vital part of the pre-operative procedure.

There are far too many pre-operative skin preparation techniques to discuss them here in detail. However, the basic procedure involves cleaning the skin on and around the surgical area and removing hair from the area that will be incised during surgery. Cleaning the surgical area is done so that the incision will not become infected and hair is removed because it can interfere with procedure. In addition body hair harbors bacteria and that bacteria cannot be removed if the hair is not removed. Removing body hair and removing it by shaving was once
standard procedure. Now, for many procedures body hair is not removed and if it is removed, clippers or a depilatory cream are the preferred methods. The depilatory creams can also be used for areas that are difficult to shave. Shaving can damage the skin by creating small cuts and this increases the chances that an infection will develop.

The surgeon will write orders that will specify what part of the body is to be cleaned, how it should be cleaned, what should be used, and when and where it should be done. Do not clean any other area and only use the method(s) that have been ordered.

**Learning Break:** The definition of the term sterile is “the absence of all living microorganisms.” This would be the optimum condition of a surgical site but it is not possible. Sterilizing skin would require extremely harsh chemicals or the application of intense heat that would cause burns. Sterile technique should be used when preparing the skin for surgery, but skin cannot be made sterile it can only be cleaned.

**Pre-Operative Teaching**

Pre-operative teaching prepares the patient for all parts of surgery, and it can speed recovery and help prevent complications. The most important areas to cover in pre-operative teaching are the 1) surgical procedure; 2) the operative day; 3) the post-operative period, and; 4) post-operative exercises. Post-operative exercises will be discussed in a separate section.

1) The surgical procedure: The patient should know what type of operation is being performed and why it is being done. The first person to give this
information and the primary source for this information should be the surgeon. However, as a CNA you should know what type of surgery is being done and why, so you can provide the patients with some basic information if he/she has questions. Ask your immediate supervisor what is permissible for you to discuss with the patients. If a patient asks you about the operation and it seems as if she/he needs more education or has questions you should not address, tell your immediate supervisor; he/she will notify the surgeon. Do not discuss details such as the risks of the procedure, how the procedure is done, or how long before the patient can go home.

2) Operative day: The patient should be educated about what will happen the day of the surgery. Check the chart to see what has been ordered. An IV line will often be inserted and the patient may be given some medication that will prepare them for the operation: these medications frequently cause drowsiness and may even put the patient to sleep. The informed consent form should be signed and on the chart. The pre-operative checklist should be completed, and you will be asked to help with some of the items on the checklist, eg, checking vitals signs, making sure the patient is wearing an identification band, and helping the patient remove dentures or contact lenses.

3) Post-operative period: The client also should be informed about what to expect during the post-operative period. Check the chart to see what has been ordered. Each case is different, but it is very common for patients to
feel drowsy, nauseated, and in pain after the operation and they should be informed of this. Patients will want to know how long the drowsiness, pain, and nausea will last. They will want to know when they can get out of bed, when they can have food and water, how long they will be in the hospital, and when they can go home. They may ask you if the operation was successful. After speaking with your supervisor and checking the post-operative orders on the chart, you can give the patient some basic information. However, use common sense. Do not offer any information beyond these basics or beyond what your supervisor has approved.

**Post-Operative Exercises**

Post-operative exercises can help prevent post-operative complications and they can also speed the recovery process. Teaching post-operative exercises before surgery gives the patient a stress-free and pain-free time to practice these exercises. It also gives the healthcare professionals time to reinforce to the patient how important post-operative exercises can be. Commonly used post-operative exercises are discussed. If the patient has a history of lung disease or is a long-time smoker it is especially important to review and practice coughing and deep breathing because these patients are susceptible to post-operative pulmonary complications.

1. **Coughing**: Patients are lying completely immobile during surgery and in many cases they have been on bed rest before the operation. Because the client has not been moving for a long time, secretions can pool in the lungs, bacteria can grow and a pulmonary
infection can happen. For example, if the surgery lasts between 2-3 hours, the patient is 5 times as likely to develop post-operative lung complications. In addition, patients who have had abdominal or chest surgery will be less likely to cough normal as a forceful cough can be quite painful to a surgical incision in those areas. Coughing exercises are a very effective way to prevent post-operative lung infections. Coughing will help expand the lungs and bring up secretions, and coughing exercises are simple to teach and easy to do. The patient should be sitting upright and it is recommended that a towel or a small pillow be held firmly over the surgical incision; this can be done by a CNA or by the patient. Instruct the patient to take a deep breath, hold the breath for a second or two and then give a forceful cough. Cough from the belly, not the throat. Press down on the towel that is covering the incision during the cough. This is called splinting. It will stabilize the area, help prevent pain, and allow the patient to perform the exercises. Repeat the procedure several times. A typical plan will be to have the patient perform 5-10 cough and 5-10 deep breaths every two hours, but the specifics of the routine will be ordered by the physician. Let the patient know that he/she will be asked to do coughing after the surgery and explain why the exercise is important. Also inform them that coughing exercises can be painful but that the pain can be controlled.

2. **Deep breathing**: Deep breathing can be performed by itself but it is usually done along with the coughing exercise and like coughing, it expands the
lungs and prevents lung infections. Instruct the patient to take a very deep breath, hold the breath for a second or two and then slowly exhale. Splinting may be helpful and in many cases it will be necessary in order for the patient to perform deep breathing. As with the coughing exercise, tell the patient that he/she will probably be asked to do deep breathing exercises after surgery and explain why the exercise is important. Deep breathing exercises can also be done using an incentive spirometer. An incentive spirometer is a plastic tube with an attached flexible hose and a mouthpiece at the end of the hose. The tube has gradations and a plastic ball inside the tube. To use the incentive spirometer the patient inhales as deeply as possible, places the mouthpiece in his/her mouth and then exhales through the flexible tube. As the patient exhales the movement of air will cause the plastic ball inside the incentive spirometer tube to rise, and the level of the ball is compared to the gradations. Deep breathing exercises using an incentive spirometer provides patients and those caring for them with an objective way of measuring how well a patient is performing deep breathing exercises. An illustration of an incentive spirometer is provided in Figure 2.
3. Turning: Patients will benefit from being turned from side to side every two hours after surgery. If possible the patient should turn by herself/himself but some patients will need assistance. Turning from side to side prevents skin damage, increases circulation, and prevents secretions from pooling in the lungs and causing an infection. Moving after an operation can be painful so take your time and don’t rush the patient. As with coughing and deep breathing, splinting while turning may be helpful and at times it will be necessary.

4. Walking: Early ambulation after surgery is frequently recommended as a method for preventing post-operative complication, specifically pulmonary complications and peripheral blood clots. Patients certainly do not need to be taught how to walk. But they should be informed that the surgeon may...
recommend early ambulation and that this will probably be painful to do. Preparing the patient for this is far preferable to surprising someone, and if the patient understands the need for this exercise before the surgery it can help her/him comply.

5. Exercises: Patients who have had orthopedic surgery are typically required to perform specific exercises during the post-operative period. Example: Someone who has had a total knee replacement will be asked to do straight legs raises, supported knee bends, and quadriceps tightening, and these will often be started a few hours after the surgery.

Psychological Preparation and Support

Surgery is a stressful experience and it can be frightening. The patient is often having surgery because he/she has a serious illness. Surgery involves risks, complications, and pain and discomfort before and after the operation. There is the possibility that the patient's life will be drastically changed, and not all surgeries are completed successfully.

So, psychological preparation and support are important in the pre-operative period. It is impossible to make a general statement about the best way to psychologically prepare someone for surgery and how to provide that person support. However, there are several things to consider:

- What does the patient want to know? Some patients will want a lot of detailed information about the operation, the pre-operative period, the recovery period, and what life will be like after the surgery. Some patients want to know very little, and they feel most comfortable when all the
decisions are made for them. There is no right or wrong way: the patient must make the decision.

- What does the patient need to know? It is up to each person to decide how much they know about their surgery. However, even for people who prefer to know almost nothing they should be informed about what type of surgery they are having, when it is being done, and why. Remember, the surgeon is the first source of these facts, but if the surgeon has told the patient this information you can review it with the patient as needed.

- What are the patient's fears? Fear is a normal feeling associated with surgery. Patients should be allowed to talk about their fears to the extent that they want to. The best approach is simply to let the patient know that there are people who will listen and can provide support if they want to talk. After that, the patient can decide who he/she wants to confide in and what they want to express.

**TAKING CARE OF THE PATIENT AFTER SURGERY: POST-OPERATIVE CARE AND POST-OPERATIVE COMPLICATIONS**

Post-operative care is just as important as pre-operative care. The patient has just been through a very stressful experience, serious complications are possible, and pain, vomiting, and discomfort are common. Knowing what to look for and what to do for a post-operative patient client is crucial. In order to provide good post-operative care you must focus on the following areas.
Table 1: Post-Operative Care: Areas of Concern

<table>
<thead>
<tr>
<th>Vitals signs</th>
<th>Mental status</th>
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<tbody>
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<td>Surgical dressing</td>
<td>Pain</td>
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<tr>
<td>Bleeding</td>
<td>Urinary retention</td>
</tr>
<tr>
<td>Nausea and vomiting</td>
<td>Infection</td>
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**Vital Signs**

The surgeon, anesthesiologist, physician’s assistant, or nurse practitioner will write an order that specifies how often the vital signs should be checked. Measuring the pulse and blood pressure every 15 minutes in the first hour after the operation is not unusual. You should always let someone know about a fever or an abnormal pulse or blood pressure, but it is especially important when caring for a post-operative client. Slight deviations of pulse and blood pressure may be normal after surgery, but these should still be reported. Do not assume that a pulse > 100 or a systolic blood pressure that is low are of no concern.

**Mental Status**

Drowsiness is expected after surgery. This can be minimal or it may be significant. However, excessive drowsiness or drowsiness that is not improving is not normal and a nurse or physician should be informed if you feel that the patient’s mental status is abnormal.

**Pain**
Pain is inevitable following surgery. An incision has been made through the skin and the swelling and bleeding at the incision increase pressure on nerve endings, contributing to the pain.

Some patients will tell you about their pain and request medications but others will not. You should always ask the post-operative patient if she/he is having pain, but you should also be observant. A patient may decide to “work through the pain” or the patient may be wary of accepting pain medications. So aside from asking the patient about pain you should look for objective information and non-verbal cues that indicate the presence of pain. Does the patient grimace when asked to move? Is the patient hesitant about performing coughing and deep breathing exercises? Is his/her blood pressure and heart rate elevated? Pain control is important as it increases the speed of recovery, and it is important for its own sake.

The level of pain a patient has will depend in part on what operation was performed. The pain associated with a minor procedure should be mild but if the patient has had a major orthopedic surgery such as hip surgery the pain can be severe. There is no “normal” level of pain and each person has a level of tolerance. But if the procedure was as simple one and the patient is significantly uncomfortable, this may indicate a problem and a nurse or physician should be informed. Also, if the patient is requesting pain medication more frequently than it has been prescribed, this is a warning sign.

**Learning Break:** Many health care facilities use pain scales to assess patients’ level of pain. A typical pain scale is the 1-10 scale. The patient is asked to
remember the worst pain she/he ever experienced and consider that a 10. The patient is then asked to remember a painful experience that was very minor and consider that a 1. After that the patient is asked to assign his/her current level of pain a number on the 1-10 scale. Example: “If the worst pain you have ever had was a 10 and a very minor pain you’ve experienced was a 1, what would you consider your current level of pain to be?”

**Surgical Dressing**

A surgical dressing is a sterile cover applied over the incision. A dressing can be a small bandage, but it may be a large, complicated affair with gauze pads and tape. The surgeon will write orders that specify how to care for the dressing. It is very important to follow these orders exactly. Do not change or adjust the dressing in any way that has not been ordered. Check the dressing frequently to make sure it is intact and there are no loose edges. Look for bleeding or unusual drainage and if you notice either one inform a nurse or physician.

**Bleeding**

A slight amount of bleeding can be expected at the surgical incision site. In most cases the bleeding will be under the dressing and will not be seen until it has been changed. Bleeding that stains through the dressing is much less common and should be reported.

**Urinary Retention**

Urinary retention is defined as a failure to void and a documented bladder volume of > 600 mL. Urinary retention is a common postoperative problem and depending on the nature of the surgery it can affect up to 25% of all patients.
Anesthesia and analgesics can cause urinary retention, and pain, anxiety, and trying to void while in a supine position can contribute to the problem. Urinary retention can result in a prolonged hospital stay, bladder infections, an iatrogenic infection from urinary catheterization, and bladder dysfunction.

The last time the patient voided should be documented on the chart. The surgeon or the anesthesiologist may indicate when he/she expects the patient to void. If voiding has not occurred by that time or if the patient is uncomfortable a nurse or a physician should be notified. An ultrasound will be performed to determine the volume of urine in the bladder and if urinary retention is present, a urinary catheter can be inserted.

**Nausea, Vomiting, and Constipation.**

Nausea and vomiting are very common post-operative problems. In the great majority of cases they are mild and temporary and can be easily treated with an anti-emetic such as Zofran (ondansetron). If the nausea and vomiting persist and/or are causing the patient pain a nurse or a physician should be notified. Constipation is another common gastrointestinal post-operative complication. Notify a nurse or physician is the patient is having difficulty having a bowel movement.

**Infection**

Despite the careful use of sterile technique, post-operative infections cannot be eliminated. There will always be patients who develop a post-operative infection and for some patients the risk is high. Examples are provided below.

- People who have diabetes have poor circulation.
• Long-time smokers or people who have lung disease are susceptible to post-operative pulmonary complications.

• Elderly patients do not tolerate anesthesia as well as younger patients, putting them at risk for post-operative complications.

• Even if the surgical site was carefully prepared and the surgical procedure was performed meticulously, an incision through the skin exposes the internal environment to microorganisms.

• Regardless of age or health status, every patient who undergoes surgery is at risk for post-operative infections. The patient has been immobile so secretions in the lungs begin to pool and bacteria can multiply. The bladder is not emptied and bacteria can grow in the urine. Blood stagnates and may become infected in the extremities, and intact skin is disrupted by the surgical incision.

Post-operative infections can happen in the lungs, the surgical incision, and the bladder, and blood pooling in the legs can cause blood clots to form which can become inflamed and occasionally, infected. A simple way to remember these areas of concern is to use the four Ws of post-operative infections and complications: wind, wound, water, and walk. Wind is associated with pulmonary complications; wound is associated with surgical incision complications; water is associated with bladder complications, and; walk is associated with lower extremity complications.

Signs and symptoms of post-operative infection are listed in Table 2.
Table 2: Signs and Symptoms of Post-Operative Infection

- Confusion
- Dyspnea
- Dysuria
- Fever
- Hypertension
- Hypotension
- Pain
- Peripheral edema
- Productive cough
- Purulent drainage at the incision site
- Redness at the incision site
- Tachycardia
- Tachypnea

If the patient is young and healthy and the surgery is a routine procedure the post-operative period will be uneventful. The patient may experience some nausea and vomiting and mild pain but no serious complications will occur. If the patient has certain risk factors and/or undergoes a major procedure the post-operative period may be more difficult and these patients will need careful monitoring.

Table 3: Risk Factors for a Complicated Post-Operative Period

- Advanced age
- Alcohol abuse
- Chronic obstructive pulmonary disease (COPD)
- Cigarette smoking
- Diabetes
- Dementia
- Heart disease
- Immunosuppression
- Liver disease
- Obesity
- Sedentary life style
SIGNIFICANT POST-OPERATIVE COMPLICATIONS

The following situations that can occur in the post-operative period are emergencies or may indicate something is seriously wrong. If any of them occur notify someone immediately.

1) Dehisence: When a surgical incision splits open, that is called **dehisence** and dehiscence is an **emergency**. Do no insert anything into the incision site and do not touch the area. Call for help immediately and if possible, put on sterile gloves and cover the incision site wound with a moist, sterile dressing.

2) Prolonged vomiting: Prolonged vomiting can increase intracranial pressure, it can be dangerous for someone who has cardiac disease, and it can affect the integrity of the surgical incision site. There is no clear-cut definition of prolonged vomiting, but if the vomiting is causing pain, prevents oral hydration, or is not relieved with an anti-emetic then it can be considered prolonged.

3) Bleeding at the surgical incision: A slight bit of blood oozing or a small stain on the surgical dressing is not serious. However, anything more than that should be considered potentially serious and may indicate bleeding below the surgical incision where it can’t be seen.

4) Severe pain: Pain that is causing significant changes in vital signs or is causing the patient requires the immediate attention of a physician.

5) Abnormal changes in the client's vital signs or mental status.