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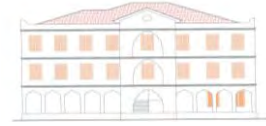


# Basic Nursing Care Manual

MNAZI MMOJA CLINIC NED INSTITUTE NED ZANZÍBAR

NED FOUNDATION





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This idea came from Dr. Jose Piquer, who has also guided us and provided much support in the development of protocols for patient care.

We dedicate this book to our Honorary Patron, our great friend and companion disappeared Toni Gomez, who has taught us so much about life and about our our nursing profession. Toni devoted his life to his family and his profession, bringing much knowledge and enthusiasm, especially in the training of nurses.

If you want go fast, go alone. If you want go far, go together.  
(African Proverb)

NED Foundation nurses volunteers

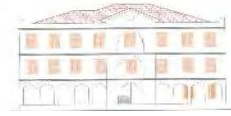




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## 2.1 DISINFECTION OF SURFACES

### INTRODUCTION:

The cleaning in the sanitary centers has to be a continuous, effective and non-polluting practice, to keep a level of hygiene and comfort generates, moreover decreases the number of microorganisms of the environment. It is the first step, indispensable, to avoid the nosocomial illnesses.

We differentiate between cleaning and disinfection:

- Cleaning is when it uses a physical procedure-químico that eliminates all those particles of dirtiness of an object or surface. Besides those particles also eliminate, for drag, a great number of microorganisms.
- Disinfection is the procedure that we use to waste the majority of microorganisms, by avoiding your proliferation, by using an appropriate concentration of specific disinfectant.

**The cleaning has to proceed always to the disinfection.**

### OBJECTIVES:

Establishing some norms of cleaning for all hospitable areas depending of your level of risk: spaces without sick persons( below risk ), treatment spaces or enter of sick persons (half risk), spaces in which give to activities term special ICU or operating theater (risk high).



## DESCRIPTION MATERIAL:

General cleaners: The detergents are chemicals that it is used for the elimination of the insoluble dirtiness in the water.

- Soapy neuter detergents
- Enzymatic detergents



**Disinfectants: It are abridge chemistries they eliminate the microorganisms when it is applied on the objects and surfaces.**

Bleach or hypochlorite of sodium: It has a wide specter of activity ( bactericidal, fungicidal, viricidal, micobactericida and esporicida ). Disinfectant of quick, low action toxicity and below cost. The inconvenient is that if it uses to a very high concentration ( superior to 500ppm ) corrodes some metals. Therefore it advises to use the presentation it exists in the market of detergent more lye " Sprint H 100r. (Johnson Diversey r )



Sprint H 100r. ( Johnson Diversey) is bactericidal and fungicidal produce smells is can use on the stainless steel and must use with the technique of the double cube and not needs not cleared up, not stops not remainders. It recommends that the surface remains humid with the product at least 15 minutes.







· Sprint H 200r. ( Johnson Diversey ) Disinfectant for the areas of special risk: Delivery room, sterilization, units of intensive cures and operating theater. It uses an association of ammoniums and amines. Great bactericidal and fungicidal capacitance, it active on the HIV, HBV, rotavirus, BK.It can use with the stainless steel and it must use with the technique of the double cube and apply with or without clarified final. It recommends that the surface remains humid with the almenoses product a few 15 minutes.



## GENERAL NORMS OF CONSERVATION AND DISINFECTANTS USE

- To read always the where labels find in order that serves, as it is necessary to use it and the precautions that it is necessary to take.
- Never does not mix the products since can be incompatible and produce poison gases. It stops wither the products with disinfectant almenoses 15 minutes if there is a lot of dirtiness and organic matter clean out first with waters and soaping before the disinfection.
- Using the recommended dose. More product does not mean more disinfection. It does not use the dilutions with watering heats.
- Verifying the good state of containeR
- Keeping the product in the original container and it does not fill the empty containers and do not reutilizarlos. The sinecures have to be all right woman who covers her face with a veil.
- To keep it in appropriate place, far from focuses of warmth
- Protecting-the hands with non-sterile gloves
- To wash the hands after your use
- Avoiding indirect results

Other of the necessary materials are:

- Baizes of two color ( ej.: green for horizontal and red surfaces for bathes)
- Drink + scullery maid
- Cube( system of double cube for the areas of half and high risk ) small cubes.(disinfectant gloves and spare bags)

After the use of the materials of cleaning it is important to wash with waters and detergent, plunge 10min in lye and to finish it wither well and keep.



## PROCEDURE:

It carries out the cleaning of surfaces to keep an aseptic and clean environment, to avoid nosocomial infections.

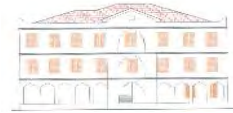
### General norms of cleaning

- To clean out always with non-sterile gloves
- Cleaning out as long as is dirty and when it has change of patient.
- The procedure is: of clean out to dirty; from above to down; out to inside. To avoid the contamination of the clean area.
- The cleaning and sweeping always has to be with the humid baize to avoid the lifting of dust.
- They have to use them appropriate products and stops wither them.
- The water always has to be change of gait when it is visibly dirty.
- It does not leave the windows and the open doors since can produce currents of air they facilitate the displacement of germ.

### Different procedures of cleaning of surfaces and of floors:

- Cleaning of surfaces withdraws the objects that raise objections it, eliminate first the stains and after clean out and disinfect, start the cleaning of the surface of the more clean area to the more dirty and it insists on those who touch more frequently ( interrupting, balustrades...).
- Cleaning floors

\* Humid sweeping: procedure it gathers the dirtiness and the small remains without raising dust, using clotheses or shoe humid that win the dust for loads electrostatics. The sweeping is in form of zig-zag without passing twice for the same place.



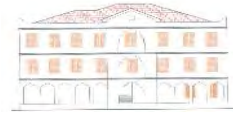
\* Scrubbing of the earth: it uses after the humid sweeping by using the technique of the double cube. We use two cubes of different color the blue azure cube for the clean cube and the red for the dirty, in the dirty cube puts less water that in the clean thing. In the clean cube will have always waters more disinfectant. In the dirty cube it can have waters single or waters more detergent.



*The water and the product of the cubes have to change always for each room, box or operating theater.*

> The procedure consists in:

- The drink and the clean scullery maid it gets into in the clean cube
- It drains on the dirty cube
- Scrubs the earth with the technique describes zig-zag
- It is introduced the drink to scrub in the dirty cube by clarifying the several times and by draining it to the maximum.
- It is introduced the drink to scrub in the clean cube scour before fulling and is endless wash. The cleaning follows the same sequence usual.



## Cleaning different hospital areas according to their classification:

1- **Low risk zones:** areas where no clinical activity (lobbies, corridors, waiting rooms, stairs ...) the risk of transmission of infection is very low.

-Products of cleaning: water and detergent

-Frequency of cleaning: daily or when this dirty

-Procedure of cleaning:

- Cleaning of the earth: humid sweeping and scrub with waters and detergent.
- Horizontal surfaces each day with waters and detergent or when this dirty
- Vertical surfaces as long as this dirty with waters and detergent: it is necessary to establish a calendar of cleaning for an appropriate maintenance

**2. Half risk area:** It are areas in which it is carried out own activities of the sanitary centers, ( drawing-rooms of conventional hospitalization, urg, dispensaries, radiology )...

-Products of cleaning: With waters and detergent disinfectant + ( Sprint H 100 or hypochlorite Sodium )

-Frequency of cleaning:

- One time up to date and as long as this dirty
- Cleaning of as many maintenance times as being wanted: to empty paper cases, it eliminates remainders, small tables cleaning, cleaning of earth.
- In the case of units of hospitalization: to empty paper cases, it gathers the sweepings, it eliminates the stains of the walls, cleaning of surfaces with a humid rag with disinfectant. To begin with the horizontal more next surfaces to the environment of the sick person ( ej.: take of oxygen, balustrades of the bed; small table...) and for finishing off it scrubs the earth.



- Procedure of cleaning:

- Cleaning of the earth: humid sweeping and scrubbed with waters, detergent disinfectant + (Sprint H 100) system of double cube.
- Horizontal surfaces: cleaning out daily and as long as this dirty with a rag (Sprint H 100). It insists on the surfaces of frequent contact ( interrupting, telephones, balustrades, accessories of the bed, small tables ).
- Vertical surfaces: as long as this dirty with waters, disinfectant detergente+ and establish a calendar of rotational cleaning.

**3. High risk areas:** It are areas that for your activity or for the characteristics of the sick person there is a risk of transmission of high infections.(surgical block, delivery room, sterilization, uci...)

- Products of cleaning: With waters and detergent disinfectant + (Sprint H 100 or Sprint H200) in areas with a lot of quantity of metallic surfaces recommends the Sprint H 200.

- Frequency of cleaning: Twice up to date (to exception of the operating theater), as long as this dirty and a cleaning of as many maintenance times as being wanted ( empty paper cases, eliminate remainders...).

- Procedure of cleaning: Cleaning of the earth, humid sweeping and scrub with waters, detergent disinfectant + (Sprint H 100) system of double cube.

- Horizontal surface: Cleaning out daily or as long as this dirty with ( Sprint H 200- SprintH 100 ).
- Vertical surface: Cleaning out as long as this dirty and daily until a height of the arm with ( Sprint H 200- Sprint 100 ) and establish a calendar of rotational cleaning.

After using the rag to clean out the vertical and horizontal surfaces is important to wash the with waters and detergent, to plunge it after in lye during 10 minutes. *Withering well and keeps it.*

### **3.1 Cleaning of the surgical area or operating room**

It is advisable that the personnel is specific and this formed and trained for the cleaning it specifies of the area.

#### GENERAL NORMS

- It cannot enter operating theater until the surfaces is totally dry
- In the cleaning has to include vertical, horizontal surfaces and own and material apparatuses auxiliary of operating theater.
- After 48h of does not function an operating theater before starting the program carries out a cleaning.



- The cleaning of the surgical area is carried out between interventions and when executing the surgical program. It has to carry out a time per week a cleaning thoroughly ( can coincide during the end of week when decreasing the surgical activity )

### CLEANING BETWEEN INTERVENTIONS

The procedure will be:

- Withdrawing the whole surgical material and the used soiled clothes during the intervention if you exist the dirty circuit.
- Withdrawing the remainders of the paper cases.
- Sweeping the earth with the humid system
- To clean out blood and liquid organic of the surfaces and of the earth.
- To clean out with humid clotheses with disinfectant all surfaces in this order. Lamp, surgical table, accessories of the table, scalpel plate cable, horizontal surfaces and tables, seats, paper cases and walls with stain visible.
- Scrubbing the earth with system of double cube
- It stops wither with the closed doors
- In the area of wash of hands. Firing the brushes, it cleans out narrow pathes and curly with disinfectant and stops wither.

### CLEANING BETWEEN differents surgeries

We will follow the habitual procedure of daily cleaning between interventions. The cleaning has to be with more depth by mobilizing all structures. The disinfection of the horizontal surfaces; vertical circle and walls until a height of the arm.

### CLEANING THOROUGHLY

Will be the habitual procedure as the cleaning when executing the surgical activity but more besides have to clean out and disinfect the whole walls and all high surfaces

In the surgical block they can differentiate two areas of cleaning:

- Clean area:
  - Operating
  - Surgical scrub area
  - Clean hallway
  - Specifies Area (Recovery room)
  -
- Dirty area:
  - Dirty short step
  - Dirty instruments washed areas



*The complexity of the surgical area classifies it as area of high risk, this classification demands carry out a program of exhaustive cleaning.*

Serious our competence does fulfill and monitor all protocols of cleaning and disinfection.

## INDICATOR

Carrying out the cumplimentación of the register of cleaning (Look ANNEXED 1)

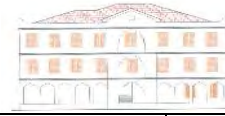
## ANNEXED 1

### PERFORMANCE EVALUATION AND CONTROL OF CLEANING PROTOCOL

#### Surgical area

Operating theater( num of operating theater )

It uses correctly the system of established cleaning in the protocol	IF	NOT
They are extracted the stains of the surfaces before the scrubbing	IF	NOT
It is used the appropriate concentration of disinfectant for earthes and superf.	IF	NOT
The cleaning of start-up is carried out of program	IF	NOT
It is carried out the cleaning of superf. with the sequences they describe in the protocol	IF	NOT
The cleaning is carried out of earth with the sequences they describe in the protocol	IF	NOT
It stops wither the earth	IF	NOT
It is carried out the cleaning of the end of the daily program of interventions	IF	NOT
It carries out the cleaning of the area of washed according to description protocols	IF	NOT
The person that carries out the cleaning is directed at the appropriate dress	IF	NOT



It carries out correctly the humid sweeping	IF	NOT
Realization of thoroughly (weekly) cleaning	IF	NOT

Date: ...../...../.....

Signature:

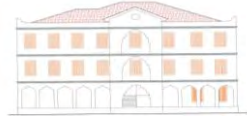
( appear in person that has carried out cleaning )

(supervisor)

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## I TITLE

### 2.2 CLEANING And DISINFECTION OF MEDICAL AND SURGICAL INSTRUMENTS (MANUAL PROCEDURE)

#### INTRODUCTION:

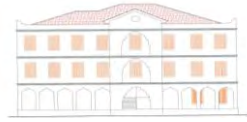
The process of manual cleaning is that that has to be realised in all material that by his particular characteristics of fragility, composition, etc. It does not allow another system. Or for all material that precise a prewashing by the quantity of embedded dirt.

We can differentiate go in:

- Cleaning: extraction of all dirt adhered. Realise by means of water and detergent. It is the previous step to the disinfection and sterilization. His process includes: rinse, lather, rinse and dry.
- Disinfection: destruction of microorganisms (except some bacterial spores) by procedure with chemical products.

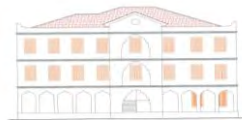
#### AIMS:

- Elimination of the organic matter of the material medical-surgical.
- Prepare material for his process of disinfection or sterilization.
- Prevention of nosocomial illnesses.



## PREPARATION OF THE MATERIAL BEFORE THE PROCEDURE.

- The staff will dress with the uniform indicated for the zone of wash.
- CLASSIFY the material with the purpose to ensure that it is subjected to the correct treatment.
- Verify the delivery of hot and cold water.
- Verify the delivery of products: detergents.
- Verify the cleaning of the material and the zones where will realise the procedure.
- Inspect the material in search of some deficiency before the process of wash and signs of corrosive or oxide deterioration.
- Verify if there is sharp material ... that can be dangerous and value the need of protection.
- Locate the very specific material and small (screws, connections...) that can lose during the process of cleaning and give them a deal of special attention.
- Withdrawal of all that material that does not have to be washed (papers, odd objects...)
- Act by means of the classification and characteristic of the material.



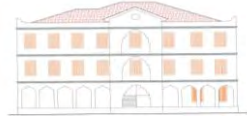
## **MATERIAL And DESCRIPTION OF THE SAME:**

- Enzymatic soap-neutral (Instrunet<sup>R</sup>)
- Specific soap for engines
- Lubricates
- Racks and deep containers to submerge the material
- Grids and support fittings for the material
- Brushes, sponges, cleaning cloth and 50cc syringes
- Cap of hammer of wash
- Mixed paper
- Barren size

**PROCEDURE :** carried to term by the auxiliary staff.

We distinguish two zones:

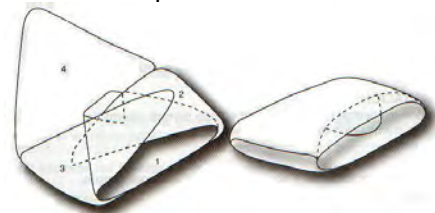
- Dirty zone where received the material.
  - Clean zone where the material already is clean smart for his new use or to go to the autoclave.
1. We classify the material separating it in different trays: material sharp, small material and with ease to lose .... The material articulated always opened to the maximum and disassembled.



2. Rinse: We realised it with cold water
3. Soaping: We use the Instrunet<sup>R</sup> (did not use lejía).
4. Friction acutely until the elimination of organic rests, with brushes (do not use metallic brushes), sponges, cleaning cloth and syringes.
5. We rinsed with a lot of water to take out the detergent
6. We dried with cloth of cotton and/or syringe. It does not be necessary to leave humid zones.
7. We review the material in search of organic rests and if there is presence of these reboot the process of cleaning in the point number 4.
8. Some materials will require lubricación realised it with specific lubricate, NO with vaseline.

Once the material find clean, have two options:

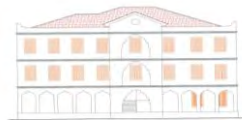
- We packed the material with mixed paper to be saved in his usual place.
- We placed the material inside the containers, these wrap them in a barren size and already are smart to be carried to the autoclave and finish with the process of sterilisation of I material.



Envoltura en forma de "cartera"

## CARES OF INFIRMARY:

- Check that always there is available the products of cleaning in sufficient quantity.



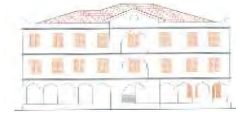
- If the material find in bad conditions not to use it.
- Use always the suitable uniform to the zone of wash of the material: gloves no barren and beat of protection.
- Follow always the norms of use and manipulation of material and chemical products to avoid accidents (burns and cutaneous injuries).
- Keep always the soil of the zone of dry cleaning to avoid falls.
- Not using never bleach detergent.
- Not using never metallic brushes.

## INDICATOR

- Register of validation of the fulfillment of the procedures described, to mark the aims in the incentive system.

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- Central unit of Sterilization: standard and recommendations. [www.msc.es](http://www.msc.es).



## TITLE

### STERILIZATION PROCEDURE OF FLEXIBLE ENDOSCOPES WITH STERILIZATION LIQUID STERILIZATION To LOW TEMPERATURE WITH PERACETIC ACID (Perasafe<sup>®</sup>).

## INTRODUCTION:

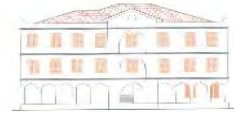
It is the process of sterilization that has to follow in all flexible endoscope, considered like material semi-critical equipment (classification of Spaulding), once clean, to guarantee that the endoscope will be sterilize properly and follow realizing his function.

Classification	Definition	Level of Disinfection
Critical	Device enters otherwise sterile tissue (for example, intraoperative applications)	Sterilization
Semi-critical	Device contacts mucous membranes or may come in contact with unhealthy or non-intact tissue (for example, Endocavity applications or the risk of MRSA colonization exists)	High
Noncritical	Device contacts intact skin	Intermediate or low

Process that sterilize to low temperature that uses peracetic acid and sterilizing agent, by means of them everything of inmersiorn.

## AIMS:

- Guarantee the process of sterilization to avoid the infection crusade.
- Avoid the deterioration by the bad procedure.



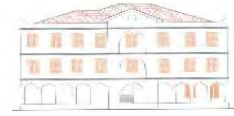
## MATERIAL AND DESCRIPTION OF THE SAME (PICTURES):

- Trays / Containers
- Brushes used in the cleaning of the channel of the endoscopic, clean cloths and 50CC syringes.
- Running water.
- Detergent (Instrunet)
- **Acido Peracético:** Perasafe<sup>R</sup> Is a system in dust designed to obtain a fast and safe disinfection of high level. The active agents, peracetate ions, are originated from the dissolution of the dust Perasafe<sup>R</sup> in water. PREPARATION: The solution of work Perasafe<sup>R</sup> generate from the dissolution of 16,2g. Of product in a litre of temperate water. The solution is active during the 24 following hours to his preparation, or a maximum of 20 cycles in automatic processors of endoscopes. The spectrum of action of Perasafe<sup>R</sup> is wide, viridian, bactericide (including mycobacteria's), fungicide and sporicidal. It is indicated for disinfection of high level of teams and instrumental medical, so much by immersion, as by means of the use of automatic processors. Sterilization of urgency, on foot of patient when other methods of sterilization are not available or the material like this require it.
- Barren size

**PROCEDURE:** *been completed by auxiliary staff must be protected with non-sterile gloves and gown.*

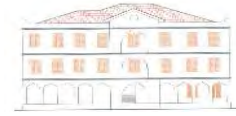
We distinguish 5 steps:

### Cleaning



- Remove all blood, mucus and other organic debris from the external surface of the endoscope.
- Inhale water and detergent (in his corresponding dilution) through the channel of work, roughly 250 ml.
- Insufflate and wash alternatively the channel of air and water.
- Disconnected the endoscope of the source of light/video processor
- Verify marks of bitten and other irregularities in the surface
- Realize proofs of escape and proofs of operation of commandos.
- Place the endoscope in the battery/container (“dirty”) corresponding for cleaning
- Add water and detergent in his corresponding dilution
- Clean all the surfaces, brush the channels, valves, pistons, caps, jet of wash (use a brush and disposable wipes).
- Irrigate through a syringe of 50cc the channels with water and detergent
- Refuse the solution of wash.
- Insufflate air or inhale through the channels to delete the water and detergent.





### **Rinse**

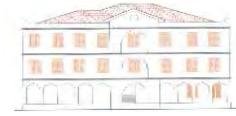
- Delete the column of detergent remainder inside the channel instilling air through syringe or by aspiration.
- Rinse the endoscope and the valves inside the cleaning container, (afterwards to refuse the detergent used), with running water.
- Submerge the endoscope and irrigate and instilling all the channels with water potable.
- Discard The water of rinse after each use.
- Clean and rinse the container before the next procedure

### **Dried**

- Dry with air to pressure the channels and external surfaces
- Dry with a cloth clean all the external surface of the endoscope

### **Disinfection of high manual level**

- Submerge the endoscope, pistons, cap of the tip and the valve in Perasafe<sup>R</sup>
- Irrigate the channels with a 50cc syringe avoiding the loss of the disinfectant by the same until attaining the total elimination of the air to ensure the contact of the disinfectant with the entire internal surface .



- Leave submerged in the disinfectant by the time suggested by the manufacturers (15min roughly)
- Always withdraw the solution of disinfection sweeping profusely with air jet before rinse.

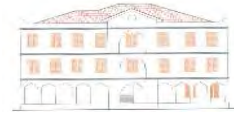


### Storage

- Disarm the endoscope, cover it with a barren size and place it in a cupboard with sufficient ventilation
- Ensure that the valves are very dry and lubricate if it is necessary
- Save them separately

### CARES OF INFIRMARY:

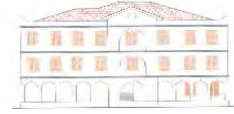
- Check that always there is available the products of cleaning in sufficient quantity.
- If the product find in bad conditions not to use it.
- Use always the suitable uniform to the zone of wash of the material: gloves no barren and beat of protection.
- Follow always the norms of use and manipulation of material and chemical products to avoid accidents (burns and cutaneous injuries).



- Keep always the soil of the zone of dry cleaning to avoid falls.
- Not using never bleach detergent.
- Label the sterile endoscope (see ANNEX 1)

## INDICATOR

- Register of validation of the fulfillment of the procedures described, to mark the aims in the incentive method.
- Place label of disinfection

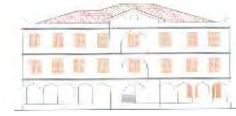


## ANNEXO 1: label of the process of disinfection

DISINFECTION ENDOSCOPE

DATE:                      HOUR:

SIGNATURE:



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## Nursing Care Theoretical & Practical Course

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### Cleaning, Disinfection and Sterilization methods

**NED**  
FUNDACIÓN 


## INTRODUCTION

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**Intrahospital infection** is still nowadays a **public health** problem in every hospital.



However, even though the problem cannot be eradicated completely, it can be **reduced** considerably, if the right measures are taken to **identify and control** the issue.


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## INTRODUCTION

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The most efficient measures against hospital infection are:

- Cleaning
- Disinfection
- Surgical instruments and equipment sterilization





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## DEFINITIONS

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### CLEANING

It consists in separating residues from inanimate surfaces through different methods. It is the previous step to disinfection and sterilization. It decreases 'microbial load' or population of microorganisms present on items




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## DEFINITIONS


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### DRYING

Important process through which small drops of liquid are removed after cleaning the material. It is done to avoid stain and corrosion on metal items.

Pistolas de aire y agua a presión.


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## DEFINITIONS

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### DISINFECTION:

Process through which most pathogenic microorganisms, present on inanimate objects, are destroyed.





**DEFINITIONS** 

**STERILIZATION:**

It is the destruction or total elimination of microorganisms from the surfaces of inanimate objects, including spores.

Seen as an absolute concept: an object is sterile or it is not.



**SPAULDING CLASSIFICATION SCHEME** 

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**Critical**

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**Semi-critical**

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**Non-critical**

Devices are classified based on the degree of risk of infection (Spaulding, 1968)

**SPAULDING CLASSIFICATION SCHEME** 

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**Critical**

Items that contact sterile tissue or the vascular system. They always need to be **sterilized**.



**SPAULDING CLASSIFICATION SCHEME** 

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**Semi-critical**

Items that contact mucous membranes or non-intact skin. Require **high-level disinfection**




**SPAULDING CLASSIFICATION SCHEME** 

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**Non-critical**

Items that contact intact skin. Require an **intermediate-level of disinfection**.



**GENERAL INFORMATION** 

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According to the Spaulding classification scheme, items follow two procedures depending on their characteristics:

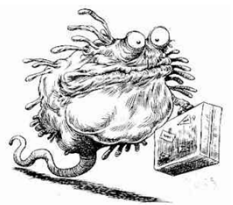
- **Disinfection**
- **Sterilization**

We will see how to clean and dry items, as well as the different sterilization methods, when we describe the Central Sterilization Unit (CSU)

## DISINFECTION



It is the **technique that physically or chemically destroys most of microbial forms** on surfaces



## DISINFECTION: Types



### High-level:

- Eliminates all microorganisms **except some resistant organisms or bacterium spores**, which are **inhibited**.
- **Obtained** through immersion.
- Necessary for **critical** and **semi-critical** items.
- There are high-level disinfectants that **eliminate spores**, like **chemical sterilants**. For example, **Peracetic Acid (Perasafe)**

## DISINFECTION: Perasafe



### Perasafe

Perasafe is a powder designed to obtain a quick and safe high-level sterilization.

- The active agents, peracetyl ions, are formed by dissolving the powder in water, giving an aqueous solution.
- Perasafe has a broad-spectrum action against viruses, bacteria (including mycobacteria), fungi and spores.



## DISINFECTION: Perasafe



### Composition

Perasafe is a peroxygen system generating peracetyl ions in equilibrium at PH 8.0 equivalent to peracetic acid at 0.26%.

Perasafe solution also contains hydrogen peroxide and acetic acid and decomposes to carbon dioxide and water.



## DISINFECTION: Perasafe



### Mode of action:

By oxydation of proteins by peracetic acid and hydrogen peroxide.



## DISINFECTION: Perasafe




### Efficacy:

It has rapid sterilant properties across a wide spectrum of micro-organisms, and it has been independently evaluated.

- It has proven efficacy against viruses (HIV, hepatitis B and C), bacteria, mycobacteria (*Mycobacterium avium-intracellulare*, *Mycobacterium tuberculosis*), fungi and spores.
- Only 10 minutes contact time is needed for sterilization.




**DISINFECTION: Perasafe** 


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**Preparation:**

16.2g of the product is dissolved in 1liter of lukewarm water.



Life of solution, 24h from activation or a maximum 20 cycles in Automated Endoscopes Reprocessor (AER).


**DISINFECTION: Perasafe** 

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**Safety:**

No special ventilation systems or monitoring of staff is necessary, which saves costs.


It does not require any elimination protocols, since it is fully degradable.

**DISINFECTION: Perasafe** 

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**Compatibility:**

Perasafe is compatible with a wide range of materials and medical devices such as flexible and rigid endoscopes, ultrasound scopes and automated reprocessors.


**DISINFECTION: Perasafe** 

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**Indications:** High-level disinfection of equipment and medical devices, either by immersion or automated reprocessors.

It can be used as emergency sterilization when other methods are unavailable or when it is adequate for medical devices/materials.

PERASAFE quick and safe sterilization of all instruments, including endoscopes sensitive to autoclaving sterilization.


**DISINFECTION: Perasafe** 

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**Instrument sterilization**

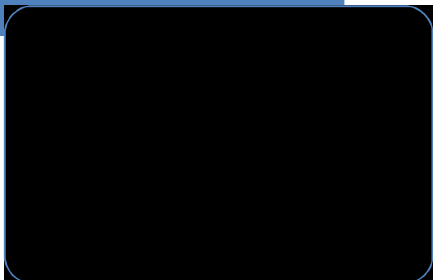
Preparation instructions:


- 1. Prepare the PERASAFE solution as indicated before.
- 2. Previously clean instruments as usual.
- 3. Immerse instruments in PERASAFE solution for 10min.
- 4. Rinse instruments with sterile water before use.

**DISINFECTION: Perasafe** 

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**Recommendations**




**DISINFECTION: Types** 

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Intermediate level:


- Inactivates many microorganisms. Efficient against fungi and viruses but not against **spores**.
- **Obtained** through immersion.
- The following belong to this group:
  - ✓ Ethyl alcohol 70%
  - ✓ Isopropyl alcohol 70-90%
  - ✓ Phenol
  - ✓ Aldehydes (glutaraldehyde + formaldehyde + glyoxal)
- A minimum of 10 min contact time is needed for an intermediate-level disinfection.

**DISINFECTION: Types** 

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Low level:

- Used in non-critical medical devices. It eliminates most viruses and fungi but **neither the tubercle bacillus nor spores**.
- **Obtained** through cleaning of surfaces with special chemical products.

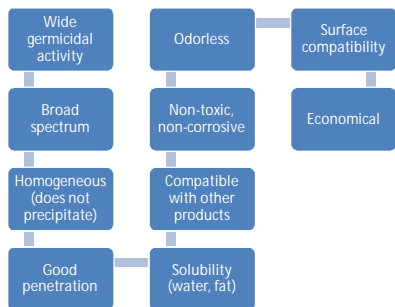
**DISINFECTION: Types** 

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- The following are considered low-level disinfectants:
  - ✓ Sodium hypochlorite 100 ppm.
  - ✓ Quaternary ammonium compound.
- A minimum of 10 min contact time is needed for a low-level disinfection.


**DISINFECTION** 

Which are the characteristics of a good disinfectant?




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    graph TD
      A[Wide germicidal activity] --- B[Broad spectrum]
      B --- C[Homogeneous (does not precipitate)]
      C --- D[Good penetration]
      E[Odorless] --- F[Non-toxic, non-corrosive]
      F --- G[Compatible with other products]
      G --- H[Solubility (water, fat)]
      I[Surface compatibility] --- J[Economical]
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      style J fill:none,stroke:none
  
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**DISINFECTION** 

**RECOMMENDATIONS FOR DISINFECTANT USE**

Items must be clean, rinsed and dry.
Use of safety measures: gloves, masks, goggles/visors, aprons.
In case of fumes, use closed containers and air the room.
Prepare the disinfectant solution following the manufacturer's instructions.
Immerse the items completely.

**DISINFECTION** 

**RECOMMENDATIONS FOR DISINFECTANT USE**


Immerse the items according to manufacturer's immersion time
Do not mix disinfectants.
Items will be rinsed with sterile water or not, depending on use.
It is essential to dry the instruments.
Instruments will be stored away for protection.

## STERILIZATION

Complete elimination or destruction of all living microorganisms, including spores on inanimate surfaces or in fluids.

Seen as an absolute concept:

**"An item is sterile or it is not".**



## AGENTE ESTERILIZANTE

The ideal sterilizing agent

- Germicide and sporicide
- Fast-acting
- Strong penetrability
- Compatibility
- Non-irritant
- Atoxic
- Ecological

## CENTRAL STERILIZATION UNIT

Central Sterilization Unit (CSU) Unit where items are sterilized for clinical use

Receives, prepares, processes, controls, stores and distributes textiles, biomedical equipment and instruments to other health care units and services, either in hospital or outside

Aim: Ensure biosafety for patient use.

## CENTRAL STERILIZATION UNIT


The Central Sterilization Unit is responsible for providing absolute:

**"guarantee of sterile conditions"**

CENTRAL DE ESTERILIZACIÓ

## CSU Aims

- Assuring that the sterilization process is carried out fulfilling the efficiency, safety and quality conditions
- Stabilizing or keeping the sterilization process under control preventing an excessive variability
- Sanitizing medical instruments
- Preserving the materials, receiving, guarding and delivering materials
- Preserving the central unit's equipments
- Protecting the workers' health and safety
- Environment protection



## CENTRAL STERILIZATION UNIT

The CSU comprises of 3 areas, with different activities and functions:

- Dirty area:** soiled and contaminated material are received
- Clean area:** preparation and processing of instruments
- Sterile area:** storage and transport of sterile items

**CENTRAL STERILIZATION UNIT** 

**1. Dirty Area**



**CENTRAL DE ESTERILIZACIÓN**

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**CENTRAL STERILIZATION UNIT** 

**Access and reception of used material for cleaning RED OR DIRTY AREA**

**ZONA ROJA O SUCIA**



*Asegurar la eliminación de materia orgánica*

*Productos apropiados, protocolo de lavado, LAVADO AUTOMÁTICO.*


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**CENTRAL STERILIZATION UNIT** 

**Washing, cleaning, disinfection and drying area**



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**CENTRAL STERILIZATION UNIT** 


**Cleaning of materials**

All the materials collected in the CSU, the non-used, the new and the repaired materials, are always subjected to a washing and disinfection cycle.

Cleaning is the mechanical process in which visible dirt and organic material on a surface or object are eliminated by scrubbing out.

The rigorous cleaning (washing and disinfection) is the obligated prior step to start up any method of sterilization process.

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**CENTRAL STERILIZATION UNIT** 


**Aims of the cleaning of materials**

- Eliminating organic and inorganic material
- Reducing the number of micro-organisms
- Protecting the instruments against corrosion and wear
- Facilitating the disinfection and sterilization processes


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**CENTRAL STERILIZATION UNIT** 

The hospital preventive medicine service and infection committee shall decide which are the cleaning and disinfecting products to use during the material cleaning process.



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**CENTRAL STERILIZATION UNIT** 


The washing area staff in contact with contaminated materials will use personal protection

Aim: to prevent or minimize the effects of pollutants that may come from contact

Latex gloves	Impermeable aprons	Cap	Facial protectors, masks	Goggles
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**Universal safety precautions**



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**CENTRAL STERILIZATION UNIT** 


**Types of cleaning**

Two main types:

- Manual cleaning
- Mechanical cleaning:
  - Automatic washing.
  - Ultrasonic treatment.


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**CENTRAL STERILIZATION UNIT** 

**Manual cleaning**


4 phases:

- Soaking
- Brushing
- Rinsing
- Drying



Universal safety precaution must be followed.

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**CENTRAL STERILIZATION UNIT** 

**Automatic washing**


It is the method recommended to wash heat-resistant materials

The washer is designed to clean, disinfect and dry

Use universal safety precautions








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**CENTRAL STERILIZATION UNIT** 

**Specifications of Automatic Cleaning**

- Double gloves
- Place instruments in wire baskets
- Open or disassemble instruments
- Do not overload trays
- Check that the material is clean

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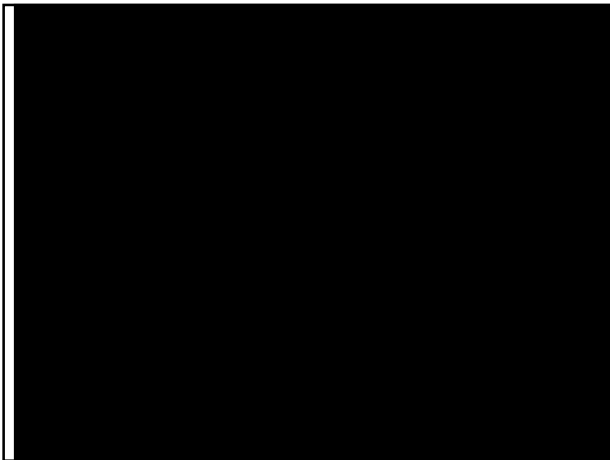
**CENTRAL STERILIZATION UNIT** 

**Lubrication**

After cleaning and before sterilizing it is important to lubricate the medical instruments to reduce stiffness and handling difficulties

The use of lubricant is the first step in preventive maintenance of surgical articulated instruments that require it

The lubricant solution used will be water-soluble and specifically made for sterilization



**CENTRAL STERILIZATION UNIT** 

**2. Clean Area**



**CENTRAL DE ESTERILIZACIÓN**

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**CENTRAL STERILIZATION UNIT** 

**2. Clean Area: Preparation, packaging and sterilization**



Material, devices and instruments are inspected, prepared and packaged to be sterilized, stored and distributed.



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**CENTRAL STERILIZATION UNIT** 

**Preparation, packaging and sterilization area**

Sealing machines are used in order to prepare and package the instruments.



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**CENTRAL STERILIZATION UNIT** 

**Preparation, packaging and sterilization area**

The staff working in this area will follow the handling protocol established by the CSU, which usually includes preparation in the staff access area (hand-washing, caps, gowns, shoe covers, etc.)

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**CENTRAL STERILIZATION UNIT** 

**Preparation, packaging and sterilization area**  
**BLUE OR CLEAN AREA**



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**CENTRAL STERILIZATION UNIT** 

**Preparation, packaging and sterilization area**

Material, devices and instruments are inspected, prepared and packaged for sterilization, storage and distribution.



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**CENTRAL STERILIZATION UNIT** 

**Preparation, packaging and sterilization area**

Three different groups of materials are processed:

TEXTILE



INSTRUMENTAL



ACCESSORIES



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**CENTRAL STERILIZATION UNIT** 


**Packaging**

**CHARACTERISTICS**

- Maintain the sterility of the item
- Allow the sterilizing agent to penetrate
- Protection of content
- Resist tears and punctures, during sterilization and normal handling
- Non-toxic
- Allow package to be opened in an aseptic manner



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**CENTRAL STERILIZATION UNIT** 

**Types of packaging**

Paper: single-use heat-resistant.

- Several types:
  - Non-woven fabric: made of cellulose and polyester.
  - Crepe paper: 100% medical quality cellulose.
  - Propylene: without cellulose.

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**CENTRAL STERILIZATION UNIT** 

**TYPES OF PACKAGING**





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**CENTRAL STERILIZATION UNIT** 

**Types of packaging**

To ensure antimicrobial barrier and adequate protection, a double wrapping is carried out (internal and external). It is sealed externally with adhesive tape which has an external chemical indicator printed.

The non-woven fabric and the crepe paper are suitable for steam, ethylene oxide and formaldehyde sterilization. Can be used for textile and instrumentation packaging

Propylene wrap is suitable for steam, ethylene oxide and plasma sterilization.

Ideal for large trays/baskets and textile.

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**CENTRAL STERILIZATION UNIT**

**Types of packaging**

**Disposable peel pouches**

- Paper/plastic bag
- Paper bag
- Tyvek bag




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**CENTRAL STERILIZATION UNIT**

**Types of packaging**

**Rigid sterilization containers:**

- Should allow:
  - Penetration of sterilizing agent
  - Adequate drying
  - Ensure antimicrobial barrier during extraction, transport and storage.



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**CENTRAL STERILIZATION UNIT**

**Types of packaging**

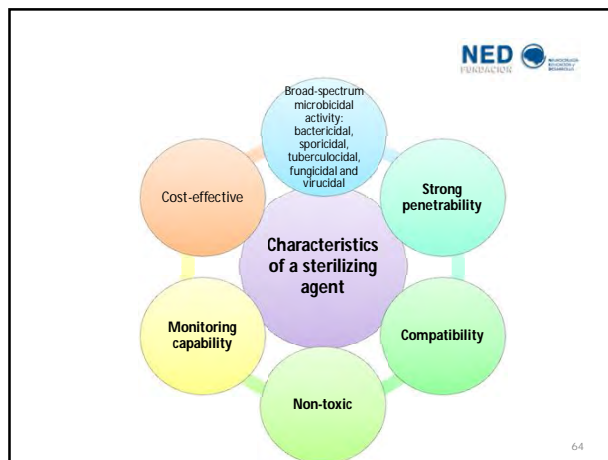
**Rigid sterilization containers:**

Containers with filter	Paper filter
	Fabric filter
Containers with valve	

There is a tamper protection device which indicates whether the container has been opened



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**STERILIZATION METHODS**

Method	Agent	System
Physical	Dry heat	Poupinel device
	Steam under pressure	Autoclave in Chemical Industry
	Ionizing radiations (Gamma radiation)	Industry
	Non-ionizing radiations (electrons)	Gas autoclave
Chemical	Ethylene oxide	Gas autoclave
	Hydrogen peroxide gas (Plasma gas)	Plasma-gas Chamber sterilizer
	Peracetic acid	Sterilizing peracetic acid
Physical-Chemical	Formaldehyde	Formaldehyde sterilizing gas

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**STERILIZATION METHODS**


**Dry heat**

**Poupinel device**



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**STERILIZATION METHODS** 


**Dry heat**

**Sterilizing agent:** dry air at a very high temperature. 180.C – 30min. 170.C – 60min. 150.C -150min

**Conditions:** long exposure, high temperature

**System:** Poupinel device

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**STERILIZATION METHODS** 

**Dry heat**

Advantages	Inconveniences
Non-corrosive	Length of exposure time
Activates pyrogens > 250°C	Suitable for only metal surgical instruments, glassware, jellies, powders, oil, waxes, paraffin
Easy installation	Cannot be used with textile, latex or ophthalmic products
Low cost	


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**STERILIZATION METHODS** 

**Steam sterilization**



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**STERILIZATION METHODS** 


**Steam sterilization**

**Sterilizing agent:** Steam. Program at 134.C (instruments and textile) and 121.C (latex)

**Conditions:** time, temperature and pressure

**Systems:** steam autoclaves

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**STERILIZATION METHODS** 

**Steam sterilization**

Advantages	Inconveniences
Suitable for most materials	Heat causes corrosion
Heat-resistant material	Does not penetrate in oil or powder
Quick and efficient due to the steam's high penetration	Organic debris present in the materials interferes with the hot steam, so sterility cannot be guaranteed if materials have residues after the process.
Low cost	
Easy to monitor	
Environment-friendly	
Non-toxic	
Does not leave toxic waste	


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**STERILIZATION METHODS** 

**Ethylene oxide**



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**STERILIZATION METHODS** 


**Ethylene oxide**

**Sterilizing agent:** ethylene oxide

**Conditions:** time of exposure, temperature pressure (37.C – 55.C), relative humidity and gas concentration

**Systems:** special chambers

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**STERILIZATION METHODS** 

**Ethylene oxide**


Advantages	Inconveniences
Heat-sensitive material	Very long cycles
Does not require special containers	Highly toxic for humans
Suitable for endoscopes and material with lumens	Necessary to eliminate residues (aeration of material).
Efficacy	Specific facilities
Does not cause rusting	Flammable, explosive
Suitable for most material	Carcinogen and mutagenic
Adequate monitorization	Residue monitorization

**STERILIZATION METHODS** 

**Peracetic acid**



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**STERILIZATION METHODS** 


**Peracetic acid**

**Sterilizing agents:** peracetic acid.

**Conditions:** temperature 50-55.C, time and concentration of sterilizing agent is constant.

**Systems:** specific chambers.

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**Peracetic acid** 

Advantages	Inconveniences
Does not activate with the presence of organic matter.	Unable to maintain its sterile condition through time
Low temperature cycle	Material for immersion cannot be packaged
Fast cycle: 30min.	Corrosive
Suitable for immediate use <i>in situ</i> . Endoscopes, dental instruments, etc.	Costly
Non-toxic for the environment.	
Does not leave residues	
Only sterilizes material	

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**STERILIZATION METHODS** 


**Ionizing radiations**



**Formaldehyde**



**Hydrogen peroxide**



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**Specific quality controls**

**Equipment monitoring**

- Bowie-Dick test (pre-vacuum steam autoclaves)
- Physical indicator

**Process indicator** External chemical indicator

**Packaging indicator** Internal chemical indicator

**Load indicator** Internal chemical and/or biological indicator

**Specific quality controls**

Equipment indicator: Bowie – Dick test

Diagram labels: VARON, HOJA DE PAPEL INDICADOR, 35, 30, 30, NO PROCESADO, VALIDO, NO VALIDO.

**STERILIZATION CONTROL**

Types of controls:

- Physical
- Biological
- Chemical

**STERILIZATION CONTROL**

**Chemical indicators**

Strips with patterns that react and change color when they reach a certain temperature.

**STERILIZATION CONTROL**

**External indicators**

- Indicators printed on:
  - Individual packages
  - Adhesive tape

**STERILIZATION CONTROL**

**Internal indicator**

Placed inside the package before sterilization

**STERILIZATION CONTROL**

**Biological indicators**

- Sufficient amount of high-resistance spores
- Two types of spores are used:
  - Bacillus Subtilis
  - Bacillus Stearotherophilus



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**STERILIZATION CONTROL**

**Biological indicator**

**24 H READING**  
If there is spore growth, color changes

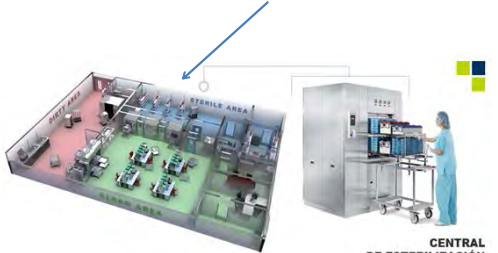
**QUICK READING INCUBATOR**  
3h

- 1- awaiting result
- 2- negative result (no growth)
- 3- positive result (spore growth)



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**3. Sterile area: Storage and distribution of sterile materials**  
Maintaining product sterility and storage



**CENTRAL DE ESTERILIZACIÓN**

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**STERILE MATERIAL STORAGE AND DISTRIBUTION AREA**

**Sterile material storage**



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**STERILE MATERIAL STORAGE AND DISTRIBUTION AREA**

**Storage**


Restricted access area

The sterile material storage should follow optimal conditions:

Relative humidity: 40% - 60%.

Temperature: 15 °C - 25 °C.

Ventilation: 6 air exchanges/h.



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**STERILE MATERIAL STORAGE AND DISTRIBUTION AREA**

**Storage**

Smooth walls for easy cleaning and disinfection.

Open shelves, far from pipes and heat/humidity sources.

Packages need to be stored at a minimum height of 25 cm above the ground and 40 cm from the ceiling, on wire shelving, to avoid dust cumulation and humidity condensation.

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**STERILE MATERIAL STORAGE AND DISTRIBUTION AREA**

**Storage**

Sterile material packages should be check, ensuring integrity. If a package is torn, perforated or with signs of humidity, it will be discarded.

Avoid unnecessary handling of packages

For optimal management of the storage, it is recommended to distribute material in differentiated areas for each hospital Unit/Department.

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**STERILE MATERIAL STORAGE AND DISTRIBUTION AREA**

**Identification label**

Expiry date control

Sterilization date	23 3 05
Cycle number	1 4
Expiry date	23 3 6

Sterilizer number

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**STERILE MATERIAL STORAGE AND DISTRIBUTION AREA**

**Expiry of sterile material**

Depends on:

- Packaging characteristics
- Storage conditions



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**STERILE MATERIAL STORAGE AND DISTRIBUTION AREA**

**Handling and transport**

- Material will be handled with gloves to avoid burns.
- Clean hands before handling packages of sterile material.
- Transport from the CSU to the different hospital Units/Services must ensure package integrity of sterile materials.

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**STERILE MATERIAL STORAGE AND DISTRIBUTION AREA**

**Handling and transport**

To be done as follows:

- Clean trolleys, preferably closed hermetically, for larger items.
- Closed plastic bags for smaller items.



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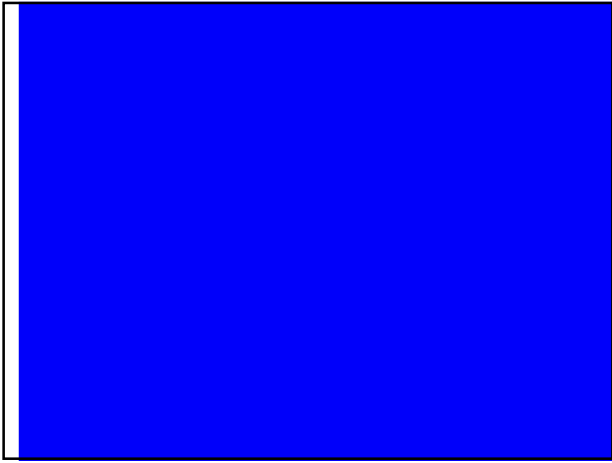
**STERILE MATERIAL STORAGE AND DISTRIBUTION AREA**

**Handling and transport**

The different Units/Departments must:

- ensure package integrity when handling sterile materials.
- store materials in easy-cleaning closed spaces
- avoid unnecessary handling of sterile material and contact with wet or soiled surfaces

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## NURSING DOCUMENTATION, RECORD KEEPINGS AND WRITTEN COMMUNICATION

*Medical History of Patient*



### The importance of writing....

- Accurate keeping record and careful documentation is an essential part of Nursing practice.
- High quality record keeping will help you give skilled and safe care wherever you are working.
- Registered Nurses have a legal and professional duty of care, and this one includes also the record of our actions and cares carried out, as also all the information of the patient.
- Professionals must recognize the importance and relevance, as well as we must know how to fill registers correctly and the consequences both in the professional area and patient's health.



- Records are witness documentary on acts and professional behaviors where it is collected all the information about the activity concerning the patient nurse, his treatment and his evolution.
- Dispose of their corresponding registry Nursing constituting thus:
  - A system of communication between the professionals of the healthcare team.
  - Quality of care, to be compared to certain quality standards.
  - A system of evaluation for the management services of nurses and the cares of patients.



### Clinical History

It is the set of documents that contains the data, assessments and information of any kind of situation and the clinical evolution of a patient in the course of healthcare process.

Record and documentation should demonstrate:

- Relevant information about your patient.
- What you did in response to their needs.
- A full description of your assessment and the care planned and given.



### Why we have to record....???

- It's one more of our functions
- It's our responsibility
- It's our duty
- It's also take care of patients:
  - It helps us
    - To know
    - To prevent, to anticipate
    - To Care
    - To treat



### Who...

- Every nurse
- With every patient that she carries on
- Every time.... And at least once for shift



## and...How?

• **Rules and recommendations:**

- ✓ **Objectivity:**  
Must be written in an objective manner, without prejudice, value judgments or opinions personal.
- ✓ **Precision and accuracy:**  
Must be accurate, complete and trustworthy.
  - The facts should be recorded in a clear and concise manner.
  - Express their observations in quantifiable terms.
- ✓ **Readability and clarity**
- ✓ **Date, shift, Signature and professional category**

## DOCUMENTATION

You will see lots of different charts, forms and documentation. All of them complete the Medical Patient History

• **Nursing Assessment Sheet:** contains

- **Identification of Patient**
  - Patient's biographical details: name, age, sex
  - Weight and height
  - Number of clinical history
  - Medical history: precedents, diseases, treatments, possibility of pregnancy...
  - Allergies
  - Diagnosis: Reason for admission
  - Surgery procedure
  - Ward and bed's number
  - Nurse and doctor responsible
  - Date

...comes to *Nursing Assessment Sheet*

- **Vital signs:** Hemodynamic situation
  - Pulse, blood pressure, temperature, capillary blood glucose.

Display numerically in at least once for shift and everytime that we observe some important change in the patient.
- **Treatment and applied messures:**
  - Oxygen therapy: device, flow, FiO2
  - Fluid therapy: saline, ringer lactate, glucose...
    - Rytme and quantity
  - Drugs, Antibiotics, Analgesics, and other medication

...comes to *Nursing Assessment Sheet*

- **Diet:** absolute, fasting, clear liquid, basal
- **Drainages:**
  - Type: bladder catheter, nasogastric, redon, ventricular...
  - Productive or non: amount and colour
- **Wounds:** location, appearance, cares
- **Outputs:** Diuresis, stools, vomiting
- **Balance:** Shift total (intakes - outputs)

...comes to *Nursing Assessment Sheet*

- **Nursing order report:**

Before the shift change, the nurse assigned to the patient must will record assessments charted in the eight hour period covered:

  - The evolution of the patient, how he has spent the shift, incidents and changes that have happened, taken care applied and if it remains slightly hanging.
  - The nursing needs and problems identified for the care plan.

Nurse responsible sign this record and at the end of shift report's will be placed in the patient's chart





## Preoperative Report

- **Objectives:**
  - To identify factors of risk and possible complications.
  - To maintain the safety of the patient along all its surgical process.
  - Preparing the patient for surgery.
- **Contents:**
  - Identification of patient
  - Surgical Check list
  - Personal precedents
  - Premedication
  - Preparation of the surgical field



### • Preoperative Nurse Functions:

1. Preserve the privacy of the patient.
2. Inform the patient and family about the date, time and place scheduled the surgery.
3. Determine the level of knowledge and anxiety before the surgery. Confirm the explanation received.
4. Make sure that the patient is in fasting, if needed.
5. Check has been signed informed consent.
6. Verify that the necessary laboratory tests has been made
7. Communicate to the operating room staff special care needs-
8. Check that the patient carries identification, and allergy bracelet if necessary.
9. Verify the need of shaved for surgery.
10. Remove rings, bracelets, and remove dentures, glasses, contact lenses or other prosthesis.



### Preoperative Nurse Functions:

11. Remove the nail polish and makeup, if you need
12. Administer enemas, if needed.
13. Administer medication before surgery if necessary.
14. Check that the patient has carried out hygiene prior to surgery or help in it if it is not self-employed.
15. Check that the patient has placed the garments according to Protocol.
16. Provide information to the family about zones waiting.  
The presence of animals is strictly forbidden
17. Prepare the room for the return of the patient
18. Record in the nursing documentation: procedures, dates and time of surgery, incidents and response of the patient.

Look at "Clinical History and Anesthetic Record"  
Look at "Surgical Check-list"



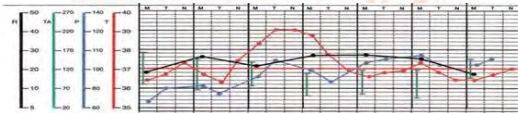
## Nursing Records in ICU

- **The Critical Care Flow Sheet** is a document that includes specific patient information charted within an 24 hours (or less) time frame. The report provides details of the patient's condition and plan of care and can also be used to track trends in the patient's progress. It is primarily used in the ICU.
  - Patient's identification and relative information.
  - Vital and hemodynamic signs.
  - Ventilation and oxygen parameters.
  - Medication, drugs and infusions.
  - Fluid Balance.
  - Neurochecks.
  - Others:
    - Patient's positions.
    - Invasive lines control.
    - Test (blood, glucose, urine...)
  - Nursing Assessment.



**Vital and hemodynamic signs:**

- The basic chart is used to record pulse, blood pressure, respiration, temperature, StO2.
- Display graphically in 60 minute intervals minimum, and often as necessary depending on the patient's condition
- following a colors code:
  - HR: blue, represented by a point.
  - BP: green, represented by arrows.
  - RR: black, represented by a cross.
  - Temperature: red, represented by a point.



**Medication, drugs and infusions:**

- Medications administered during the selected time frame.
- It is transcribed of the sheet of treatment of the doctor.
  - Type medication with its:
    - Dose
    - Route of administration
    - Rule hourly
  - Marking with a diagonal bar an hour that it corresponds according to the established hourly rule, completing the sail(cross) on having administered the medication.
- It is vital to record all of these, when you give a drug and if you cannot give a drug for one reason (e.g. physical condition, contraindication...). Make sure that this fact is recorded to not repeat or skip any doses.



**Fluid therapy**

- Type of serum
- Quantity
- The medication that adds "if applicable" and the rhythm of infusion.
- It will be marked with a vector , on line we will register the total volume that gives under the line and the drops per minute corresponding.

**Fluid Balance Chart**

- It is used to record all fluid intake and fluid output over 24-hour period. The amounts may be totalled and balance calculated at 08.00 hours.
- Fluid intake includes oral, nasogastric feeding tube and infusions given intravenously.
- Fluid output includes urine, vomit, aspirate from nasogastric tube, diarrhoea, drainages...



**Neurocheck:**

- Neurological observations charts, are using for recording other specific observations such the:
  - Glasgow Coma Scale score for level of consciousness,
  - pupil size and reaction to light
  - Limb movement

Patient		NEUROLOGICAL OBSERVATIONS																							
Name		WELLS MARIOLA RED HOSPITAL																							
Etiology		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Glasgow Coma Scale		[Grid for recording GCS scores]																							
Pupils		[Grid for recording pupil size and reaction]																							
Motor		[Grid for recording limb movement]																							
Sensory		[Grid for recording sensory responses]																							
Other		[Grid for recording other observations]																							
Total		[Grid for recording totals]																							
Remarks		[Text area for notes]																							



**Control of Invasive Lines and Wounds:**

- The patient admitted to the ICU is at risk of numerous complications and special problems.
- Use of multiple and invasive devices predisposes a patient to infections iatrogenic, that can follow from sepsis.
- The infection is the most common and serious complication after a surgical intervention. We can and should be avoided.
- Hence, the importance of taking a record and control and daily monitoring of all these invasive systems and the wounds.
- WE WILL HAVE TO CHECK EVERY SURGICAL WOUND EVERY DAY AND TREAT IT WHENEVER IT IS NECESSARY.**



• *Nursing assessment*

- Is the sheet where are recorded incidents that have occurred, the description of the patient's response to care made also new situations that arise when patient.
- Registers with date, shift, and legible signature of the nurse in each turn.
- In the assessment of the critical patient at admission must be recorded:
  - Provenance.
  - Motive of admission.
  - Allergies.
  - Personal history.
  - Initial state of patient to the income.
  - When they started the current symptoms (if applicable).
  - Assessment and identification of needs and degree of autonomy.



• *Nursing assessment*

- An important function of critical care nurses is to provide continuous observation of critically ill patients.
- Observation will reduce a patient's risk of precipitous deterioration and warns of possible complications that might arise.
- Observation involves assimilation, interpretation and evaluation of information, including the patient's physical and psychological response to interventions, changes in condition, the significance of monitored physiological parameters and the safe functioning of equipment.
- Do a thorough top to toe assessment.



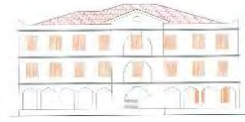
• *Nursing assessment*

Do a thorough top to toe assessment:

- General appearance (calm, agitated, distressed, sleepy, lethargic..).
- Brief neuro exam, pupils reactivity, extremity strength.
- Vital signs monitoring.
- Then the chest: heart tones, lung sounds, work of breathing, position and size of ETT (if applicable).
- Then abdomen: listen, palpate, check placement of NGT/OGT.
- Then foley and color/quality of urine.
- Then to the limbs: movement, pulses, cap refill, temperature...
- IV locations and its condition and operation.
- Then lastly a skin assessment for ulcers, wounds, surgical drainages...
- Also writes all the evidence and proceedings that are pending or planned for other shifts (for example analytical, TAC, fasting)







## 7. HYGIENE PATIENT IN WARD

### INTRODUCTION

Whole of activities directed to provide the corporal cleanliness and comfortableness of the patient to preserve your clean skin and in good state.

It must do as long as being necessary.

In patient employee (droopings patient) the hygiene is carried out in the same bed and in the autonomous patients she is carried out the own patient in the shower.

### OBJECTIVES

- Preventing alterations in the skin.
- Preventing infections.
- Eliminating bad smells.
- To contribute to the physical and psychic well-being of the patient.
- Stimulating the sanguine circulation.
- To educate to the patient and the family on the cares of hygiene.

### MATERIAL

- Gloves
- Towels
- Wedge, platter.
- Sponge
- Articles of personal hygiene: neuter soaping, hidratante cream, material of shaving off, combs, colony.....
- Clean clothes for the patient and for the bed.
- Container of soiled clothes.
- Registers of infirmary.

### PROCEDURE

- To inform to the patient.
- Carrying out the wash of hands.



**1**  
**Humedecer las manos**



**2**  
**Colocar una dosis de jabón.**

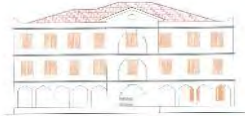


**3**  
**Jabonar toda la superficie de Mano y muñeca**



**4-a**  
**Jabonar y frotar espacios interdigitales**

- Placing of gloves.
- Identifying and prepare the material.
- Preserving the intimacy of the patient.
- To protect to the patient of falls.
- To place to the patient in dorsal decubitus and it withdraws the bolster if tolerates it.
- To undress to the patient. If it have woman's dress withdraw first the middlings and after the hands. In the case of traumatism in the extremity or venoclisis (dropper) must be the affected member the the last one in undressing.
- The soiled clothes introduces the in the soiled clothes containers.
- Carrying out the wash by following an order from the more clean areas to the less cleaner.
- To begin to wash to the patient for the face, with water and without soaping. To withering
- Washing with waters and soaping the neck, ears, hands and armpits. Rinsing and wither. It has been soaping rubbing gently with circular movements.
- Bringing near the platter to the hands of the patient, it incorporate it and permit that



the patient introduces the hands and it is the washing. Withering the hands.

- Exchanging the water, soaping and it puff up.
- It continues washing the thorax. In the women to make an incision in in the submammary area, to continue with the abdomen. Rinsing and wither.
- To wash extremities lower, giving bigger attention to the interdigital folds.

Rinsing and wither.

- Exchanging the water, soaping and it puff up.
- To wash genitals and anal area. To rinsing
- Withering good the skin.
- Hydrating the skin with moisturizer with soft massage.

- To dress to the patient with the clean pajamas.

- To comb to the patient.

- Observing the state of the claws, it clean out and stop if it is necessary.

- To leave to the patient in a comfortable and appropriate position.

- To gather to the material.

- To withdraw the gloves.

- Carrying out wash of hands.

- To register in nursing records, the procedure, date and hour, incidences and answer of the patient.

**Order of wash:**

1º Eyes

2º Face

3º Neck and shoulders

4º Hands, hands and armpits

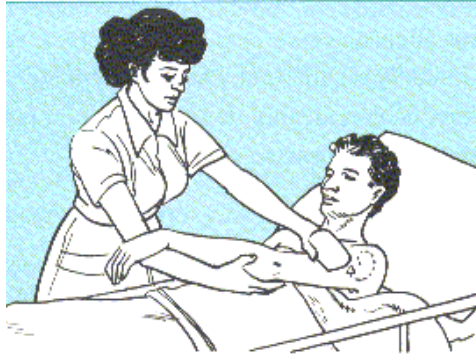
5º Thorax and suck

6º Abdomen

7º Legs and feet

8º Back and buttocks

9º Genital region



Wash of superior members thorax wash and abdomen



Wash of lower members wash of back

## 7.1. HYGIENE OF THE HAIR IN THE PATIENT DROOPING

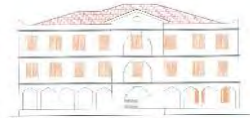
### OBJECTIVES

- To provide to the drooping patient the necessary cleanliness to keep the hygiene of the hair and scalp.
- Providing well-being to the patient.
- Avoiding the proliferation of strays.

### MATERIAL

- Comb or plane.
- Towels
- Platter with waters and a jug.
- A piece of plastic or soaker.

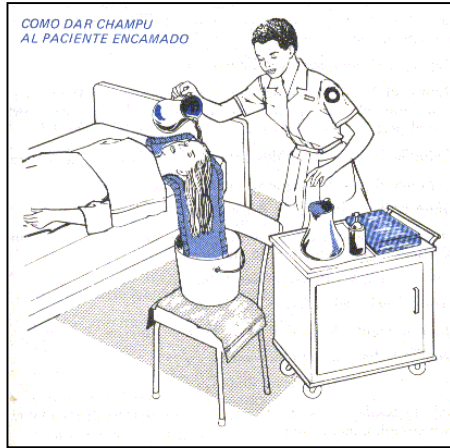




- Shampoo and cream fabric softener.
- Swabs of cotton.
- Gloves

## PROCEDURE

- Carrying out wash of hands.
- Preparing the material.
- Preserving the intimacy of the patient.
- To inform to the patient.
- Requesting the collaboration of the patient and family.
- To get placed the gloves.
- Putting the bed in horizontal position and to the patient in dorsal decubitus.
- Withdrawing pillow of the bed.
- To place to the patient in the bastard of the bed in position of Roser ( dorsal decubitus and middlings handing for the soul of the bed ).
- Placing the soaker under the shoulders of the patient.
- Putting a towel about the neck and the swabs of cotton by plugging the ears.
- Placing the platter under the middlings of the patient, on a seat.
- The temperature of the water of the jug has to be of 35-37 ° C.It proceeds to the wash.
- To clarify abundantly with water. To apply cream fabric softener and rinse.
- Withering good with a towel. Combing and wither with a dryer of hand.
- Withdrawing the swabs of cotton of the ears.
- To leave to the patient in a comfortable position.
- Gathering the material.
- To withdraw the gloves.
- Carrying out wash of hands.
- To register in the documentation of nursing records: the procedure, it motive, dates and hour, incidences and answer of the patient.



## 7.2. HYGIENE OF THE MOUTH IN PATIENT DROOPING

### DEFINICION

It is the cleanliness of the buccal cavity, teeth, gums and language. It become fulfilled daily, with the morning cleanliness, after each food and as many times are necessary.

### OBJECTIVES

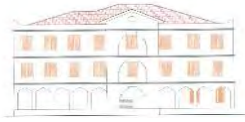
- Keeping the oral cavity of the clean patient to avoid dryness, bad smells, crack in labiums and language.
- Avoiding remains of food.
- Preventing infections.

### MATERIAL

- Vessel with water.
- Platter
- Towel
- I plane teeth.
- Dentifrice
- Collutories
- Depressant, sterile gauzes.
- Disposable gloves.
- Necessary material for the aspiration of secretions.
- 1 Syringe of 10 C.c.
- Nursing records.

### PROCEDURE

- Valuing the autonomy of the patient and it foments the self-care.



- In autonomous patients: informing and facilitate the necessary material.

- In conscious patients that are necessary help:

1. Carrying out wash of hands.
2. Preparing the material.
3. Preserving the intimacy of the patient.
4. To inform to the patient.
5. Requesting the collaboration of the patient and family.
6. To get placed gloves.
7. To place to the seated patient or half-upright.
8. Covering thorax with towel or soaker.
9. Planing teeth, language and gums.
10. Rinsing first with waters cleaning and later with collutory.

- In patient irresponsibles:

1. Position with the tilted middlings.
2. Winding a gauze about some pincers and to soak with an antiseptic.
3. Cleaning out the oral cavity. Exchanging the gauze often.
4. Clarifying the mouth with water ( plagues 10 C.c. )and to suck in.
5. Withering the labiums.

- To leave to the patient in a comfortable position.

- Gathering the material.

- Withdrawing gloves.

- Carrying out wash of hands.

- To register in the documentation of infirmary: the procedure, it motive, dates and hour, incidences and answer of the patient



## 7.3. HYGIENE OF THE EYES IN THE PATIENT DROOPING

### OBJECTIVES

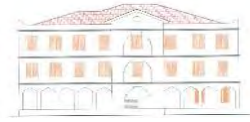
- To provide to the patient the necessary cleanliness to keep, the clean and humid eyes.
- Avoiding the irritation, it infects, edemas of the quacked and erode corneal.

### MATERIAL

- Sterile gauzes.
- Non-sterile gloves.
- Syringes of 10cc. esterilize.
- Physiologic serum
- Tray
- Nursing records.

### PROCEDURE

- Carrying out wash of hands.
- Preparing the material.
- Preserving the intimacy of the patient.
- To inform to the patient.
- Requesting the collaboration of the patient and family.
- To place to the patient in dorsal decubitus position.
- To get placed the gloves.
- Loading the syringes with physiologic serum.
- Humidifying a gauze with physiologic serum and clean out of the internal angle to the day pupil  
of each eye until remaining it cleans out of secretions. Using a different gauze for each eye. All this carry out it with the fenced-in gardens eyelids.
- Afterwards, it opens the eyelids of the patient with the index fingers and thumb of a hand and with the other fire physiologic serum from the opposed side of the lachrymal caruncle. Using a sterile syringe for each eye. To keep always the tilted middlings of the side of the eye that it is washing .
- To wither with a sterile gauze each eye.
- To close smoothly the eyelids.
- To leave to the patient in a comfortable position.
- Gathering the material.
- To withdraw the gloves.
- Carrying out wash of hands.
- To register in the documentation of nursing records: procedure, it motive,



date and hour, incidences and answer of the patient.



## 7.4. HYGIENE FEET AND NAILS BEDRIDDEN PATIENTS DROOPINGS

### OBJECTIVES

- To keep hygiene and good aspect of the feet and the claws.
- Avoiding infections, ulcerations and deformities of the claws.

### MATERIAL

- Platter
- Tray
- Soaping
- Towels
- Soaker
- Brush of claws
- Scissors
- Gloves

### PROCEDURE

- Carrying out hygienic wash of hands.
- Preparing the material.
- Preserving the intimacy of the patient.
- To inform to the patient.
- Requesting the collaboration of the patient and family.

- Preparing water in a platter.
- Protecting bed with the soaker.
- To get placed the non-sterile gloves.

**- FEET:**

1. Washing the feet with waters and soaping.
2. To rinse with water.
3. To wither well, above all the interdigital spaces with a towel.
4. Valuing state of the feet: hardnesses, ulcers, deformities, temperature and peripheral coloration, edemas and pulses.
5. Carrying out specific cares if you present ulcers for pressure.
6. To stop claws on line straight.

**- HANDS:**

1. Plunging the hands in water.
  2. Stopping claws in an oval way.
  3. Withdrawing remains of dirtiness in the claws.
- To leave to the patient in an appropriate position.
  - Gathering the material.
  - Withdrawing the gloves.
  - To wash the hands.
  - To register in the documentation in nursing records: procedure, it motive, dates and hour, incidences and answer of the patient.



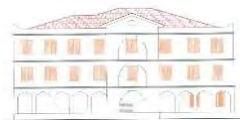
## 7.5. HYGIENE OF THE GENITALS IN PATIENT DROOPINGS

### OBJECTIVES

- Keeping clean the genitals of the patient to prevent infections.

### MATERIAL

- Wedge or platter.



- Towels
- Compresses and gauzes.
- Swaddling clotheses-diaper.
- Non-sterile gloves.
- Soiled clothes bag.
- Sponge
- Soaping
- Soapy and antiseptic solution.
- Registers of infirmary.

## PROCEDURE

- Carrying out wash of hands.
- Preparing material.
- Preserving the intimacy of the patient.
- To inform to the patient.
- Requesting the collaboration of the patient and family.
- Preparing the platter with water.
- To get placed the non-sterile gloves.
- To place to the patient in dorsal decubitus.
- To undress to the patient and cover it with a bed sheet.
- Placing the wedge.

### - MAN:

1. Washing first the penis and testicles. To rinsing
2. Bringing again the prepuce of the penis and it washes the glans penis. To rinsingTo go up again the prepuce to your position to avoid edema of glans penis.
3. To put to the patient in lateral decubitus.
4. Washing anal area with different sponge. To rinse from above downwards. To good withering.
5. Applying antiseptic solution if the patient presents vesical or wounded sound.



### - WOMAN:

1. To ask to the patient that flexione the knees or it help you if cannot.
2. Separating the legs of the patient.

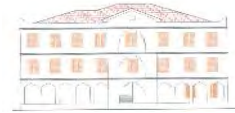
3. Wash from above downwards of the perineal area. With waters and soaping and gauzes or puff up. First wash the external part of the vulva, then bigger and smaller labiums, meatus. To rinse to jet and it repeats twice minimum.
4. Withering from above towards under forms soft. Avoiding the humidity.
5. To place to the patient in lateral decubitus.
6. Cleaning out rectal area from the vagina to anus in a single movement.
7. Applying antiseptic in the case of vesical or wounded sound.
  - Placing swaddling clotheses if it specify.
  - To leave to the patient in a comfortable position.
  - Gathering the material.
  - To withdraw the gloves.
  - Carrying out wash of hands.
  - To register in the documentation in nursing records: the procedure, dates and hour, motive, incidences and answer of the patient.



## WRITE A BIOGRAPHY OF

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- General bibliography





## PLACING OF STERILE GLOVES DRESSING AND STERILE GOWN

### INTRODUCCION:

The sterile uniformity understands in the placing of the dressing gown and sterile gloves by keeping in mind the principles of asepsis and the maintenance of your sterility.

### OBJECTIVES:

The end is to provide a barrier to avoid the dissemination of the pathogenic microorganisms to the patient and in turn, protect to the personnel of the patients with infectious illnesses. Also they avoid the contamination of the surgical incision and the sterile field for contact direct of the body.

### DESCRIPTION MATERIAL X OF THE SAME (PICTURES):

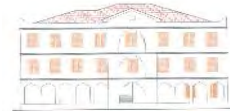
- Beat sterile (of reutilizable film or of a single use) of several measures.
- Sterile gloves of several chats.



### PROCEDURE:

To take to finish the placing of dressing gown and sterile gloves:

1. **Placing of the dressing gown with help of a person non-dressed sterile:**
  - Putting the dressing gown upside down, for the neck and it spreads out the without blowing the front part.
  - Introducing the hands in the profits, until the hands reach to the strengthes.
  - The person non-dressed sterile, fits the dressing gown behind someone's back by stretching the petty thefts and after will button up for the neck and departs later.
  - The woman nurse dressed sterile will place the sterile gloves (see gloves placing section)



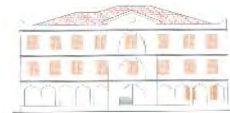
## 2. Placing of the dressing gown with help of a person dressed sterile

- The person dressed sterile offers the dressing gown, folding it for the neck and spreading out the.
- Presenting the inside of the dressing gown to the other person so that she is able to place it in order that introduces the hands for the pockets.
- The person to whom the dressing gown is placed has to keep the extended hands while the circulating (non-sterile) nurse stretches the dressing gown for the inside part of the pockets in order that the strengths remain wrapped in your place.
- It has just fitted the dressing gown behind someone's back and it buttons up neck and the lower part.
- The instrumentalist nurse will place sterile gloves to the surgeon (see sterile gloves placing section)

### Cares of infirmary for the placing of sterile dressing gown:

- If there is a risk of contact with organic liquids, place under the dressing gown an apron of plastic or a dressing gown of a single waterproof use.
- The line of the neck, the shoulders, the axillary areas and back of the dressing gown considers NO ESTERILES. Single considers sterile: the area of the chest until level of the surgical field.
- One time placed sterile hands have to keep the hands on the waist and next to the chest to avoid the contamination.
- The dressing gowns we use are of sterile or disposable clothes.
- Exchanging the dressing gown as long as contaminating
- Verifying the formation of all professionals in asepsis and sterility





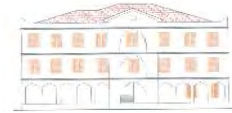
**3. Placing of sterile gloves( it exists two technical for the placing of the sterile gloves: open system and fenced-in garden system; the more used is the open system.)**

Auto-placing of sterile gloves with the open system:

- The hands are put on the outside of the strengths of the dressing gown.
- Opening the bundle of paper it covers the sterile gloves, by manipulating the least possible.
- The gloves are doubled for the part it corresponds to the doll, drawn towards out and with the thumbs upwards.
- To fuck with a hand the counter-lateral glove for the part that is folded and without blowing the external surface of the same thing.
- Introducing the hand by sliding the glove slowly. Of this way it tries to arrive until the first of the sleeve.
- To fuck with the fingers of the wearing gloves hand the other glove, it introduce the in the hem without blowing the internal face of the gloves.
- To introduce slowly the hand in this one glove and wear away the hem by covering the first of the sleeve.
- Finally it wears away the hem of the glove that has placed first on the first of the sleeve.



Placing of sterile gloves to a person dressed sterile ( in this one it processes takes part in the woman nurse that takes dressing gown and sterile gloves, and the person clad with beats sterile )

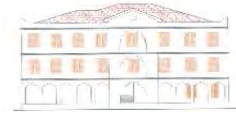


- Opening the bundle of paper that covers the sterile gloves
- The gloves will be with the part that corresponds you to the doll drawn towards out and with the thumbs upwards.
- Fudging the first glove and it offers those of way that the thumb is faced to the person that you are had to place
- The person that does not take gloves will introduce a finger for the internal part of the glove to open the glove and can introduce the hand to glove. The glove will cover until the seam of the first of the dressing gown.
- Fudging the second glove by offering those of the same way.
- The person that is had to places the glove will introduce a finger for the external part of the glove to open it and can introduce the other hand has glove. The glove also will cover until the first of the dressing gown.



### **Nursing care for the placing of sterile gloves:**

- It will use always double glove and recommends place the first glove a number more than the one which need.
- In the case of hypersensitiveness or allergy to the latex, it uses hypoallergenic gloves without latex.
- They changed the gloves as long as:
  - Are broken or perforated
  - Contaminate
  - They are very dirty of blood
  - Before closing surgical wound.



- When be about to blow implant sterile to place them.

## INDICATOR:

- Register in the striped thing of surgical verification for the prevention of incidents in the surgery. In the preoperative pause, before the surgical incision in the Check List verification
- Free sick persons of signs and symptoms of infection

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- Trainings recommended by the AORN and CDC( level of evidence 1, harrow of recommendation to )



## 1.3 PREOPERATIVE PREPARATION (SURGICAL HYGIENE AND SHORN)

### INTRODUCCION:

The surgical infection is that it takes place during the 30 following days to the intervention or 1 year following if it had implant. It is causes important of morbidity and mortality. The majority of infections is produced for the contamination of the incision for microorganisms of the own skin.

### OBJECTIVES:

The end is to achieve a reduction in the bacterial contamination of the tissues of the patient. Guaranteeing the security of the sick person in the whole process.

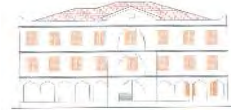
### DESCRIPTION MATERIAL:

- Puff up antiseptic
- Antiseptic soaping
- Clean towels or sterile gauzes
- Disposable rasuradora



### PROCEDURE:

It carries out, of the nurse equipment, the preparation of the patient it has to is taken part in to avoid nosocomial infections.



- 1- When carrying out the welcome of the patient in the hospital, must secure us that it are unfed ( minimum 6h ). To remember you that it must be withdrawer jewels, dental prosthesis and enamels of claws.
- 2- To shear by means of the level cut: it noes withdraw the down, except if considers indispensable for interference with the surgical incision. If the down is withdrawer, it is necessary to make it in the more near moment to the surgery, that is to say: in the antequirófano.
  - To begin with a hygienic wash of hands
  - Using non-sterile gloves
  - To begin to shear for the area of the incision towards the periphery, 15º angulation between shaver and skin to avoid erosions.
  - Lears up and wither the area with clean towels or gauzes. By eliminating the down that has remained glued.

Never carry out the shorn in operating theater, in single operating theater it must carry out the shorn if it specify ( single in the case of urgencies ).

- 3- Carrying out the surgical bath, of the whole included body the hair, with antiseptic soaping.
- 4- Placing a dressing gown and clean clothes.

#### EXEPTIONS:

- If there is an intervention of urgency: it check off and it wash with puff up antiseptic single the surgical area (do not contemplate the hours of fasting)
- In patients with arm sling: we will wash the covers parts in the preanesthesia after withdrawing the arm sling or bandage. It does not introduce the material of immobilization (tractions, arm sling, bandage) in the operating theater.

#### **NURSING CARE:**

- Revising the clinical record of the patient and it asks the possible allergies.
- Verifying fasting (6h before the surgery it must not insert solids nor liquid ) for risk of bronchial-aspiration.
- Withdrawing jewels, piercing, prosthesis (footsore, dental prosthesis, earphones...)



<http://intercentros.cult.gva.es/cpwwgedelfonament/educacionfisica/Hor%20potatoes%20ejercicios/higiene.htm>



- Registering vital constants in preoperative sheet
- Verifying the correct identification of the patient.
  
- Securing that the prepared area is wide enough to include the surgical area and a margin that permits manipulate the skin.

## INDICATOR

Register in the preoperaotria sheet:

If: dip surgical

If: shorn surgical area

- Free sick persons of signs of faulty hygiene.

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## 1.4 PREPARATION OF THE SURGICAL AREA

### INTRODUCCION:

Asepsis of the skin and the mucous membranes before carrying out in the act surgical.

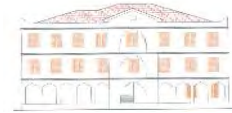
### OBJECTIVES:

Guaranteeing the asepsis of the surgical area and it minimizes the risk of infection.

### PREPARATION OF THE SICK PERSON BEFORE THE PROCEDURE:

- Knowing allergies of the sick person I concern the antiseptic products to use.
- To value of the state of the skin and mucous specially the area of the incision and of the surrounding area
- In the case of shorn of the area will be necessary to have pharmaceutical preparation the material has use.
- In if has to carry out cleaning of the area, will be necessary to have pharmaceutical preparation puff up with soaping and gauzes for the cleared up.
- Insulating the areas that they can be source of contamination (genital ulcers, ostomy and area)





## DESCRIPTION MATERIAL X OF THE SAME THING

- Sterile capsule
- Nippers of apprehension
- Sterile gauzes
- Beat gloves +
- Antiseptic solution according to the field to prepare: dyed alcoholic clorhexidina to the 2 % or iodized povidone ( hope that withers ).

*\* the clorhexidina cannot use: umbilical cord; surgical open wounds with exposition of viscera; ophthalmological in the inside of the eye; and to carry out intra-abdominal washes.*

## PROCEDURE: carried out for sanitary personnel.

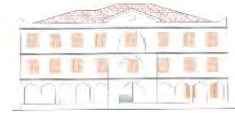
The circulating woman nurse will place in antiseptic in puts a capsule on it without contaminating it

The professional that carries out the preparation of the surgical area:

- It has to it makes a surgical wash of hands and forearms.
- Placing a sterile dressing gown and sterile gloves.
- Starting the colored thing from the area of the incision to the periphery by making concentric circles.
- Avoiding any pull from the periphery to the center of the incision
- Exchanging the swab of gauze in the case of suspicion of contamination
- It stops act the antiseptic solution until withering to guarantee the action of the antiseptic.

## NURSING CARE

- It keeps in mind the characteristics of the area to begin to ripen ( if includes or not skin and mucous ) for election of the appropriate antiseptic
- The extension and localization of the area.



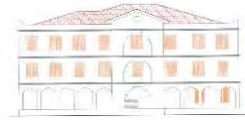
- The hygiene and previous preparation that beens carried out specially in areas too much risk, such as: axillary and navel will be necessary to exchange the gauze.
- They did not mix antiseptics because the effect is neutralized.
- The containers will keep wrapped up after your use to avoid contamination and avoid contact with the skin of the patient or the gauzes to be accustomed.
- In the case of allergic reaction, in sick persons that was not clear allergic antecedents, clean out the spotted area with physiologic serum, communicate it to the physician and register it in the intraoperatoria sheet.

## INDICATOR

- Sick persons with constancy of the clinical record of the register of the used solution.
- Register of infirmary of the surgical area of the used antiseptic solution, the spotted area and any incidence in report to the procedure.
- Register of sheets of injuries in the surgical area, compliments in the case of allergic reaction in the used solution as antiseptic.

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- ell c Ayesteran “ Clorhexidina 2 % in the disinfection of the quirúrgico” field March 2012



## INTRAVASCULAR CATHETERS INSERTING AND NURSING CARE

### INTRODUCTION

#### OBJECTIVES:

1. Learning theory and practice of VVP (Via Peripheral Vein):
  - Identify the need to carry a peripheral line channeling material.
  - Identify venous access most frequently used in channeling peripheral pathways.
  - Conduct puncture the VVP.
2. Theoretical knowledge of other vascular access.

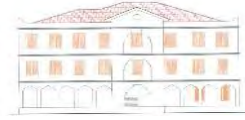
#### CONCEPTS:

"Channel" or create an "access" to a blood vessel is to form a "channel" to communicate with the outside and allow us to either remove or insert content of the substances from the outside. It was always going to put a duct to form the walls of the channel.

Catheterization is to introduce a catheter into a body cavity or passage. A catheter is a tube that serves to explore, expand or as a guide and / or other instruments vehicle.

#### VASCULAR ACCESS RANKING:

1. Depending vessel type:
  - Venous
  - Arterial
2. depending on the location of the vessel:
  - Peripheral catheter (distal members)
  - Central (trunk and limbs roots)
  - Central catheter from Peripheral
3. According duration to take



- Temporary
- Permanent

## 1. PERIPHERAL VEIN CATHETER (VVP)

### INTRODUCTION

Peripheral venous catheters are the most common.

Indications:

- The most common is to secure or maintain adequate hydration of the patient
- To intravenous management
- To administer parenteral nutrition
- To manage hemoderivatives for transfusion
- If you need to take a blood sample

### CATHETER INSERTION EQUIPMENT

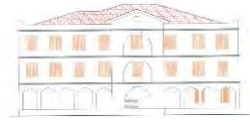
- Gloves
- Disposable gauze pads
- Antiseptic solution (chlorhexidine, alcohol, iodine, etc.) that apply with cotton or sterile gauze.
- Compressor
- Some kind of cannula: The thickness of the cannula is measured in G units ranging from 14 (thicker) to 24 (the finest). Each thickness is represented by a specific color and corresponds to 24 yellow, 22 blue, 20 pink, 18 green, 16 gray and 14 red.



Overview of different cannulas *Abocath*.

**Choice of catheters:**

- For young children is preferable 22G or 24G.



- For adults 18G or 20G .
- Patients requiring resuscitation or will be subjected to one or more larger 14G or 16G surgery.
- Have Preparation system (SSF, Ringer, etc.) that connect the end of the cannula through a stopcock. Set and key 3-step system.

Image with all the necessary equipment:



## PROCEDURE

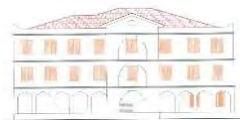
### Method for inserting Peripheral Catéter Vein (SSV):

#### 1. Preparation:

- Inform the patient: Although the technique is very simple and painless, the patient should always explain what we do and why.
- We must also ensure minimal privacy for the patient, as with any medical procedure. Put a screen or draw the curtain.
- It is very important to the proper position of the patient. The site chosen for access should be well lit and we must be convenient and accessible.

#### 2. Venous election:

- As a rule the veins of the upper extremities are preferred.
- Generally preferred the non dominant limb to save the patient discomfort.
- He always starts from distal to proximal, so that if an attempt fails we will ascend by the venous route for a new attempt.
- Tracks positioned in proximity to the joints are uncomfortable and are more likely to produce phlebitis.



- Other options include the back of the foot (especially useful in children <2 years, as these are more restless hands level of feet), femoral, the neck, etc.
- Before proceeding, after selecting the member and the vein, apply the compressor and give a gentle tap on it to remove the venous tone and achieve greater efficiency.

### 3. Insertion technique peripheral catheter

- Cleanse the area with chlorhexidine, povidone iodine, or the like.

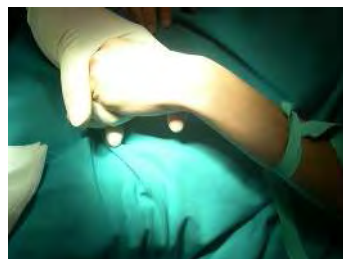


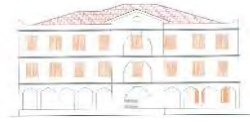
- We will get the gloves. If it is a VVP is sufficient examination gloves. If you go to channel is a VVC, we will proceed to surgical hand washing and then put sterile gloves, hat and mask.

- Puncture:

***The photographs are channeling the start of the basilica vein on the back of the hand in an awake patient.***

1. With your left hand will hold it your hand and will post the field trying taut: this way, when we go to puncture the skin tension is more localized and vein; otherwise it is very easy for the vein "escaping" and will do more harm to the patient. This hand should be fixing the patient's hand during all maneuvers.





2. With your right hand insert the venous catheter guide our choice. The angle of entry will be about 45 or so.

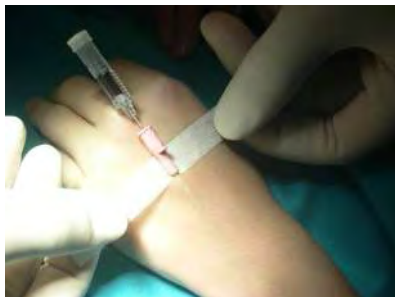
3. We will know that we will have reached the vein resistance encountered along the way and by the blood flow back to the lumen of the catheter.



4. At that moment the guide smoothly continue to introduce enough to save the vein wall completely. But then change the angle of the guide: from now on it is introduced by holding the guide catheter; so we must continue nearly parallel to the skin (45 ° to almost 0 °).

5. Now we can remove the compressor.

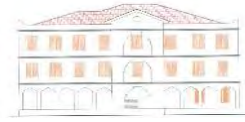
6. Ensure route: Finally make sure the track with tape to prevent movement, prevent bedsores, prevent infection and especially in CHILDREN to avoid being removed.



7. Connect the system: the final step is to connect the system that we will use.

8. Dispose of sharps in the container destined for it.





9. Take out the material.
10. Leave the patient in a comfortable position.
11. Retire gloves.
12. Perform handwashing.
13. Place in nursing documentation: the procedure, reason, date and time, size of catheter, number of venous puncture attempts, incidents and patient response.

### CARE PERIPHERAL CATHETERS

- **Definition:**

A set of activities performed by the nurse to patient with peripheral catheter.

- **Objectives:**

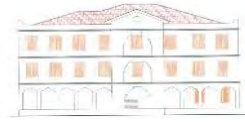
- Maintaining permeable catheter.
- Prevent infection.

- **Material:**

- A pair of gloves.
- Sterile dressings.
- Sterile gauze pads.
- 1 Syringe 5 ml.
- Antiseptic solution.
- Infusion System.
- Fixer sterile dressing.
- Key 3 steps.
- Nursing records.
- Solution for maintaining the patency of the pathway. Saline 0.9%

- **Procedure:**

- Make handwashing.
- Prepare the necessary equipment.



- To preserve patient privacy.
- Inform the patient of the procedure performed.
- Ask for your cooperation.
- Place the patient in a comfortable position as the puncture site.
- Proceed to alcoholic hand disinfection.

• **Care of catheter maintenance:**

- Put on gloves.

Dressing changes:

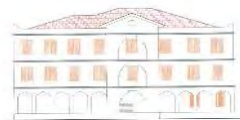
- Change the gauze dressing every day or when wet, stained or off.
- Place a sterile gauze under the catheter-free computer / shutter  
avoid injury to the skin.

Care puncture:

- Monitor puncture each time it is used and routinely every 24 hours, watching for signs of infection, and extravasation.
- Change the catheter every 72-96 hours in adults and pediatric patients when of complications.
- Change the catheter for signs of phlebitis, extravasation or obstruction.

Changes infusion systems and connections:

- Avoid full system shutdowns.
- Change the system every 48-72 hours.
- When the catheter is changed.
- Disinfect the connection / shutters with antiseptic solution before use and after. Change the plugs for other sterile every time you withdraw the catheter.



### Maintaining the patency of peripheral catheter:

- Wash the catheter every 8 hours and after use with 5-10 ml of sodium chloride 0.9% in order to maintain the patency of the peripheral route.
- Dispose of sharps in the container destined for it.
- Collect material.
- Leave the patient in a comfortable position.
- Retire gloves.
- Make handwashing.
- Register in nursing documentation: the procedure, reason, date and time, incidents and patient response.

### REMOVING THE PERIPHERAL CATHETER

#### • Definition:

Set of maneuvers carried out by the nurse to remove a peripheral catheter after conclusion of treatment or when there is leakage, obstruction or phlebitis.

#### • Purpose:

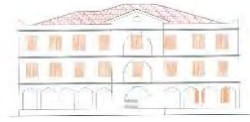
Preventing complications of the removal catheterization

#### • Material:

- Non-sterile gloves.
- Sterile dressings.
- Sterile gauze pads.
- Antiseptic solution.
- Plaster.
- Nursing records.

#### • Procedure:

- Make handwashing.
- Prepare the necessary equipment.



- To preserve patient privacy.
- Inform the patient of the procedure performed.
- Ask for your cooperation.
- Place the patient in a comfortable position as the location of the catheter removed.
- Proceed to alcoholic hand disinfection.
- Put on non-sterile gloves
- Close the infusion if any.
- Remove dressing.
- Observe the puncture area looking for signs of infection.
- Clean needle point with antiseptic solution with circular movements inside out. Let dry antiseptic.
- Remove the catheter.
- Place the sterile dressing.
- Pressing 5 minutes if the patient has bleeding problems or are in anticoagulant treatment about 10 minutes.
- Dispose of sharps in the container destined for it.
- pick up dirty material and sharps.
- Leave the patient in a comfortable position.
- Retire gloves.
- Make handwashing.
- Register in nursing documentation: the procedure, reason, date and time, incidents and patient response.

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# Urinary Catheter Protocol

**PURPOSE:** To provide direction in the management of care for patients having urinary catheters.

**LEVEL:** Interdependent

**SUPPORTIVE DATA:**

Performed by: RN/LPN – **RNs only irrigate nephrostomy tubes**

Definitions: Indwelling urinary catheter is a drainage tube that is inserted into the bladder through the urethra, is left in place, and is connected to a closed drainage system.

Bladder scan is a portable ultrasound device that provides a noninvasive measurement of urinary bladder volume.

Coudé catheter is a urinary catheter with a firm curved tip designed to negotiate the male prostatic curve and may be helpful for difficult urinary catheter insertions. A coudé catheter is inserted keeping the curved tip pointing up toward the patient’s umbilicus.

Nephrostomy tubes are percutaneously inserted into the kidney pelvis to drain an obstructed kidney and to help preserve kidney function. Placement of a nephrostomy tube can be temporary or long-term. The purpose of nephrostomy tube irrigation is to maintain patency of the tube, not to lavage the renal pelvis.

Related Information: Catheter-associated urinary tract infections may be the most common complication associated with indwelling urinary catheters. A urinary catheter provides a portal of entry into the urinary tract. The method of catheterization and the duration of catheter use, the quality of catheter care, and host susceptibility influence the risk of urinary tract infection (UTI). The majority of UTIs are caused by pathogens ascending the urethra via either the external or internal surface of the catheter. Potential reservoirs for bacteria in the catheterized patient include the urethral meatus, drainage bag, and connections.

**KEY WORDS**  
**Initial & Ongoing**  
**Assessment**

**CARE DIRECTIVES**

1. **Identify** the indication for indwelling urinary catheter:
  - a. Management of acute urinary retention or obstruction
  - b. Perioperative use for selected surgical procedures (e.g. surgeries involving the genitourinary tract, anticipated prolonged surgery, operative patients with urinary incontinence, need for intraoperative hemodynamic monitoring, patients anticipated to receive large volume diuretics during surgery)
  - c. Monitoring urinary output in critically ill patient
  - d. Management of Stage III or IV pressure ulcer located in perineal or sacral area
  - e. Patient requires prolonged immobilization (e.g. potentially unstable thoracic or lumbar spine)
  - f. Hospice/comfort/palliative care patient
2. **Collaborate** daily with MD/NP/PA/CNM to review the need for continued catheterization and remove catheter promptly when no longer indicated.

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**KEY WORDS**

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**CARE DIRECTIVES**

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**Bladder Scan/ Straight Catheterization****Indwelling Urethral Catheter Ongoing Care****Coudé Catheter****Suprapubic Catheter**

3. **Consider** use of condom catheter drainage as an alternative to indwelling urethral catheter in cooperative male patients without urinary retention or bladder outlet obstruction.
4. **Monitor** fluid balance every shift
5. **Assess** for adequate bladder emptying (e.g. absence of bladder distention).
6. **Assess** for signs and symptoms of urinary tract infection: fever (>38°) or chills, or suprapubic tenderness, change in character of urine (new onset bloody urine, foul smell, or increase in amount of sediment). Assess for frequency, urgency, and dysuria following catheter removal.
7. **Perform** bladder scan (competenced staff only) if urinary retention is suspected. A physician order is not required.
8. **Notify** MD/NP/PA/CNM if bladder scan reveals urinary retention requiring a straight catheterization order.
9. **Use** single lumen nonretention catheter, maintaining sterile technique.
10. **Withdraw** catheter when bladder is empty and record output
11. **Insert** catheter using aseptic technique, sterile equipment, sterile gloves, drape, sponges, povidone-iodine solution for periurethral cleaning, and a single-use packet of lubricant jelly for insertion, using the smallest bore catheter possible.
12. **Perform** hand hygiene immediately before insertion of the catheter and before and after any manipulation of the catheter site or apparatus.
13. **Perform** routine meatal area hygiene.
14. **Maintain** a sterile closed drainage system.
15. **Secure** catheter to patient's body with tape or securement device to prevent urethral tension.
16. **Maintain** urine collection container:
  - a. Below the level of the patient's bladder
  - b. Tubing free of dependent loops and kinks
  - c. Secured to the bed or chair to prevent pulling on the entire system
  - d. Hanging free without touching the floor.
17. **Use** Standard Precautions during any manipulation of the catheter or collecting system.
18. **Use** patient-specific measuring container for emptying drainage bag marked with the patient's name and room number.
19. **Empty** collecting bag regularly (when 2/3 full or less) and avoid allowing the drainage spigot to touch the nonsterile collecting container.
20. **Encourage** adequate fluid intake of 2000 ml per 24 hours if not contraindicated.
21. **Do not** disconnect the catheter and drainage tube unless the catheter must be irrigated.
22. **Irrigate** catheter with sterile normal saline using sterile technique as ordered.
23. **Replace** the collecting system by use of aseptic technique and after disinfecting the catheter-tubing junction when breaks in aseptic technique, disconnection, or leakage occur.
24. **Collect** fresh urine for examination (i.e., urinalysis or culture) by aspirating urine from the needless sampling port with a sterile syringe/cannula adapter after cleansing the port with a disinfectant.
25. **Use** a coudé catheter if a straight tipped catheter is unable to be passed in conditions of bladder outlet obstruction. A physician order is not required.
26. **Insert** the coudé as you would a regular catheter, keeping the curved tip pointing up that is, toward the patient's umbilicus. The catheter may be rotated within the urethra to maintain the tip up position. If the balloon port or small knob at drainage end of the catheter is pointed up, the curved tip will be pointed up.
27. **Notify** MD/NP/PA/CNM when encountering difficulty with a straight or coudé urethral catheter insertion.
28. **Refer** to Perry & Potter (2006) for the care of a suprapubic catheter.

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**KEY WORDS**

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**CARE DIRECTIVES**

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**Nephrostomy Tube**

29. **Only RNs** who have documented initial training and annual competency validation on nephrostomy tube irrigation may perform nephrostomy tube irrigation.
30. **Assure** an order has been written by MD/NP/PA/CNM for nephrostomy tube irrigation which includes the frequency, type and amount of solution to be used. Question any order that requires instillation at one time of more than 5ml of irrigation for an adult or 2ml of irrigation for a child.
31. **Confirm** placement from urologist or designee prior to irrigating a newly implanted nephrostomy tube.
32. **Clearly label** nephrostomy tube.
33. **Assess** exit site for bleeding, signs of inflammation or infection, leakage of urine, and skin irritation.
34. **Use** strict aseptic technique with nephrostomy tube irrigation.
35. **Use** povidone-iodine and/or alcohol swab for cleaning the injection site or tube.
36. **Careful** attention should be used not to dislodge the tube.
37. **Push** gently with caution and excessive pressure should not be added.
38. **Allow** irrigation solution to drain by gravity. **Do not** aspirate.
39. When resistance to instillation is felt or the solution does not drain back:
  - a. **Check** the tubing for kinks or dislodgement.
  - b. **Reposition** patient.
  - c. **Check** the direction of the stopcock.
  - d. **Stop** the procedure and notify the provider.
40. **Use** aseptic technique to apply dry dressing at exit site, replace dressing as needed.

**Patient/Family/Significant  
Other Instruction**

41. **Explain** all urinary catheter procedures to patient/family/significant others.
42. **Teach** the importance of fluid intake 2 to 3 liters each day, unless contraindicated or as per pediatric maintenance formula.
43. **Teach** good hand hygiene at the catheter-urethral interface.
44. **Instruct** in signs and symptoms of urinary tract infection.
45. **Instruct** in positioning of collection bag below level of urinary bladder and off the floor at all times.

**Evaluation/Documentation**

46. **Notify** provider if any of the following deviations occur:
  - a. Change in color of urine, foul odor, turbidity
  - b. Fever (>38°C) or chills, frequency, urgency, dysuria, or suprapubic tenderness
  - c. Inability to irrigate catheter freely (when ordered)
  - d. Distended bladder
  - e. Bloody drainage
  - f. Urinary output less than 30ml/hour
47. **Document** use of bladder scan including: reason for using the bladder scan, the urine volume indicated, patient's response to the procedure, any MD/NP/PA/CNM notification, and any follow-up treatment if ordered.
48. **Record** catheter drainage on I&O sheet every 8 hours. Record drainages separately when multiple tubes are utilized.
49. **Document** catheter presence and urinary output changes on the nursing assessment flowsheet/clinical pathway/progress note.
50. **Document** Murphy drip intake and output on separate sheet. **Record** actual urine output on I&O sheet.

**DISTRIBUTION:**

Generic

**CONTRIBUTOR:** Susan Rodems BSN, RN

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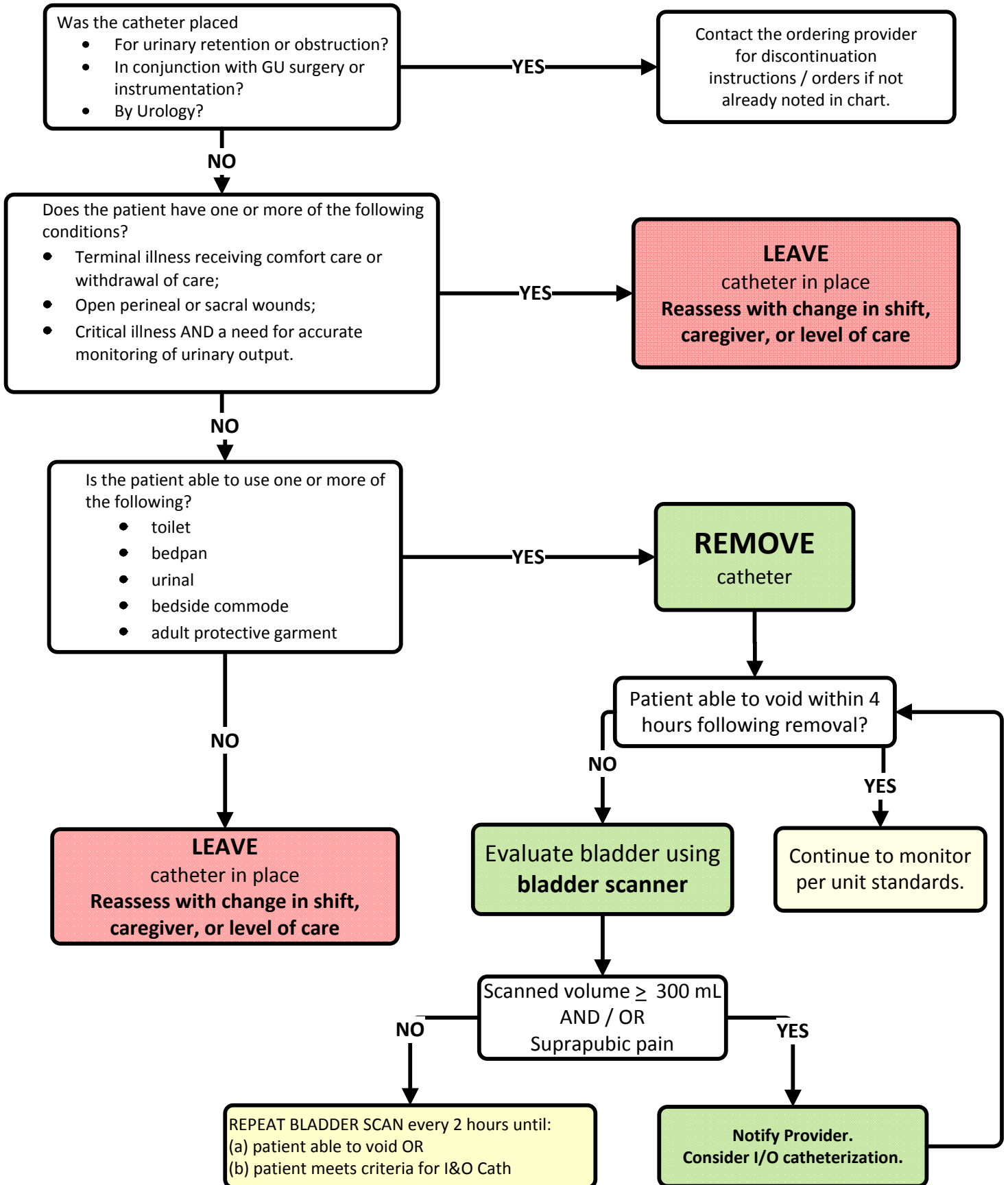
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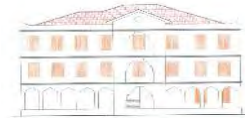




# INDWELLING URINARY CATHETER NURSING-DIRECTED DISCONTINUATION PROTOCOL

All patients with urinary catheters are placed on the protocol unless excluded by provider order.





## TITLE

### NASOGASTRIC TUBE. INSERTION, TECHNIQUE AND CARE

## INTRODUCTION

A nasogastric tube is a narrow bore tube, passed into the stomach via the nose. They are made of polyurethane, silicone or PVC.

### 1. Indications

Can be divided into diagnostic and therapeutic:

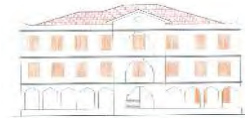
- Diagnostic:
  - Aspiration of gastric fluid contents
  - Check the quantity in upper gastrointestinal bleed
- Therapeutic:
  - Prevent aspiration and vomiting in intubated patients or with decreased level of consciousness.
  - Administration of medication
  - Feeding
  - Gastric decompression
  - Relief of symptoms in small bowel obstruction
  - Treatment of paralytic ileus

### 2. Contraindications

- Recent nasal surgery, nosebleed (epistaxis).
- Head injury. Nasal intubation may be contra-indicated in patients with a fractured base of skull because of the risk of intra-cranial insertion. (In this case we introduce into the mouth instead of the nose).
- Intestinal perforation.
- Oesophageal varices.

### 3. Complications

- Patient discomfort.
- Epistaxis.
- Bronchial placement leading to pneumonia atelectasis and lung abscess
- Intrapulmonary administration of drug and feeds
- Tube knotting and impaction in the posterior nasopharynx.
- Intracranial entry.



## OBJECTIVES

1. Describe indications, contraindications and complications of NG tube insertion.
2. Identify the material necessary for performing NG tube placement and their proper use.
3. Describe the steps for correctly inserting an NG tube.
4. Know how to check the correct nasogastric tube placement.

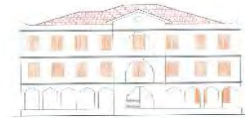
## EQUIPMENT NEEDED

- Nasogastric tube of selected size
- Non-sterile gloves
- 50ml syringe for enteral feeding
- Water-soluble lubricant
- Adhesive tape or nasal dressing to fix the NG tube
- Plastic bag
- Stethoscope
- Glass of water (if the patient is able to swallow) and is allowed fluids

## NASOGASTRIC TUBE FEATURES

- Distance marks. All nasogastric and tubes have centimetre depth markings. This makes it easy for the user to record the amount of tube placed inside the patient when it is first inserted. This can then be compared to the depth before every feed or medication to check that no movement has taken place.
- Radio-paque stripe. The tube has a radio-paque line that shows up on x-ray, to verify placement.
- Several holes near the tip.





- Sizes and colour code.

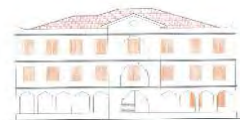
Nasogastric tubes are sized in the French scale or French unites, commonly abbreviated as Fr, but they might also use CH for Charriere, the inventor.

A NG tube comes in a variety of sizes from 6 French (very small) to 20 French (very large). Sizes 6-12CH are used for children and sizes 12-20CH for adults.

6	Light Green	
8	Blue	
10	Black	
12	White	
14	Green	
16	Orange	
18	Red	
20	Yellow	
22	Violet	
24	Light Blue	

## PROCEDURE

1. Explain the procedure to the patient and obtain consent.
2. Sit the patient in a semi-upright position with the head supported with pillows and tilted neither backwards nor forwards.
3. Examine the nostrils for deformity or obstructions to determine the best side for insertion. Put on your gloves.
4. Estimate the length of the tube to be inserted. Do this by measuring the NG tube from the tip of the nose, to the earlobe and then to the xiphisternum. Using the mark on the NG tube using the closest mark on the tube.
5. Tilt the patient's head slightly forward.
6. Lubricate the tip of the tube and begin to insert through one of the nostrils. If any resistance is encountered change to the other nostril.
7. As the NG tube approaches the nasopharynx, ask the patient to swallow and advance the tube as the patient swallows (sipping a glass of water helps).
8. If resistance, rotate the tube slowly while advancing downwards. Do not force. Stop immediately and withdraw the tube if the patient becomes distressed, starts gasping or coughing, becomes cyanosed or if the tube coils in the mouth.
9. Advance the tube until the mark is reached.

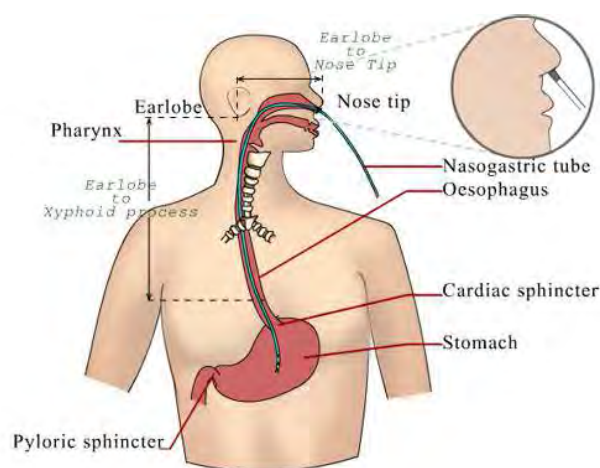


10. Check NG tube position. It is essential to confirm the position of the tube in the stomach by one of the following:

- Aspirate gastric contents.
- Auscultation. Introducing 30-40mls (for adults) or 10-20mls (for children) of air into the nasogastric tube and checking for a bubbling sound via a stethoscope, also known as the 'whoosh test'.
- X-rays: will only confirm position at the time the X-ray is carried out.

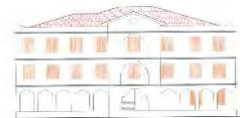
11. Fix the tube with tape.

12. Connect NG tube to a plastic bag.



## NURSING CARES

1. Record the procedure in the patient's nursing chart. Note the following information:
  - Size, day of insertion, complications.
  - Appearance, odour, colour, and amount of gastric return.
  - Patient's tolerance to procedure.
2. Provide good oral hygiene at regular and frequent intervals.
3. Keep the nostrils free of accumulations of dried secretions.
4. If permissible, apply lubricant such as Vaseline to the lips and nostrils for the patient's comfort.
5. Check the placement of the nasogastric tube:
  - At least once daily during continuous feeds, or before the administration of feed following a break or if bolus feeding.
  - Before the administration of drugs if the tube is not used for any other purpose.
  - After episodes of coughing, retching or vomiting.
  - Where there is any suspicion of a change in length of the visible part of the tube.
6. If there are any signs of respiratory distress.



## INDICATORS

- **Assessment criteria:**

Record the procedure in the patient's nursing chart	YES	NO
Days inserted		
Size		

- **Indicators:**

Number of patients with NG tube in which date of insertion is recorded into the plan of care \_\_\_\_\_ X 100

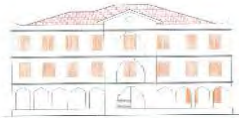
Total of patients with NG tube

Number of patients with NG tube in which size is recorded into the plan of care \_\_\_\_\_ X 100

Total of patients with NG tube

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## 1 SURGICAL WOUND CARE

### 1.1 What is a surgical wound?

All that continuum of skin and / or mucosa and underlying tissue caused by the surgeon in order to access any area of the body.

### 1.2 Healing of the surgical wound. Types.

The ability to self-repair that leads to regeneration of the epithelium and dermis replacement by fibrous tissue with different characteristics to normal.

#### *The types of wound healing are:*

**1st Intent:** Scarring occurs when the injured tissue is sutured with precision and cleanliness. Repair are decreased edema, no evidence of local infection or runny, is done in minimal time and are wound edges together.

**2nd Intent:** The healing of an open wound or an inert space closed by granulation tissue formation and finally space closure by epithelial cell migration. Most heal wounds and burns infected thereby.

**3rd Intent:** Also known as delayed closure. It is a secure method of repair for those contaminated, dirty, infected and traumatic wounds, consisting of, leave them open initially, so after four days or more and when clean granulation tissue is observed, you are closed surgically.

### 1.3 Care of the surgical wound.

#### 1.3.1 OBJECTIVES:

- Protect the wound from bacterial contamination, to promote healing and prevent the transfer of organisms from an infected wound to other sites.
- Retrieve the impaired skin integrity.
- To promote the welfare of the patient.
- Assess the healing process and decrease healing time.

#### 1.3.2 PROCEDURE:

- 1- Inform the patient about the procedure that will be performed.
- 2- Prepare the necessary equipment in a clean area or side table beside the patient's bed.

#### TEAM:

- Shopping cures
- Box of sterile instruments (scissors, dissecting forceps, mosquito, Canalada probe, stiletto, knife handle, thread holder)
- Rafts of different size and shape





**MATERIAL:**

- Bolting sterile dressings
- Sterile Gloves
- Sterile Wipes
- Saline
- Antiseptic solution (Povidone iodine, chlorhexidine 2%, 0.1% polihexamida)
- Bands
- Adhesive strips to approximate edges
- Sterile Surgical Dressings
- Hypoallergenic adhesive Fabric
- Remove-agrafes
- Blade Scalpel
- Syringes with different capacity
- Intramuscular needle
- Equipment for making culture



Shopping cures

**3**-Uncover the wound.

**4**-OBSERVE !!! Assess and examine the wound.

If there is variation in the appearance (signs of infection, pain, redness, emplastamiento, dehiscence, an abscess, seroma, bleeding, hematoma, ...): notify physician.

**5**-Contents short wash hands and placing sterile gloves.

➤ **“NO” SIGNS OF INFECTION:**

- ✓ Moisten an antiseptic swab and you clean starting with the top of the incision, always cleaning from top to bottom in one motion, never from the bottom up.
- ✓ Discard gauze and gloves used in an individual bag for each patient and place it in the waste container.



- ✓ Cover with sterile gauze dressing and / or appropriate dressing if required, according to location and characteristics of the wound.
  - ✓ Follow up of the evolution of the wound every 24 hours.
  - ✓ If favorable evolution of the wound, remove staples or stitches to 10 to 15 days following surgery and a week with local wound care.
- **“YES” SIGNS OF INFECTION:**
- ✓ Detection of infection: observation of symptoms.
  - ✓ The clinical symptoms suggestive of infection include swelling, heat, redness, purulent discharge, increased level of exudate, the wound deterioration or transitional change in the appearance of the tissues (eg, normal granulation becomes and bleeds easily dark) and temperature elevation of systemic.
  - ✓ If applicable, take the appropriate culture swab.
  - ✓ Clean with saline always from the inside out.
  - ✓ Debride wound, if applicable.
  - ✓ Irrigate wound with antiseptic (aqueous 0.05% chlorhexidine or povidone-iodine).
  - ✓ According wound condition, leave wick drains unclogged or used to facilitate wound drainage (penrouse or roof).
  - ✓ Leave sterile dressing.
  - ✓ Performing cure twice daily (morning and evening) and every time we detect the dressing is soiled.



Fig. 1. Debridencia postoperatoria media de S&S en el paciente 1. Pirmen valoración por nuestro Unidad.

**TREATMENT:**

The 3 pillars of treatment of surgical site infection are:

- 1) Establishment of appropriate antibiotic therapy.
- 2) Surgical drainage.
- 3) metabolic support and the patient, to avoid the appearance of a second complication hemo-dynamic.

**6**-Score in the dressing the date of completion of the cure.

**7**-Replace the healing team and sterile gloves between patients.

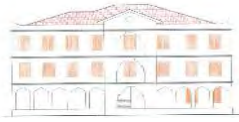
**8**-Sheet Record on Nursing observations evolution of the surgical wound.

**REMARKS:**

- Teach the patient, family or caregiver to take appropriate hygienic measures and the need to maintain asepsis in wound care.
- Teach the patient, family or caregiver to notify the nurse of any changes that may occur in the wound.

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## 2 ULCER PREVENTION. POSTURAL CHANGES

### 2.1 What is an ulcer?

It is a skin injury caused after exerting continuous pressure on a hard plane or bony prominence, causing a blood blocking (ischemia) to the level that results in a rapid degeneration of the tissue (fat, muscle, and bone), which is determined the pressure-time.



There are **risk factors** for development of pressure ulcers:

- **Pathophysiological:**

Skin lesions, peripheral vascular disorders, nutritional deficiencies, dehydration, immune disorders, cancer, infection, altered state of consciousness, motor deficits, sensory deficits, urinary or fecal incontinence.

- **Derivatives of treatment:**

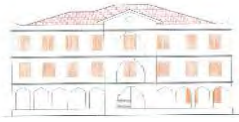
Imposed immobility resulting from certain therapeutic alternatives (devices / appliances as casts, tractions, respirators, etc.), treatments or drugs have immunosuppressive action, drilling for diagnostic and / or therapeutic.

- **Older than 85 years.**

- **Any patient with ulcer should be automatically considered high risk.**

### 2.2 Prevention of ulcers.

- 1 Skin Care: daily valuation, hygiene, hydration.
- 2 Control of excess moisture: incontinence, drains, profuse sweating, wound exudate.
- 3 Handling pressure: mobilization, postural changes, support surfaces.
- 4 Nutrition: assessment and control caloric intake and protein.
5. Water funding: assessment and control of fluid intake.
- 6 Health Education: invite the patient and / or family to participate in care.



### 2.2.1 Technique repositioning the patient.

#### POSITIONS:

To alleviate and eliminate compression of the support points, it is essential to postural changes, as correct as possible maintaining body alignment and carefully studying how to reduce the effects of prolonged pressure on bony prominences.

#### The frequency of the postural changes:

- In bedridden patients: every 2-3 hours.
- In patients who may be sitting every hour.
- If the patient can be mobilized by itself: every 15-30 minutes.

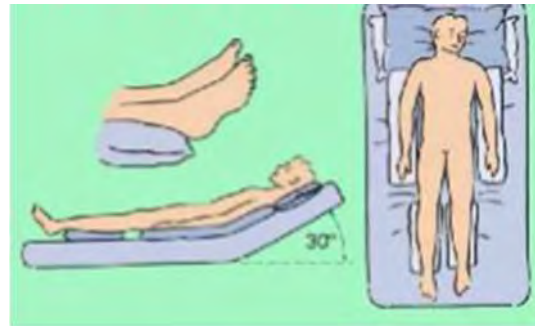
#### SUPINE:

It is quilted with pillows as follows:

- A below the head.
- A below twins.
- A holding the position of the foot.
- Two underarms (optional).

There should not be pressure on:

- Heels, coccyx, sacrum, shoulder blades and elbows.



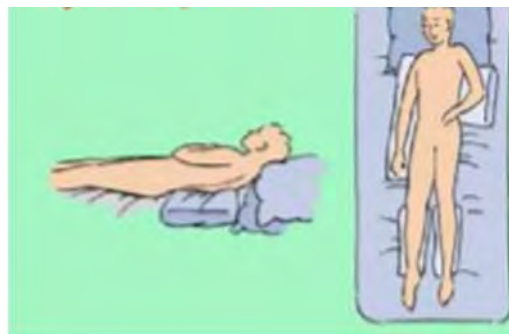
#### LATERAL POSITION:

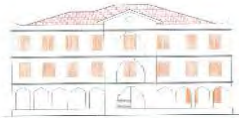
It is quilted with pillows as follows:

- A below the head.
- A back support.
- A separating the knees and over the lateral malleolus of the lower leg.
- A below the upper arm.

There should not be pressure on:

- Ears, scapula, ribs, iliac crests, trochanters, twins, warm and malleoli.





### **SITTING POSITION:**

It is quilted with pillows as follows:

- A behind the head.
- One under each arm.
- A underfoot.

There should not be pressure on:

- Shoulder blades, sacrum and ischial tuberosities.



### **2.3 CARE OF PRESSURE ULCERS:**

A basic plan of local ulcer care should include:

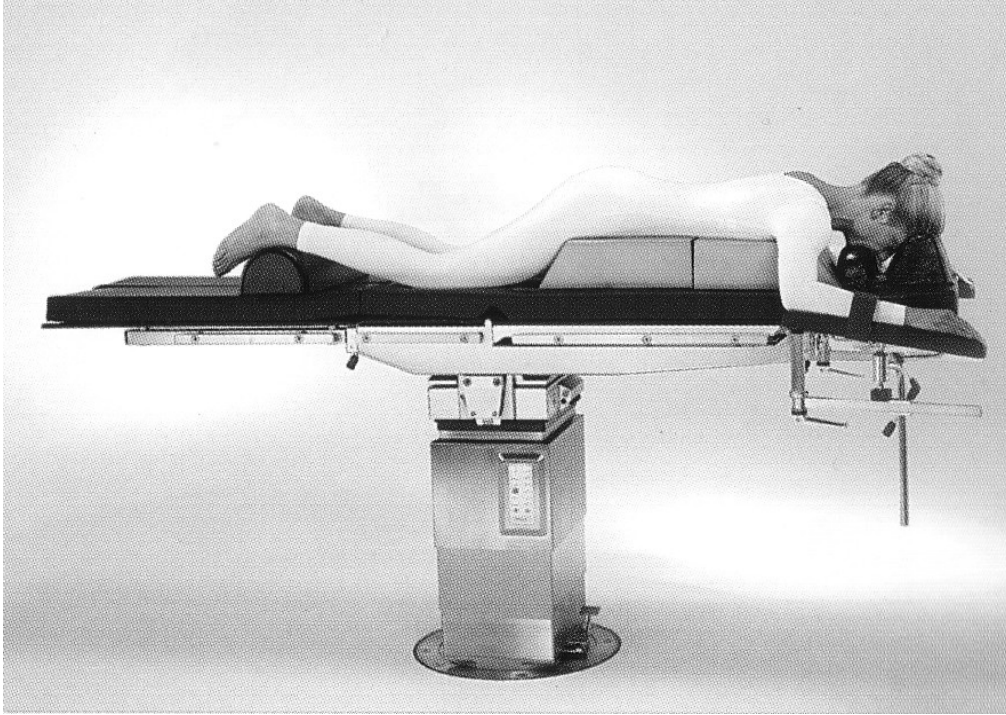
- 1st. Debridement of necrotic tissue.
- 2nd. Clean the wound.
- 3rd. Description of injuries.
- 4th. Choosing a product that continually keep the ulcer bed moist and at body temperature.
- 5th. Preventing and tackling bacterial infection.

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## SURGICAL NEUROSURGERY POSITIONING

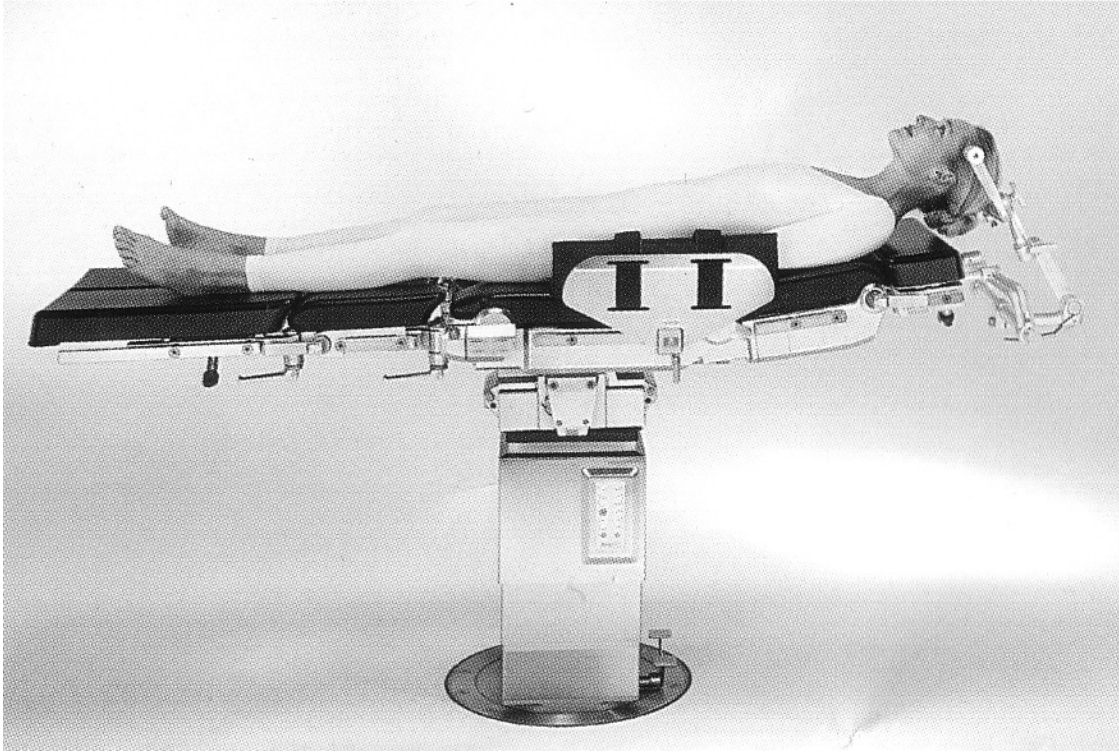
### LUMBAR ARTHRODESIS



Prone decubitus on sleigh.

Revising and boss fulcrums and accommodate questions:  
eyes, neck, shoulders, suck (women), genital (men), knees  
and fingers of the feet

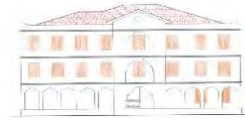
## CRANEOTOMY



Prone dorsal decubitus, lateral decubitus or decubitus.

To revise fulcrums and questions: elbows, heels. In supine position it places a bolster below the popliteal hollows.





## TITLE

### DRUG ADMINISTRATION

## INTRODUCTION

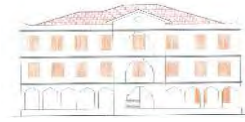
The safe administration of medicines is an important part of ensuring holistic patient-centered care. Nurses are responsible for ensuring safety and quality of patient care at all times. Many nursing tasks involve a degree of risk, and medication administration arguably carries the greatest risk. Unfortunately, patients are frequently harmed or injured by medication errors.

## OBJECTIVES

1. Understand the principles of administering drugs.
2. Identify ways to reduce risks.
3. Know the side effects and common interactions of drugs.
4. Calculate drug doses safely.

One of the recommendations to reduce medication errors and harm is to use the “five rights”:

- **RIGHT PATIENT:**
  - Check patient details, name and date of birth, both prior preparing the medicine and again at the bedside before administration.
  - Check that the patient is not allergic to the medicine before administering it.
- **RIGHT DRUG:**
  - Know the therapeutic uses of the medicine to be administered, its normal dosage, side effects, precautions and contra-indications.
  - Check the expiry date of the medicine to be administered.
- **RIGHT ROUTE:**
  - It determined primarily by the properties of the drug and by the therapeutic objectives.
- **RIGHT TIME:**
  - Medications must be administered at the correct time to ensure therapeutic serum levels.
  - Ensure the maximum number of doses in any rolling 24 hour period is not exceeded.
- **RIGHT DOSE:**
  - Remember doses for different routes may be different.
  - Calculate the right dose and check it again.



## EQUIPMENT NEEDED

### PARENTERAL ROUTE

- Non-sterile gloves
- Medicines and diluents (NaCl 0.9%, water for injections) as prescribed
- Infusion container of normal saline: monodose, 50 ml, 100, ml, 250, ml.
- Syringes of required size
- Needles of required size
- Giving set
- Swab or gauzes
- Alcohol
- Drip stand

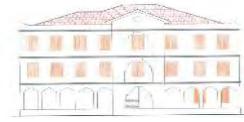
### ENTERAL ROUTE

- Non-sterile gloves
- Drug to be administered
- Glass of water
- Caps or clamps for NG tube
- Wipes
- 50 ml syringe

## PROCEDURE

### 1. Routes of Drug Administration.

- **ENTERAL**  
Enteral administration, or administering a drug by mouth, is the simplest and most common means of administering drugs. Medicines can be administered:
  - Oral (PO). The drug is given by mouth, it may be swallowed, allowing oral delivery.
  - Sublingual (SL). Placement under the tongue allows a drug to diffuse into the capillary network and, therefore, to enter the systemic circulation directly.
  - Through Enteral Feeding Tubes. For patients who are unable to take medications orally.
    - Explain the procedure to the patient and obtain consent.
    - Sit the patient in a semi-upright position.
    - Check the placement of the NG tube before the administration of drugs.
    - Crush tablets to a fine powder and then mixed with 15–30 mL of water before delivery through the tube.
    - Flush the NG tube with 40- 50 mL of water after medication administration.
    - Clamp the NG tube, if the patient can tolerate it, for at least 30 minutes to improve absorption.



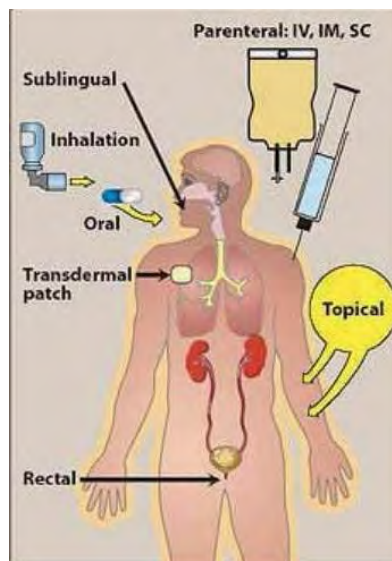
- **PARENTERAL**

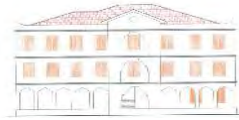
The parenteral route introduces drugs directly across the body's barrier defenses into the systemic circulation or other vascular tissue.

- Intravenous (IV). IV medicines may be administered in the following ways:
  - *Bolus*. Introduction of a small volume of medicine solution into the cannula or the injection site of an administration set.
    - IV lines should be flushed with 5-10 ml of normal saline after drug administration.
      - ✓ Fast injection (bolus/push). Less than 30 seconds.
      - ✓ Slow injection (slow bolus). Administer slowly over 3-5 minutes.
  - *Intermittent infusion*. (By gravity or burette chamber). Administration of an infusion over a set time period, either as a one-off dose or repeated at specific time intervals.
    - Dilute the drug in 50- 100 ml volume of normal saline.
    - Connect the dilution to a giving set and purge it before administering to an IV line.
  - *Continuous infusion*. (Infusion pump or IV flow regulator). Administration of a volume of fluid with or without drugs added over 24 hours. The infusion may be repeated over a period of days.
    - Dilute the drug in 50- 500 ml normal saline to deliver continuously.
    - Connect the dilution to a giving set and purge it before administering to an IV line.

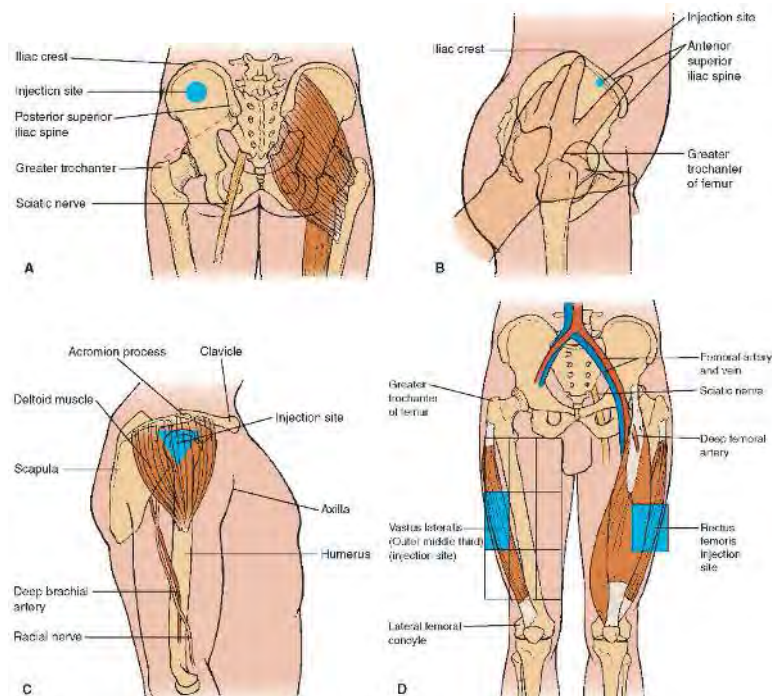
Every time we administer intravenous drugs, we should:

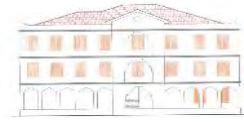
- Swab the access device port with a gauze in alcohol.
- Use safe practice to minimise the risk of air embolism (syringes should have no air bubbles).
- Flush the access device with Na Cl 0.9% after each drug treatment. Make sure the cannula/central line is left in a safe condition.



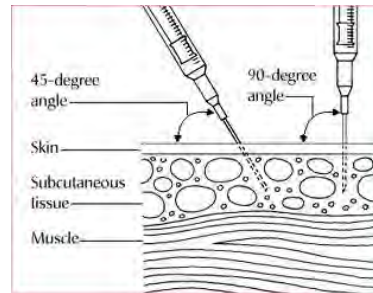
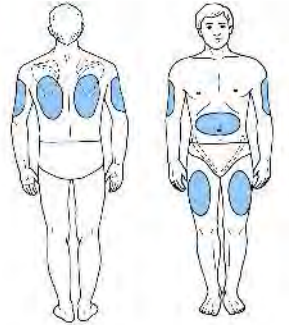


- Intramuscular (IM). The drug then dissolves slowly, providing a sustained dose over an extended period of time.
  - IM injections should be administered in the dorsogluteal or vastus lateralis region whenever possible.
  - The medication should be administered with a needle long enough to reach the muscle without penetrating underlying structures.
  - The patient should be positioned so as to relax the muscle.
  - The 'Z track' technique prevents leakage into the subcutaneous tissue and is the technique of choice for giving IM injections.





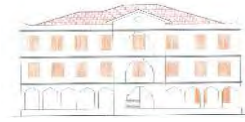
- Subcutaneous (SC). This route of administration, like that of IM injection, requires absorption and is somewhat slower than the IV route.



- **OTHERS:** Inhalation /INH), Intrathecal/intraventricular (IT), topical (TOP), rectal (PR).

## 2. Times of Drug Administration.

ABBREVIATION	FREQUENCY	ADMINISTRATION TIMES
<i>a.c.</i>	Before meals	
<i>p.c.</i>	After meals	
<i>o.d.</i>	Once a day	8 am or 12 pm or 4 pm or 6 pm or 8 pm or 12 am
<i>b.d.</i>	Twice a day	8 am & 8 pm or 12 pm & 12 am
<i>t.d.s.</i>	Three times a day	8 am, 4 pm & 12 am
<i>q.d.s.</i>	Four times a day	12 pm, 6 pm, 12 am & 6 am
<i>p.r.n.</i>	As required	
<i>q.h.</i>	Every hour	
<i>q.2h, q.4h, etc</i>	Every 2 hours, every 4 hours, etc	
<i>stat</i>	Immediately	
<i>NPO</i>	Nothing by mouth	



## NURSING CARES

- Prepare the drug as required, using aseptic technique, put on non-sterile gloves. Make any calculations carefully and written down.
- Ensure you are giving the correct treatment at the correct time to the right patient. Make sure the patient is not allergic to the treatment.
- Explain to the patient what you are doing, and make sure they are aware of the reason for treatment and understand any possible side-effects, according to their ability.
- Record the procedure in the patient's nursing chart.

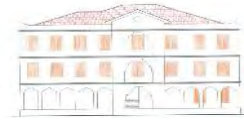
### Special considerations

- Never administer a medicine you do not know.
- All injections and infusion containers should be labelled immediately after preparation.
- We should always withdraw the base solution the same volume of drug that will add, that in this way the total volume will be administered in continuous infusion is the same as the original base solution.
- Never administer Potassium Chloride in bolus, can lead to cardiac arrest.
- IV drugs may be administered by: peripheral cannula or central lines. You must know which ones can be administered via peripheral catheter and which ones via central lines.
- Always administer each antibiotic separately.

### Drug calculations

#### THE METRIC SYSTEM

1 kilogram (Kg)	1000 grams (g)
1 g	1000 milligrams (mg)
1 mg	1000 micrograms (mcg)
1 litre (l)	1000 millilitres (ml)



- Calculating concentrations

- PERCENTAGE. This is the weight of the drug in grams that is contained in each 100ml of the solution. If you know the % strength, divide by 100 to calculate the amount of drug in 1ml.
- RATIOS. Strengths of some drugs such as adrenaline (epinephrine) are commonly expressed in ratios.

Strength as a ratio	Weight in volume	Weight per ml
= 1 in 1,000,000	=1g in 1000,000ml	= 1 mcg in 1ml
= 1 in 100,000	=1g in 100,000ml	= 10 mcg in 1ml
= 1 in 10,000	= 1g in 10,000ml	= 100 mcg in 1ml
= 1 in 1000	= 1g in 1000ml	= 1000 mcg in 1ml = 1mg in 1ml
= 1 in 100	= 1g in 100 ml	= 10mg in 1ml = 0.01g in 1ml
= 1 in 10	= 1g in 10ml	= 100mg in 1ml = 0.1g in 1ml

- Calculating oral doses in tablets

- Calculate the number of tablets/capsules needed for each dose.

$$\text{Number of tablets} = \frac{\text{Dose}}{\text{Strength of tablet}}$$

- Calculating IV drugs doses

$$\text{Volume required} = \frac{\text{Dose} \times \text{Volume of solution in ampoule}}{\text{Amount of drug in ampoule}}$$

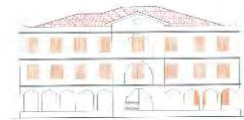
- Calculating infusion rates for infusion devices

$$\text{Volume in ml per hour} = \frac{\text{Total volume of infusion (ml)}}{\text{Duration of infusion (hour)}} = \text{ml per hour}$$

- Calculating drip rates for gravity flow infusions

- Without a flow control device such as a pump, infusion rates depend entirely on gravity. Rate of flow is measured by counting drops per minute.
- A (drug) solution administration set will usually deliver 20 drops per ml of clear infusion fluid such as NaCl 0.9% injection.
- A blood administration set will deliver 15 drops per ml of blood.
- A burette chamber will usually deliver 60 drops per ml of infusion fluid or drug solution.

$$\text{Number of drops per minute} = \frac{\text{Volume in ml} \times \text{Number of drops per ml}}{\text{Intended duration of infusion (in minutes)}}$$



## INDICATOR

- **Assessment criteria:**

Record drug administration on the patient's nursing chart	YES	NO
Time		
Route		
Dose		
Sign		

- **Indicators:**

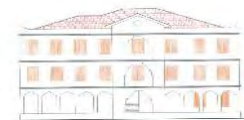
Records of medication on the nursing chart X 100

Number of patients admitted to ICU

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5. Administration of Medicines. Chris Skelly. Peter Graham. Julia Mayer.  
[http://www.merseyscare.nhs.uk/Library/What\\_we\\_do/Clinical\\_Services/Pharmacy/Administration%20of%20Meds%20presentation%2019%2002%2009.pdf](http://www.merseyscare.nhs.uk/Library/What_we_do/Clinical_Services/Pharmacy/Administration%20of%20Meds%20presentation%2019%2002%2009.pdf)
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## TITLE

### OXYGEN & AEROSOL: CARE OF THE PATIENT WITH OXYGEN THERAPY

## INTRODUCTION

Oxygen therapy is the administration of oxygen at concentrations greater than that in ambient air, with the intent of treating or preventing the symptoms and manifestations of hypoxia.

The administration of supplemental oxygen is an essential element of appropriate management for a wide range of clinical conditions. However oxygen should be regarded as a drug and therefore administered at high concentrations and long-term could be toxic.

Aerosol therapy is used to deliver a therapeutic dose of an inhaled drug in the form of an aerosol in a relatively short period of time (5-10 minutes). The drugs most commonly administered by this route are bronchodilators (salbutamol, terbutaline and ipratropium) and corticosteroids. Saline nebulizers are also used to humidify oxygen in any patient requiring it for more than 24 hours.

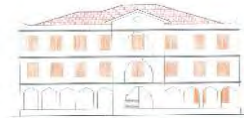
### Indications

Oxygen should be administered to any patient in the following situations:

- Respiratory distress (respiratory rate >25 or <8 breaths 7min.
- Subjective signs of hypoxia: altered conscious level or restlessness.
- Objective signs of hypoxia: O<sub>2</sub> saturation <90%, tachycardia HR >100 bpm, cyanosis (bluish colour of skin, lips and nail beds), sweating or cold clammy skin, unequal movement of the chest wall, use of accessory muscles.
- Acute events including:
  - Acute coronary syndromes.
  - Major haemorrhage
  - Pulmonary oedema
  - Pulmonary embolus
  - Seizures
  - Low cardiac output and metabolic acidosis
  - During anaesthesia and the post-anaesthesia recovery period.

All patients who are hypoxaemic require oxygen and the general target oxygen saturation should be >92%. A small proportion of patients with acute or chronic pulmonary disease require a lower target situation in order to maintain adequate respiration.

Oxygen is a dry gas, which will adversely affect ciliary function and sputum clearance. This increases the longer it is used for, and the higher the flow rate it is used at.



Aerosols are mainly used in the management of respiratory conditions such as:

- Acute exacerbations of asthma, COPD and bronchiectasis.
- Normal saline is nebulised to aid with the expectoration of sputum.

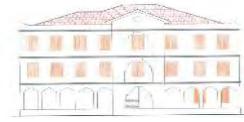
## OBJECTIVES

1. Explain the indications for administering oxygen therapy.
2. Treat hypoxemia when the pressure of oxygen in arterial blood (PaO<sub>2</sub>) is reduced.
3. Reduce cardiopulmonary workload hypoxemia due to an increase in hypoxia or hypoxemia.
4. Know different modes of oxygen delivery.

## EQUIPMENT NEEDED

- Oxygen wall outlet
- Oxygen cylinder
- Oxygen flowmeter with humidifier
- Nasal cannulae
- Venturi mask
- Reservoir bag mask
- Aerosol masks
- Inhalers
- Sterile water





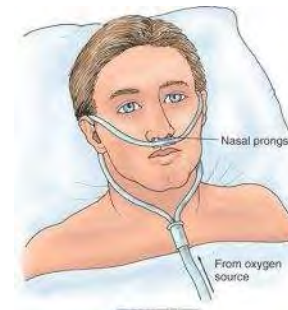
## PROCEDURE

### 1. Nasal cannulae

These are the most commonly used means of giving oxygen therapy as they are comfortable and well tolerated and allow patients to communicate, eat and drink.

It can deliver FiO<sub>2</sub> levels of 24% to 40% with flow rates up to 5 L/minute in adults. In infants, flow rates shouldn't exceed 2 L/minute.

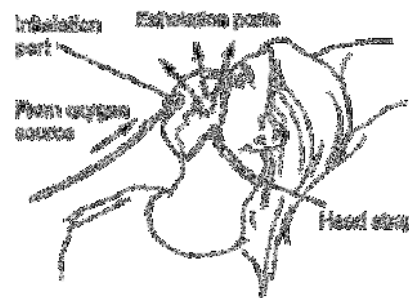
- Explain procedure to patient.
- Connect nasal cannulae to oxygen delivery, if one is in use. Adjust flow rate as ordered by physician. Check the oxygen is flowing out of prongs.
- Place the prongs in patient's nostrils. Adjust over and behind each ear with adjuster comfortably under chin.
- Encourage patient to breathe through nose with mouth closed.

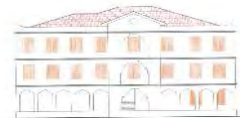


### 2. Venturi mask

A venturi mask is a simple design of valve that uses oxygen supplied through a port which allows room air to be drawn in. The advantage of this type of mask is that it delivers a precise percentage of oxygen at high rates. It can deliver levels of 24% to 50%. On the side of each rating of venturi valve is printed or embossed the flow rate that is required to maintain the stated oxygen concentration.

- Explain procedure to patient.
- Attach face mask to oxygen delivery.
- Position face mask over patient's nose and mouth. Adjust it with the elastic strap so mask fits tightly but comfortable on face.
- Remove mask and dry skin every 2 to 3 hours if oxygen is running continuously.

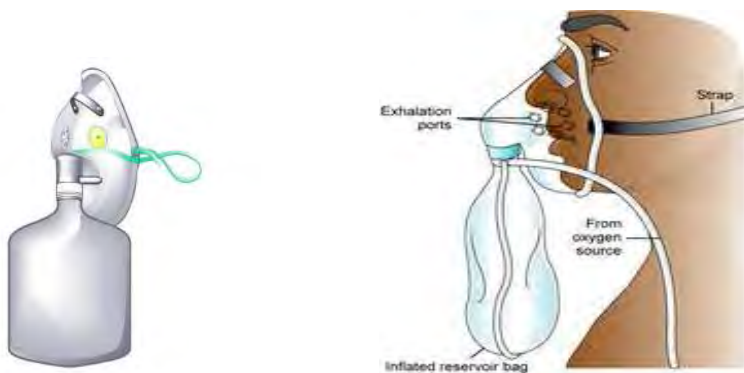




### 3. Non-rebreathe mask with reservoir bag

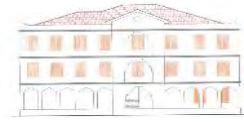
This is a mask that is designed to provide high concentrations of oxygen for short periods, no longer than three hours. At 15 litres per minute the system will deliver about 90-95% oxygen. The mask has a one-way valve that prevents the entry of expired air in the bag and two others that prevents the entry of outside air during inspiration.

- Explain procedure to patient.
- Set oxygen flow rate at 15 litres per min.
- Be sure to allow oxygen to fill bag before placing on patient.
- Position face mask over patient's nose and mouth. Adjust it with the elastic strap so mask fits tightly but comfortable on face.



### MODES OF OXYGEN DELIVERY

<i>Mode of delivery</i>	<i>Litres per minute</i>	<i>Oxygen percentage</i>
<i>Nasal cannulae</i>	2l/min	23- 28%
	3l/min	28- 30%
	4l/min	32- 36%
	5l/min	40%
<i>Venturi mask</i>	2l/min	24%
	4l/min	28%
	8l/min	35%
	12l/min	40%
	15l/min	50%
<i>Reservoir bag mask</i>	15l/min	90- 95%



#### 4. Aerosol mask

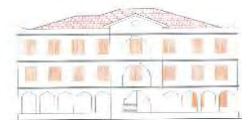
This is a mask connected to a nebulising chamber, where the liquid medicine is put and through which the air is blown to make a vapour.

- Explain procedure to patient and sit it up.
- Prepare drug to be administered in a syringe. Dilute it with a total volume of 5 ml normal saline, because a minimum volume of 2ml is required for effective nebulisation.
- Place the dilution into the nebuliser chamber and squeeze slowly, ensuring that all the contents are emptied into the nebuliser.
- Set flow rate of between 6 - 8 litres per minute to drive the nebuliser in order to ensure adequate penetration into distal airways.
- Position face mask over patient's nose and mouth. Adjust it with the elastic strap so mask fits tightly but comfortable on face.
- Disconnect nebuliser when all medication is nebulized or when no more aerosol is being produced.



## NURSING CARES

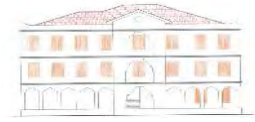
1. Perform a patient respiratory assessment at the beginning of each shift and with any change in patient condition. Observe patient colour and condition, respiratory pattern and chest wall movement and use of accessory muscles.
2. Checking the oxygen prescription and delivery mode.
3. Record the procedure in the patient's nursing chart. Note the following information:
  - Mode of oxygen delivery
  - Fraction of inspired oxygen (FiO<sub>2</sub>) and litres administered
  - Dose and time of drug administration in case of aerosol therapy.
4. If portable oxygen cylinders being used, these should enable adequate oxygen provision: (Litres in cylinders/litres needed per minute = minutes of oxygen available).
5. Provide good oral hygiene at regular and frequent intervals.
6. Assess pressure points and appearance of lesions in the case of using mask.



## INDICATOR

### FURTHER READING

1. Cuidados al paciente crítico adulto. Jesús López Ortega, José Miguel Morales Asencio, Arturo Quesada Moya. Difusión Avances de Enfermería, 2007
2. Protocolos de enfermería 2003: Unidad de cuidados Intensivos. Consejo de enfermería de la Comunidad Valenciana (CECOVA).
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5. Guideline for Humidification of Oxygen for adult self-ventilating and temporary tracheostomy patients. Nottingham University Hospital. NHS Foundation Trust.
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7. Oxygen therapy administration Policy and Guidelines: the administration of short burst, sustained (medium term) and emergency oxygen to adults in hospital. Royal United Hospital Bath. NHS Trust.
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## TITLE

### **SURGICAL DRAINS. TYPES, MANAGEMENT AND CARE OF DRAINS**

## INTRODUCTION

A drain is a thin PVC, silicone or polyurethane tube, with many holes at the end, which is placed in the cavity created when tissue is removed during surgery. The tube is added in order to remove the fluid that collects after an operation. The end of the tubing that is outside your body will be attached to a plastic measuring bottle, or open into the dressing.

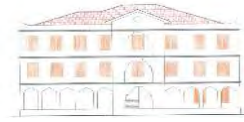
If this fluid is not allowed to drain, it can collect under the skin and potentially cause problems.

### Indications

- To allow the wound to heal.
- To reduce pain, as the collection of fluid in a closed cavity can cause discomfort.
- To prevent a collection of fluid (blood, pus and infected fluids) which is a potential site for infection.
- To prevent accumulation of air (dead space).
- To minimise any bruising to the area.
- To allow losses to be measured.

### Complications

- Infection: An infection can occur around the entry of the drain site at any time following surgery. Symptoms of an infection include increased swelling, redness, fluid leakage, an increase in your temperature and increased pain.
- Seroma or collection of fluid at the wound/drain site: There is a risk that fluid may pool beneath your stitch line after surgery if the wound drains put in during the operation are not working properly.
- Tissue in growth: This is when tissue grows around the drain and happens occasionally when the drain has been in place for a while.
- Inefficient drainage: This may be due to the tube is kinked or there is an obstruction because of blood clots or diameter is too small to remove viscous fluid.



## OBJECTIVES

1. Understand what a drain is used for.
2. Care of a patient with a drain.
3. How to care for a drain.
4. How to change/ remove a drain.
5. Familiarize with a variety of drains.

## EQUIPMENT NEEDED

- Drainage set: tube and bottle
- Sterile gloves
- Equipment for caring surgical wound
- Gauzes and compresses
- Dressings

### Types of surgical drain

Drains can be:

- Open or closed:

**Open drains** drain fluid on to a gauze pad or into a stoma bag. They are likely to increase the risk of infection. Examples include corrugated rubber drains and Penrose tube drains.

**Closed drains** are formed by tubes draining into a bag or bottle. Examples include chest, abdominal neurosurgical and orthopaedic drains. Generally, the risk of infection is reduced.

- Active or passive:

**Active drains** are maintained under suction (which may be low or high pressure). Examples include Redon drain, mini-Redon drain, Jackson-Pratt and chest drains.

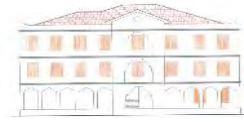
**Passive drains** have no suction and work according to the differential pressure between body cavities and the exterior. Examples include corrugated rubber drains and Penrose tube drains.

### 1. PENROSE TUBE DRAIN

It consists of rubber tube, thin and flat, placed in a wound area, which is kept collapsed when no liquid passes through it. This is a passive drainage that is placed through a skin opening that acts by capillarity, fluid dragging outwards. It is placed at the end of the operation before closing the wall, through a small incision made for the purpose, and secured by stitches. Fluids pass into a dressing placed over the area, or it can also put an ostomy bag to collect fluids.

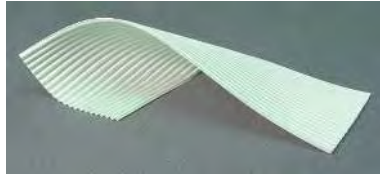






## 2. CORRUGATED RUBBER DRAIN

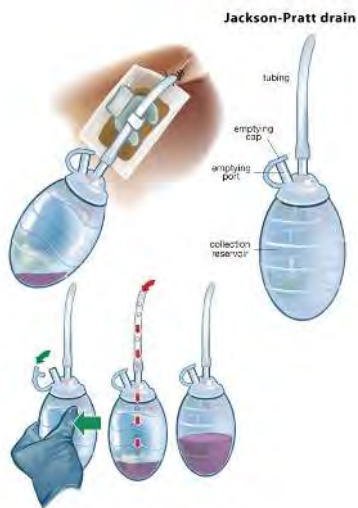
It is a piece of flexible plastic, wavy-shaped. It works by capillary action, as Penrose drain, and is secured to the skin by a suture to prevent its penetration inside. These irregularities prevent any kink of the tube. It is harder than Penrose drain, but similar features and indications.

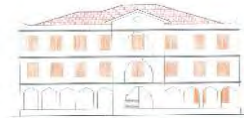


## 3. JACKSON-PRATT DRAIN

The JP drain is made up of two parts: a thin silicone tube and a soft, round squeeze bulb. One end of the rubber tube is placed in the surgical wound, whereas the other end comes out through a small incision. A squeeze bulb is attached to this outer end.

The JP drain removes fluids by creating suction in the tube. The bulb is squeezed flat and connected to the tube that sticks out. The bulb expands as it fills with fluid.





#### 4. REDON DRAIN

It is a system of active drain consisting of a flexible tube with one end in which there are multiple holes and is placed in the surgical wound, and another end suitable to fit tightly into a tube connected to a collection vessel which previously vacuum is practiced. This mechanism allows a constant drain, which can be regulate according to the needs of each case. When the collection vessel is full or loses vacuum, must be handled to ensure the sterility of the system.

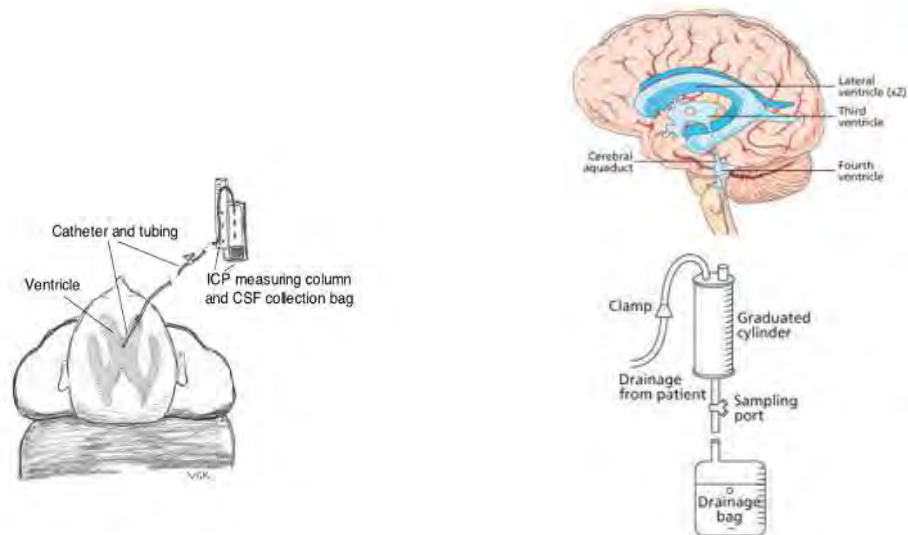


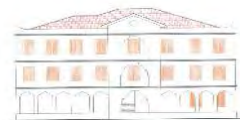
#### 5. EXTERNAL VENTRICULAR DRAINAGE

The brain and spinal cord are surrounded by cerebro-spinal fluid (CSF), which helps to protect them. The areas in the brain that contain this fluid are called ventricles. External ventricular drainage (EVD) is a temporary method to drain CSF away from the ventricles.

The EVD system uses a catheter (a thin, plastic tube), which is placed in the ventricle of the brain. This is connected to a drainage system outside the body.

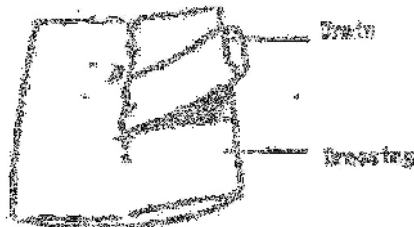
The drainage system works by using gravity. This means the amount of CSF that can drain away depends on the position of the drip chamber or cylinder beneath the ventricles. A lumbar drain works in exactly the same way and is used particularly after spinal surgery. It diverts fluid away from the operation site, which allows the wound to heal without the risk of CSF leaking out.





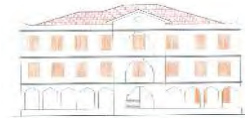
## PROCEDURE

1. Explain the patient why a drainage is needed and how can help to take care of it.
2. Put sterile gloves on to care surgical wound.
3. If active, connect drain to suction source. If passive, connect the drainage to ostomy bag or gauze dressing to collect the fluid.
4. Ensure the drain is secured and the system is intact to prevent dislodgement and infection or irritation of surrounding skin.
5. Accurately measure and record drainage output every nursing shift.
6. Monitor changes in character or volume of fluid and identify any complications resulting in leaking fluid.
7. Empty the bulb once a nursing shift and as required, but the bottle only when is full. After emptying, record the amount in nursing chart.
8. Remove drain as medical order. Generally, drains should be removed once the drainage has stopped or becomes less than about 25 ml/day.
  - Warn the patient that there may be some discomfort when the drain is pulled out.
  - Consider the need for pain relief prior to removal.
  - Place a dry dressing over the site where the drain was removed.



## NURSING CARES

1. Record the procedure in the patient's nursing chart. Note the following information:
  - Drain type, site and day of insertion.
  - Appearance, odour, colour, and amount of drain fluid.
2. Observe the proper working of drainage (not obstructed, is not kinked, right connections).
3. Assess hourly the amount, aspect, odour and colour of drain fluid for first three hours post-surgery, and then once a nursing shift.
4. Mark the level of the drainage (fluid level) on the white stripe with indelible pen (e.g. a permanent marker pen) on the side of the drainage bottle.
5. Check frequently vacuum status in case of active drains.
6. If you have more than one drain, remember to record the drainage from each drain separately.
7. Care surgical wound every 24 hours and as required.



Considerations:

- An empty drain does not mean everything is ok.
- Removal of a drain should be at a correct time.
- It is important to know how the drain works.
- Follow the recommendations of the surgeon.

## INDICATOR

## FURTHER READING

1. Cuidados al paciente crítico adulto. Jesús López Ortega, José Miguel Morales Asencio, Arturo Quesada Moya. Difusión Avances de Enfermería, 2007
2. Protocolos de enfermería 2003: Unidad de cuidados Intensivos. Consejo de enfermería de la Comunidad Valenciana (CECOVA).
3. Guía de intervención rápida de enfermería en cuidados intensivos. José Enrique Hernández Rodríguez, Maximino Díaz Hernández, Judit Sánchez García. Difusión Avances de Enfermería, 2007
4. Procedures and treatments: External ventricular drainage. Great Ormond Street Hospital for Children. NHS Foundation Trust.