

Sterilization methods practised in hospital

1. Fumigation

Vapour phase decontaminates the air / environment.

Mechanism - alkylates amino acids and sulfhydryl group of proteins and purine bases.

Used widely to sterilize huge areas like operation theatres **INSPIRE OF BEING HAZARDOUS** as it is cheap

Formaldehyde vapour - Produced on low temp heating.

Method

High Temp Steam Sterilization

Low Temp - Ethylene Oxide gas, Hydrogen peroxide gas plasma



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Liquid Immersion:

- 1) 22.4% Glutaraldehyde for 10hrs
- 2) 1.12% Glutaraldehyde and 1.93% phenol for 12 hrs
- 3) 7.35% hydrogen peroxide and 0.23% peracetic acid for 3hrs
- 4) 7.5% Hydrogen peroxide for 6hrs
- 5) 1.0% Hydrogen peroxide and 0.08% peracetic acid for 8hrs.
- 6) 20.2% peracetic acid for 50 min at 50-56 degree Celsius.



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Endoscopes : Cleaning and Disinfection

1. Clean: Mechanically clean internal and external surfaces, including brushing internal channels and flushing each internal channel with water and detergent/enzymatic cleaners.

Disinfect: Immerse endoscope in high-level disinfectant such as 2% glutaraldehyde and perused is infectant into all accessible channels, such as the suction/biopsy channel and air/water channel and expose for a timer recommended for specific products (20 minutes for 2% glutaraldehyde).

Rinse: Rinse the endoscope and all channels with sterile or filtered water followed by 70-90% ethyl or iso propyl alcohol to remove all traces of disinfectant.

Drying: After rinsing, purge the channels using forced air. Hang endoscopes in a vertical position to facilitate drying.

2) Steam Sterilization:

Use biological indicators, such as a commercial preparation of spores of *Geobacillus stearothermophilus*, at least weekly to monitor the effectiveness of steam sterilization



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3. Fogging

In patient care areas regular fogging is not recommended.
Necessary decision

is taken by incharge of concerned patient care area.

4) Environmental Surfaces

Clean housekeeping surfaces (e.g., floors, walls, table tops) on a regular basis,

when spills occur, and when these surfaces are visibly soiled.

Disinfect environmental surfaces (e.g., bedside tables, bed rails, and laboratory

Surfaces) on a regular basis and when surfaces are visibly soiled.

Clean walls, blinds, and window curtains in patient-care areas when these

Surfaces are visibly contaminated or soiled.



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Decontaminate mops heads and cleaning cloths regularly to prevent contamination (e.g., launder and dry at least daily).

Do not use high-level disinfectants or liquid chemical sterilants for disinfection of noncritical surfaces.

5. Bedding and Blanket

Clean and disinfect mattress impermeable covers. Launder pillow covers, washable pillows, and blankets between patients or when they become contaminated with body substances.



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6. Monitoring of biomedical waste management practices

A person or persons should be designated to be responsible for establishing monitoring, reviewing, and administering a plan for the collection, handling predisposal treatment, and terminal disposal of regulated medical wastes.



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CHEMOTHERAPY AND ANTIBIOTICS

Chemotherapy

Chemotherapy is the use of any drug to treat any disease, But to most people

the word chemotherapy means drugs used for Cancer treatment, It's often shortened to "chemo."

Surgery and radiation therapy remove, kill, or damage cancer cells in a certain area, but chemo can work throughout the whole body, This means chemo can kill cancer cells that have spread (metastasized) to parts of the body far away from the original (primary) tumor.



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Goals of Chemotherapy

There are three main goals for chemotherapy (chemo) in cancer treatment

1.Cure

2.Control

3.Palliation

1.Cure

It is not exactly cured but cancer can be described as treatment with Curative intent.

2.Control

If cure is not possible, the goal is to control the disease.

Chemo is used to shrink tumors and/or stop the cancer from growing and

spreading

This can help the person with cancer feel better and live longer.



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3.Palliation

Chemo can also be used to ease symptoms caused by the cancer. This is called palliative chemotherapy or palliation. When the cancer is at an advanced stage and has spread from where it started to other parts of the body.

Chemo may be used to help shrink a tumor that's causing pain or pressure.

4.Neoadjuvant therapy

Chemo may be used to shrink a tumor before surgery or radiation therapy.

Chemo used in this way is called neoadjuvant therapy.

5.Adjuvant therapy

It may be used after surgery or radiation therapy to help kill any remaining cancer cells. Chemo used in this way is called adjuvant therapy.



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Cycle :

Chemotherapy is commonly given at regular intervals called cycles.

A cycle may be a dose of one or more drugs followed by several days or weeks without treatment.

Each drug is given on a schedule that makes the most of its anticancer actions and minimizes side effects

This gives normal cells time to recover from drug side effects.

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Indications:

Chemotherapy drugs can:

1. Prevent cell division, as in the case of cytotoxic drugs
2. Target's the cancer cells food source, which consists of the enzymes and hormones they need to grow
3. Trigger the suicide of cancer cells, known medically as apoptosis
4. Stops the growth of new blood vessels that supply a tumor in order to starve it
5. Makes a tumor smaller before surgery or radiation therapy. This is called neo-adjuvant chemotherapy.
6. Destroys cancer cells that may remain after surgery or radiation therapy. This is called adjuvant chemotherapy.
7. Help radiation therapy and biological therapy work better.
8. Destroy cancer cells that have come back (recurrent cancer) or spread to other parts of your body (metastatic cancer).



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Route of Administration:

Depending on the type of cancer, the patient may take chemotherapy orally,in tablet form, intravenously, topical application etc.

Injection : The chemotherapy is given by a shot in a muscle in your arm,thigh, or hip or right under the skin in the fatty part of your arm.leg or belly.

Intraarterial (IA) : The chemotherapy goes directiy into the artery that is feeding the cancer

Intraperitoneal (IP) :The chemotherapy goes directiy into the peritoneal cavity (the area that contains organs such as your intestines, stomach,liver amd Ovaries).

Intravenous (IV): The chemotherapy goes directly into a vein.

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Topically: The chemotherapy comes in a cream that you rub onto your Swallow

Orally: The chemotherapy comes in pills, capsules, or liquids that you swallow.

Catheters:



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- 1) A catheter is a soft, thin tube.
- 2) One end of the catheter is placed in a large vein, Often in chest area.
- 3) The other end of the catheter stays outside your body.
- 4)They are placed until all the chemotherapy treatment are completed.

Ports:

- 1) A port is a small, round disc made of plastic or metal that is placed under the skin.
- 2) A catheter connects the port to a large vein, most often in the chest region.
- 3)A needle is inserted into give chemotherapy or draw blood. This needle can be left in place for chemotherapy treatments that are given for more than 1 day.
- 4)Watch for signs of infection around the port.

Pumps:

- 1.Pumps are often attached to catheters or ports.
- 2.They control amount and speed of chemotherapy that should enter into a catheter or port,
- 3.Pumps can be internal or external.
- 4.External pumps remain outside your body.
- 5.Internal pumps are placed under the skin during surgery



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Adverse Effects

Chemotherapy often involves severe adverse effects. The impact of treatment on a person's daily life will depend on the extent of the symptoms they exhibit. Here some of the adverse effects that may occur.

1. Nausea and vomiting:

- a) Nausea and vomiting affect over 70 percent of patients.
- b) Antiemetic drugs can be effective.
- c) Ginger or ginger supplements may help increase the effectiveness of anti-emetics.

2. Alopecia, or hair loss:

- * Chemotherapy alopecia, Chemotherapy can lead to hair loss.
- * Hair becomes thin or brittle.
- * Using a cold cap can keep the scalp cool while a dose is being administered, and this may prevent or reduce hair loss.
- * Patients who need the medication to reach their scalp, however, cannot use a cold cap.
- * The skin may become dry and sore and oversensitive to sunlight.
- * Patient should use sun blocks, and wear clothes that provide maximum protection.



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3. Fatigue

Fatigue is a common side effect.

Patients should get plenty of rest.

Avoid tasks that are overtiring.

Severe tiredness should be reported to the doctor, as a significant drop in

red blood cells could be leading to anemia.

4. Hearing impairment :

The toxic effects of chemotherapy can lead to temporary or permanent hearing

loss.

.5.Low white blood cell count

When receiving chemotherapy, the immune system will be weakened

because the white blood cell count will be decreased and this is known as neutropenia.



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White blood cells from part of our immune system and
they fight infection

*cases and their carers should be careful in the following
regular precaution



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