Aseptic Techniques

Techniques for Sterile Compounding

Pharmacy Technician Training Systems

Aseptic Techniques, Tech for Sterile Compounding

PassAssured's
Pharmacy Technician Training Program

Aseptic Technique
Techniques for Sterile Compounding

Click Here for Glossary Index!

Print Click Here to Print Topic Help File . .pdf
(Internet Access is Required for this Feature)

☞Prior to Compounding

Remove rings, watches, and bracelets (ideal for bacteria)

Wash hands and forearms to the elbows with appropriate germicidal agent. This must be done for 30 seconds.

☞Working in a Laminar Air Flow Hood

It is recommended by most policies and procedures that the laminar flow hood should be running for at least 30 minutes prior to use.

Disinfection

Disinfection should be done at least at the beginning and end of each shift, hourly during operation, and after spills or known contamination.

Use parallel sweeping motions from the back of the hood to the front, not circular motions

Placement of Items to Prepare

Avoid working over open containers or preparations to prevent contaminates falling into the preparation area.

Non-Essential Items

Do not introduce items that are not essential for the preparation process into the hood (i.e.,

paper, pencils, etc.).

Work Area Utilized

Work at least six inches within the hood for maximum benefit

Avoid working close to the outer edge of the hood as the product may be contaminated.

Waste Disposal

Hazardous waste buckets should be accessible.

Needles used in IV preparation should be disposed in a Sharps Container.

☞Prevent Shadowing

Make sure you block areas of preparation that must remain sterile from the air flow, so that there is no contamination.

One must be careful not to place hands, equipment, vials, etc., in front of critical areas of preparation products.

"Dead spaces" are created behind objects in the airflow:

Areas on products that must remain sterile should never be placed in dead spaces.

☞Location of Sterile Room

Sterile product preparation room should be free of dust, especially cardboard as a source of particles.

Should be kept away from common routes of personnel traffic.

☞Personnel Precautions

While laminar air flow hoods prevent airborne contamination, they do not guarantee a sterile product.

Use precautions to minimize contamination in the product preparation area.

Use strict aseptic technique to avoid introduction of contaminants into the hood.

☞Withdrawing Liquid from a Vial

Remove the cover of the vial and wipe rubber surface with an alcohol swab.

Withdraw the same volume of air into the syringe as the volume of drug intended to be withdrawn.

Uncap the needle, and insert it with the bevel side up at a 45 degree angle.

NOTE: Once the rubber surface has been penetrated, the syringe may then go into the rest of the vial straight on, prevent coring (cutting out part of the rubber stopper).

☞Inject the Sterile Air in the Syringe into the Vial

This creates pressure inside of the vial forcing the liquid out.

Keeping the needle in the vial, invert the vial and hold it with one hand to control the syringe.

Pull back the plunger of the syringe to withdraw the liquid.

Needle should penetrate the rubber closure, but not go much further into the vial so that all medication can be withdrawn.

Once the medication has been withdrawn, tap the syringe to make all of the bubbles go to the top of the syringe.

Pull down on the plunger to remove the bubbles and then push the plunger back up to the desired volume.

Remove the bubbles for accurate measurement.

Remove needle from vial and recap the syringe with a Luer-tip cap. (Check with your institution and JCAHO requirements for the handling and disposal of needles.)

☞Withdrawing Liquid from an Ampule

Ampules are containers made entirely of glass.

They are broken at the neck, which is usually pre-weakened.

Hold the ampule upright and tap the top to remove any liquid trapped in this area.

Wipe the neck of the ampule with an alcohol swab to reduce contamination.

Wrap the gauze pad around the neck when breaking it open to reduce the chance of cutting fingers and preventing glass fragments.

Grasp the ampule using the thumb and index fingers of both hands on each side of the ampule neck.

Snap the ampule quickly, breaking it away from yourself, and the filter to avoid glass fragments.

Tilt the ampule and insert the filter needle or filter straw attached to the syringe.

Avoid touching the neck of the ampule with the needle.

A filter needle or filter straw always must be used when withdrawing liquid from ampules to prevent glass particles from being introduced into the product, and thus, the patient.

To remove liquid, hold the ampule in one hand and the syringe in the other.

Push the plunger back with the thumb of the hand holding the syringe to the desired volume.

Before injecting contents of the syringe into a parenteral product, be sure to remove the filter straw or filter needle, and replace it with a regular needle.

Removal of filter needle before injection is necessary so that the filtrate will not be injected into the product.

Hold the syringe upright, tap out bubbles, and push the plunger up to the desired volume.

☞ Reconstituting a Sterile Powder in a Vial

For drugs in a vial in powder form, it is necessary to reconstitute with a suitable diluent, which will be specified in the vial or package insert.

Sterile Water

D5W

NS (normal saline 0.9% NaCl)

Follow the steps described previously for entering a vial.

Inject diluent and tilt or roll until the drug is dissolved. Do Not Shake.

☞ Introduce Liquid into a Plastic IV Bag

Remove plastic IV bag from the outer wrap and inspect for leaks, tears, or particulates.

Swab the rubber port of the bag with an alcohol swab, being careful not to block the airflow from the port.

Inside of the medication port is a diaphragm:

Needle must be at least ½" to penetrate the diaphragm so that liquid drug will reach IV solution

Insert the needle straight on to avoid puncturing sides of the plastic bag.

Inject contents of the syringe, and remove the needle from the port.

Mix the final product by inverting the bag and squeezing the port to be sure that all of he medication is diluted in the solution and has not been retained in the diaphragm.

☞ Introducing Liquid into a Glass Intravenous Bottle

Remove protective cover from the IV bottle and swab the rubber closure with an alcohol swab.

Inject the contents of the syringe into the rubber entry port, using the technique described previously.

Some glass IV bottles are created with a vacuum which "pulls" the medication from the syringe into the bottle.

After withdrawing the syringe, place a protective covering over the injection site to prevent contamination or tampering.

☞ Places to Avoid Touching or Blocking Air Flow During Preparation

Portions of equipment, containment, and devices which come into contact with the sterile product:

Needle shaft

Inside of needle hub

Syringe plunger

Tip of syringe barrel that attaches to needle hub

Surface of rubber entry on vial, bottle, or bag

☞ Visual and Quality Control Inspection of Parenteral Products

Check for particulate matter, crystals, and precipitation.

Isotonicity is important because the injectable solution needs to be isotonic with the blood.

Acid content or the pH of the solution is an important characteristic.

Color and clarity of an IV is an important characteristic.

Hold product in front of well illuminated light or dark background to detect particles

TPN's that contain lipid emulsion are not clear, therefore precipitation cannot be seen.

☞ Components of a Parenteral Product Label

Solution name, lot number, and volume (note this may be part of the manufacture's label)

Patient name, record number, and room number

Bottle/bag sequence number

Additive names, strengths, and quantities

Date of preparation and initials of preparer

Expiration and initials of preparer

Expiration time and date

Flow rate

Administration: time, date, and by whom

Appropriate auxiliary labels

Pass Assured, LLC, Pharmacy Technician Training Systems

-o-