Aseptic Technique: Admixing Medications & Solutions

TXCH Global HOPE



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Objectives

By the end of this presentation, the participant should be able to:

- Demonstrate proper use of ampoules, IV bags, and IV bottles
- Recall types of IV solutions
- Describe anatomy of an IV bag
- Explain procedure for final product inspection



Ampoule

- A small glass container enclosing sterile medication
- Colored strip and/or constriction around the neck of the ampoule indicates that the neck has been weakened to facilitate opening
- Never purchase hazardous drugs in ampoules, as this significantly increases the risk of hazardous drug exposure





Opening an ampoule

Examine for discoloration. particulate matter, and adequate expiration date



Hold ampoule upright and tap the top to remove solution from above the tapered neck



Swab neck of ampoule with sterile alcohol swab and allow to air dry



Position ampoule and hands so that any liquid or glass shards that become airborne will directed to the side of the hood



Grasp ampoule on each side of the neck with thumb and index finger



Wrap sterile alcohol swab around ampoule to minimize likelihood of injury when opening ampoule (Do not use gauze)

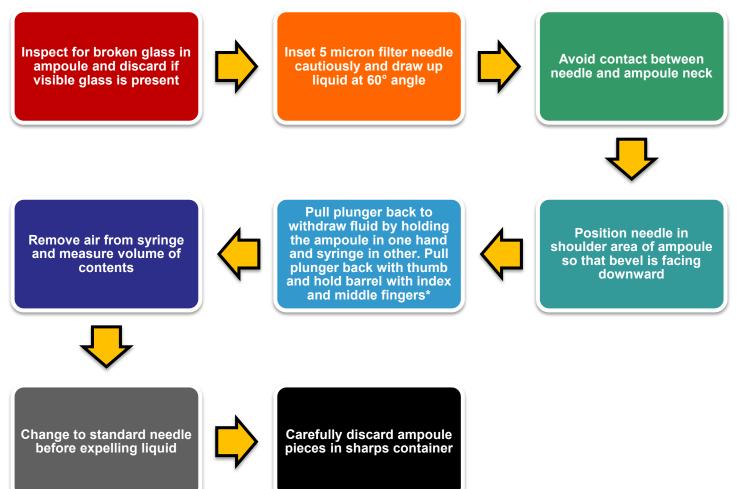


Quickly and firmly snap off neck of ampoule*



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Withdrawing Fluid from an Ampoule





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Intravenous (IV) Solution Bags

- Traditionally made of polyvinyl chloride (PVC), a plastic which can be made more flexible with the addition of phthalates
- Other plastics may be used in IV bags to avoid phthalate exposure
 - Ethylene vinyl acetate (EVA)
 - Polypropylene
 - Phthalate-free (non-DEHP) PVC
- Bag typically have two port: one for medication admixture and one for administration
 - Medication port contains:
 - Protective cover which is self-sealing if punctured by a 19-22 gauge needle
 - A polyvinyl diaphragm inside the port which must be punctured to enter the bag (not self-sealing)





Adding Medication to an Empty IV bag

Remove bag from outer wrapping & wipe down before placing in hood



Inspect bag for damage, particulate matter, and adequate expiration date



Choose syringe of suitable volume (80% rule) and needle with at least 18 gauge and 12.7 mm length



Withdraw medication into syringe



Inject medication completely, then withdraw needle from port



Fully extend medication port and insert needle in a straight direction into medication port through polyvinyl diaphragm



Swab medication port with sterile alcohol swab, using a new swab and allow to air dry



Direct the medication port toward the HEPA filter



Mix medication and solution by holding bag by the two ends and performing a double inversion



Cover medication port with a tamper-evident seal



IV bottles

- IV bottles containing solutions are packed under a vacuum and sealed by a stopper-type closure held in place by an aluminum band
 - Some closures have an air tube and consist of 2 round perforations (for medication addition) and a triangular site of less thickness
 - Some closures do not have an air tube and are made of solid rubber with a thin circular center (site of medication addition)
- Some bottles are "empty evaluated containers" designed for medication delivery
 - Contain a residual amount of fluid from sterilization process





Use of Transfer needles



- Transfer needles may be be used to transfer the contents of one vial (with medication) to a bottle (with IV solution)
- Vacuum pressure of the accepting IV bottle allows for transfer of the drug from the vial to the IV bottle
- To transfer, insert one needle into the vial, removing the cover from the other end, then insert the other needle into IV solution bottle
- It is NOT RECOMMENDED to conduct this procedure with hazardous drugs

Adding Medication to an IV Bottle

Check bottle for cracks, particulate matter, discoloration, and adequate expiration date



Remove metal cap by lifting and pulling it out, downward and away to break ring



Lift off ring and exposed metal disc*



Swab exposed surface of stopper or latex disc with sterile alcohol and allow to air dry



Insert needle (gauge ≤ 18) through medication site and inject medication into IV solution



Remove residual sterile water prior to transferring any medications into the bottle



Remove vacuum in bottle by inserting needle and syringe unit with no plunger



Measure correct amount of medication to be added with a syringe



Remove needle/syringe



After all medication is added, place a tamper evident seal on the stopper



Perform a double inversion to gently mix contents



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Final Product Inspection

- Most final preparations should undergo a "double inversion" to ensure adequate mixing (without frothing or shaking the product)
- All final products should be inspected against a light and dark background to check for particulate matter, discoloration, or precipitation
- Bags should be gently squeezed to check for leaks



What's next?

- Watch videos
- Complete practice questions
- Review answer file



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