

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





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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

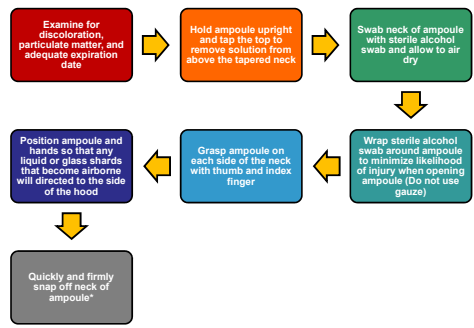




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Opening an ampoule



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    graph TD
      A[Examine for discoloration, particulate matter, and adequate expiration date] --> B[Hold ampoule upright and tap the top to remove solution from above the tapered neck]
      B --> C[Swab neck of ampoule with sterile alcohol swab and allow to air dry]
      C --> D[Wrap sterile alcohol swab around ampoule to minimize likelihood of injury when opening ampoule (Do not use gauze)]
      D --> E[Grasp ampoule on each side of the neck with thumb and index finger]
      E --> F[Position ampoule and hands so that any liquid or glass shards that become airborne will be directed to the side of the hood]
      F --> G[Quickly and firmly snap off neck of ampoule*]
  
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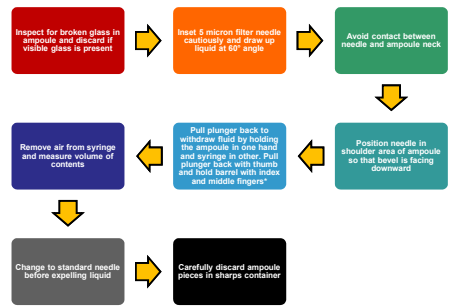
*If neck does not snap easily rotate the ampoule to find a weaker point



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Withdrawing Fluid from an Ampoule



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    graph TD
      A[Inspect for broken glass in ampoule and discard if visible glass is present] --> B[Heat 5 micron filter needle cautiously and draw up liquid at 60° angle]
      B --> C[Avoid contact between needle and ampoule neck]
      C --> D[Position needle in shoulder area of ampoule so that level is facing downward]
      D --> E[Pull plunger back to withdraw fluid by holding the ampoule in one hand and syringe in other. Pull plunger back with thumb and hold barrel with index and middle fingers*]
      E --> F[Remove air from syringe and measure volume of contents]
      F --> G[Change to standard needle before expelling liquid]
      G --> H[Carefully discard ampoule pieces in sharps container]
  
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* For large ampoules and syringes place ampoule upright on the hood counter top and operate syringe with both hands





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Intravenous (IV) Solution Bags

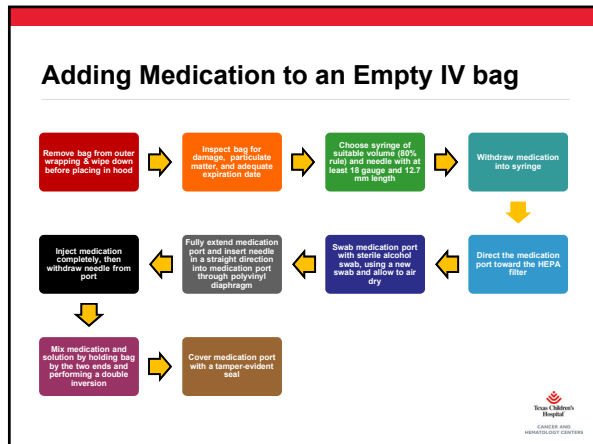
- Traditionally made of polyvinyl chloride (PVC), a plastic which can be made more flexible with the addition of phthalates
- Other plastics may be used in IV bags to avoid phthalate exposure
 - Ethylene vinyl acetate (EVA)
 - Polypropylene
 - Phthalate-free (non-DEHP) PVC
- Bag typically have two port: 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)





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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

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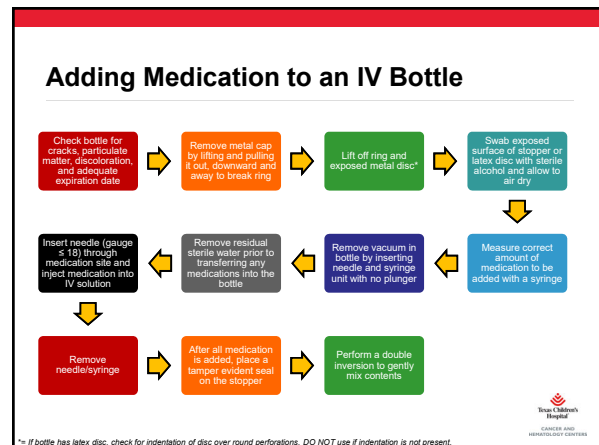
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Use of Transfer needles

- Transfer needles may 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

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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

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What's next?

- Watch videos
- Complete practice questions
- Review answer file

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