

HOW TO PREPARE A SOLUTION

Solutions are one of the oldest dosage forms used in the treatment of patients and afford rapid and high absorption of soluble medicinal products. Therefore, the compounding of solutions retains an important place in therapeutics today. Owing to the simplicity and hence the speed of preparation of an ad hoc formulation, they are of particular use for individuals who have difficulty in swallowing solid dosage forms (for example pediatric, geriatric, intensive care and psychiatric patients), where compliance needs to be checked on administration (for example in prisons or psychiatric pharmacy) and in cases where precise, individualized dosages are required.

Essentially a solution is a homogeneous liquid preparation that contains one or more dissolved medicaments. Since, by definition, active ingredients are dissolved within the vehicle, uniform doses by volume may be obtained without any need to shake the formulation. This is an advantage over some other formulation types (e.g. suspensions).

In general, water is chosen as the vehicle in which medicaments are dissolved, as it is non-toxic, nonirritant, tasteless, relatively cheap, and many drugs are water soluble. Problems may be encountered where active drugs are not particularly water soluble or suffer from hydrolysis in aqueous solution. In these cases it is often possible to formulate a vehicle containing water mixed with a variety of other solvents.

PROCEDURE:

- Remove the metal protective caps of the stoppered vial containing the powdered medication and the vial containing the sterile diluent used to put the powdered medication into a solution.
- Cleanse the stoppers of both vials. Blot the top of the stopper with alcohol sponge rather than move it around in a circular motion. You can rub off fibers of the sponge onto the top of the stopper.
- Withdraw the required diluent (solution) using the procedure for the stoppered vial.
- Holding the vial with the powdered medication horizontally, insert the needle through the stopper and inject solution. Withdraw the needle. Hold the needle/syringe in non-dominant hand, being careful not to contaminate the needle.
- Gently shake the vial until all of the powder is dissolved. Visually inspect the solution to ensure that the solution is well mixed. All powder should be thoroughly dissolved for maximum safety and effectiveness and to ensure that the required medication is delivered.
- Change the needle. Select a needle according to the type of injection.

THINGS TO REMEMBER AFTER PREPARING THE SOLUTION

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- Medications and solutions both on and off the sterile field are labeled even if there is only one medication being used.
- Labeling occurs when any medication or solution is transferred from the original packaging to another container.
- Medication or solution labels include the medication name, strength, amount (if not apparent from the container), expiration date when not used within 24hours, and expiration time when expiration occurs in less than 24 hours.
- All medication or solution labels are verified both verbally and visually by two qualified individuals whenever the person preparing the medication or solution is not the person who will be administering it.
- Any medications or solutions found unlabeled are immediately discarded.