

Practical Tips for Medication Administration to Infants and Children

Preparation of daily medications:

Reviewing medication preparation with the child's caretaker is an essential part of pediatric care. Establish which adult will prepare and supervise the medicines, and ask if other members of the family will also be involved. If so, they should also receive the appropriate skills training. Each time a dose is adjusted or medication is changed, these instructions should be repeated.

1. Display pills or liquids by preparing doses for patient and caretaker.
 - For pills, fill a pill box with one week's worth of daily doses.
 - For liquids, draw up one day's worth of doses in syringes.
2. Have the caretaker repeat the exercise by filling the pill box with one week's worth of medication and/or drawing up one day's worth of doses in syringes.
3. Many liquid preparations and medication bottles look alike. Consider labeling each with a piece of colorful tape. For liquid medicines, use the same color tape on the bottles and syringes.
4. Stress the importance of allotting adequate time and providing a quiet environment when preparing daily meds, especially during the first few weeks of treatment.
5. Explain the advantages of a medication routine; taking the medicines at the same time each day is easier when a pattern is established.

Measurement of daily doses:

Pediatric dosing must be precise to insure adequate therapeutic levels. When possible, caregivers should use syringes to measure and administer liquid medications. Caretakers should be discouraged from using household spoons as they may vary in size which can lead to inaccurate dosing.

1. Use brightly colored tape to mark the correct volume of syringes.
2. Use a different syringe for each medication. Consider labeling each type of syringe and its appropriate bottle with the same color tape.
3. Syringes can be reused until the markings or tape begins to wear off or the plunger becomes difficult to manipulate. Syringes should be gently washed with warm soapy water, rinsed well, and allowed to air dry.
4. As above, have the caretaker practice drawing up medications while at the clinic. Discuss common problems and solutions with measuring liquids – what if the medicine is too sticky? What if it spills?

Medication storage:

It is best to avoid high temperatures for all medications. Medications should not be stored in direct sunlight or in other spots likely to become very hot. Most drugs should be kept in a cool place. In particular, lopinavir/ritonavir (Kaletra™) needs to be stored in a cool place. If refrigeration is available, caregivers should be informed to keep this medication in the refrigerator. If not, ask where in the home cool items are stored – is there a cool pot, extra water jug, or cooler? If not, it may be prudent for the program to obtain a cooler or cool box for the family, particularly if ice is easily obtained.

Lopinavir/ritonavir (Kaletra™) liquid must be stored in a glass container, as the liquid may corrode plastic. The pharmacist will dispense this medication in a glass container,

and patients should be advised to draw medications into the syringes only at the time of administration. A filled syringe should not be used to store or transport doses.

It is important to counsel caregivers about safe storage of meds – away from children who are always curious about something new. Medication should never be referred to as candy!

Masking the taste of medications:

Not all medications are unpalatable, but when they do taste bad, it can be extremely difficult to convince children to take them. It is prudent to conduct a “taste test” in clinic with each child to see if any of the medications you have prescribed will be problematic in this regard. If the child finds any of the tastes offensive, assure both child and caretaker that the taste can be partly or wholly masked, and work with them to find the most successful approach.

1. For liquid medications, first draw up the medicine in a syringe to measure the proper volume. Combine with 5-10 cc of tasty liquid such as juice, milk, or local pediatric beverage. (Do not combine with large volumes). Mix vigorously. Be sure that the caregiver is aware the child must drink the full amount.
2. Alternatively, dip the syringe tip into something sweet to mask the initial taste or give small amounts of beverage pre- and post- medication administration.
3. For pills, crush with a mortar and pestle until fine. For capsules, open the capsule into a small bowl. Add 1-2 teaspoons of food (jelly, jam, crushed banana, cereal) and combine vigorously. Feed child *all* of the food to insure that all medication is consumed.
4. Review which medications in tablet form can be broken in half and swallowed for older children. Hard tablets may be dipped and coated with sauce or any other viscous food product to help the older children swallow pills.
5. Immediately after administering medications, offer child a sweet-tasting food to mask the taste of the medication. Administration of sweet or tangy substance prior to giving medication may also be helpful.
6. Remember to give lots of praise after each dose!

Avoiding or Minimizing Nausea

It is important to ask if medications cause nausea, since this will be a powerful barrier to adherence. If the medications do make children nauseated, the following interventions may be helpful.

1. Offer the child a small meal of bland food (cereal, crackers, bread). Shortly thereafter, administer medication.
2. Administer tablets and capsules with only enough water or beverage needed to swallow. Children have a tendency to drink much more water than necessary which often leads to vomiting due to the large volume of liquid.
3. Reassure the caregiver that the nausea is usually temporary until the child’s body gets “used to” the medicine. Stress importance of giving meds in a calm, unhurried manner, especially during the first few weeks.

Special Circumstances

The resistant child: In cases where children are reluctant to take medications or are refusing some doses, a reward system can be helpful. It may be useful, particularly for

school age children, to make a visible calendar. Each time the child takes their medication successfully, the caregiver can make a mark on the calendar (a “happy” face). When the child accumulates a particular number of successful days he/she is rewarded with a small token. The program may want to purchase small toys or gifts to use as rewards for successful adherence. Based on the age and the developmental stage of the child, he/she can be asked to participate in the preparation / administration of the medication to promote child’s participation as well as sense of accomplishment.

Preparation of stavudine: The liquid formulation of stavudine requires refrigeration, which may not be an option for some program and/or families. Since the lowest-dose stavudine capsule has 15mg, it may be necessary to open the capsule and measure the powder for children who need lower doses.

1. Open a 15-mg capsule and add the powder to 15cc of liquid, preferably water.
2. The solution will now contain 1mg of stavudine in every 1 cc of liquid.
3. Using a pre-marked syringe, the caregiver should now draw up the correct dose and give it to the child.
4. The remainder of the liquid should be discarded.

Stavudine capsules may also be opened if mixing the powder with food or drinks assists the child to take the medication.