

Pre and Post Transplant Medication Guidelines

Now that your child has been listed for, or received a transplant, you must understand some very important things before going home from the hospital.

What should we know about new medicines after transplant?

- Your child will take medicines to prevent transplant rejection for the rest of their life.
- Your child will take some medicines to protect them from infections for at least the next 3 to 12 months. Some of these medicines may be life-long.
- Medicine doses may change often in the next several months. It is very important to take the dose as instructed by your team. The doses on the medicine bottles may not be correct or updated.
- Do not start any new medicines without talking to your transplant team first. This includes any prescribed medicines, over-the-counter (OTC), dietary supplements, or herbal products.
- Remember to always keep a current list of your child's medicines with you or in a place that can be easily accessed.

What should we do on clinic days?

- Your child should take their medicines at the usual time the night before clinic. Take note of the time that the medicines were given as the team will ask during your clinic visit.
- Remember to bring your child's medicines with you to clinic.
- **Do not give your child their immunosuppressant medicines(s) until after your child has their blood drawn in clinic.**
- Your child may take all other medications as usual on clinic days.

Tips for staying on schedule

- Medicines after transplant are important because they help to keep your child and their new transplant healthy.
- Using tools and reminders will help you, and your child, remember to take their medicine on time.
- Your transplant team may recommend tools such as pillboxes, written calendars or calendars on your phone, checklists, apps on your phone, and cellphone or smartwatch alarms.
- It is important to remember to take your medicine the same time every day and exactly as prescribed by your transplant team. This will keep the right amount of medicine in the body at all times. This means that medicines prescribed as twice daily should be taken every 12 hours and medicines prescribed as once daily should be taken every 24 hours.

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- Your child should not miss any doses or take any doses late. This is important even on the weekends, school breaks, and during holidays.
- In general, you should not give medicine more than an hour early or an hour late.
- Do not double the next dose to make up for the missed dose. This may lead to levels in the body getting too high which can cause side effects.

What should we do if a dose is accidentally missed or is late?

- The table below will help you to know if you should give a missed dose of medicine late or wait until the next time it is due.
- You should contact your transplant team if you are having a hard time keeping to your child's medicine schedule or if you are unsure if you should give a dose

Medicine Dosing Schedule	Time late	Action
Once a day (daily)	0-12 hours late	Take dose
	More than 12 hours late	Skip dose
Every 12 hours (twice a day)	0-6 hours late	Take dose
	More than 6 hours late	Skip dose
Every 8 hours (three times a day)	0-4 hours late	Take dose
	More than 4 hours late	Skip dose

What if our child is sick and unable to take medicine?

- Sickness such as vomiting and diarrhea can affect the levels of your child's anti-rejection medicine.
- Always contact your transplant team if your child has vomiting or diarrhea lasting longer than 24 hours.
- If your child vomits within 15-20 minutes of taking a dose, your child should retake the dose.
- If your child vomits more than 15-20 minutes after a dose, do **not** give a repeat dose, just restart the usual schedule with the next dose that is due.

Drug and Food Interactions

- It is very important to **always** ask your transplant team before starting or stopping any new medicines (prescription, Over-the-Counter, prescription or herbal supplements).
- When possible, you should use one pharmacy so that your pharmacist can check for drug interactions.
- Your child should not take NSAIDs (Ibuprofen, Advil, Motrin, Aleve, Naproxen) or decongestants (Sudafed, Pseudoephedrine, Phenylephrine) after transplant because of increased risk of side effects.

- Your child should not take any multi-symptom combination cold/cough/flu symptom medicines (Tylenol Cold and Flu). Multi-symptom medicines may have additional ingredients which may harm your child.
- Certain antibiotics or antifungal medications may interfere with your child's immunosuppression medicines. Some examples of these medicines include:
 - Fluconazole
 - Voriconazole
 - Posaconazole
 - Itraconazole
 - Ketoconazole
 - Clarithromycin
 - Erythromycin
- Herbal products and dietary supplements may be harmful to transplant patients and may interact with anti-rejection medicines. They are generally not recommended after transplant because they are not monitored by the Food and Drug Administration (FDA). This means that you cannot be sure what is in the bottle and they may increase the risk for side effects, rejection, and infection.
 - Some examples include St. John's Wort, milk thistle, echinacea, melatonin, and immune boosting supplements such as elderberry.
- Although approved in some states, medical marijuana should be avoided following transplant. Medical marijuana may interact with anti-rejection medicines and increase the risk for side effects, rejection and infection.
- Your child should avoid eating or drinking grapefruit or pomegranate because these can affect drug levels of your child's anti-rejection medicines.
- Food can affect the way that your child's stomach absorbs medicine, so it is important to try to give medicines the same way each day. This can be with or without food. It is important to be consistent.

Are any Over-the-Counter (OTC) medicines safe after transplant?

- Yes, some over-the-counter or OTC medicines are safe and effective after transplant. Many OTC medicines have side effects that can harm an organ transplant, cause high blood pressure, and harm the kidneys.
- In general, the FDA does not recommend routine use of OTC cough and cold medicines for children less than 2 years old. You should not give these medications to your child unless your doctor tells you it is safe to do so.
- After speaking to your transplant team, make sure to follow the instructions on the label carefully. Check that you are giving the correct dose for your child's age and weight.
- **Call the transplant team:**
 - **If you have any questions**
 - **If your child has any new symptoms or symptoms that won't go away**
 - **Before your child starts any new medicines.**

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The medicines listed below are generally safe for transplant patients. Every child is different and some may have side effects.

Problem	Generic Medication	Brand Medication
Abdominal bloating or gas	Simethicone	Mylicon, Mylanta gas, Gas-X
Allergies or Colds (sneezing, runny nose) Avoid products that end in “D” such as Claritin-D because they contain Sudafed which can increase blood pressure.	Diphenhydramine Loratadine Fexofenadine Cetirizine	Benadryl Chlortrimeton Claritin Allegra Zyrtec
Constipation	Polyethylene glycol 3350 Docusate Senna/sennosides Psyllium Bisacodyl	Glycolax/Miralax Colace Senokot Metamucil Dulcolax
Congestion	Vicks Baby Rub Guaifenesin Diphenhydramine	Eucalyptus/lavender/aloe Robutussin Benadryl
Cough	Guaifenesin (thins mucus) Dextromethorphan (stops cough)	Delsym Robitussin DM
Diarrhea Call the transplant team if your child has diarrhea for more than 24 hours.	Loperamide	Immodium AD Keep your child hydrated by having them drink lots of fluids.
Fever, Headaches, Pain Call the transplant team for fever of 101.5°F or higher or two fevers of 101°F or higher. Do not give Tylenol for temperature below 101.5 °F unless instructed to do so. You could hide a true fever.	Acetaminophen	Tylenol Check the labels of all OTC and prescription medicines your child is taking to make sure that they do not also contain acetaminophen (Tylenol).

Problem	Generic Medication	Brand Medication
Nausea	Calcium carbonate	TUMS Other antacids
Motion sickness	Meclizine	Dramamine
Sore Throat	Phenol spray Menthol or Benzocaine cough drops	Chloraseptic NICE, Vicks, Halls Lozenges

Can my child receive vaccines after transplant?

- Due to anti-rejection medicines after transplant, your child may not respond as well to some vaccines.
- Your transplant team will make every attempt to make sure that your child receives all vaccines that are age appropriate prior to transplant to make sure the vaccines have the best chance to be effective.
- **Always contact the transplant team before your child receives any vaccines after transplant as they may have already received all the doses needed.**
- Anti-rejection medicines after transplant may also make it possible for live vaccines to cause illness (including MMR or measles mumps and rubella, varicella, or chicken pox, and Flumist). It is generally recommended to avoid all live vaccines after transplant, though **some** organ programs may allow your child to receive live vaccines. You should **always** talk with your transplant team before your child receives any live vaccines.
- Your child should remain up-to-date with all other, non-live yearly vaccines and boosters.
- Family members and close contacts should keep their vaccines up-to-date. Family members **may** receive live vaccines and we would recommend that they do, especially young siblings!

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Medicine Side Effects:

All medicines have possible side effects, but here are some of the more common or serious ones that you should know about.

Contact the transplant team if you notice any side effects.

	Medication Name	Possible side effects (common side effects in bold)
Anti-Rejection or Immunosuppressants (Duration: Likely Lifelong)	Tacrolimus Also known as Tac or Prograf	headache, hand tremors , trouble sleeping, hair thinning, high blood pressure, kidney injury, high blood sugar, low magnesium, high or low potassium
	Mycophenolate mofetil Also known as MMF or Cellcept	upset stomach, diarrhea , vomiting, low blood cell counts
	Prednisone or Prednisolone	upset stomach, mood changes, trouble sleeping, pimples, increased appetite, weight gain , fluid retention, puffy face, high blood pressure, high blood sugar, decreased growth, weak bones
	All anti-rejection medications can increase the risk of infection & some cancers	
Anti-Infection (Duration: 3 to 12 months)	Sulfamethoxazole-trimethoprim (Bactrim/ Septra/ Cotrimoxazole)	upset stomach, rash , high potassium, low blood counts
	Nystatin	upset stomach, vomiting
	Valganciclovir (Valcyte) or Acyclovir (Zovirax)	upset stomach , low blood counts, kidney injury