

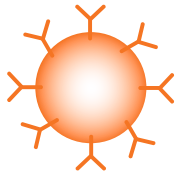
Vaccinations in Children with Nephrotic Syndrome

ALWAYS TALK TO YOUR (YOUR CHILD'S) NEPHROLOGY HEALTHCARE TEAM BEFORE GETTING ANY VACCINES

VACCINATION = VACCINE = IMMUNIZATION

What are vaccines and how do they work?

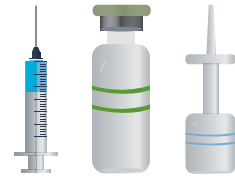
Many diseases are caused by tiny invaders, called **viruses** and **bacteria**



Vaccinations help the body protect itself against certain viruses and bacteria



A very small amount of a killed or weakened virus or bacteria is given by needle, by mouth, or by nose



After the vaccine, the body then learns to defend itself against this type of virus or bacteria, so that if it ever encounters it again, it knows how to protect the body properly to prevent disease.

Vaccines prevent you (your child) from contracting a contagious illness that could potentially make you (them) very sick.



DID YOU KNOW?

Vaccinations DO NOT cause nephrotic syndrome, but, in rare cases, may trigger relapses
Vaccines may provide added protection to reduce the risk of subsequent infection-triggered relapses, thus improving overall control of nephrotic syndrome

Medication	Vaccines to take	Vaccines to avoid
Steroids - high daily dose (60 mg/m ²)	Influenza (flu) - non-live , COVID-19 - non-live [#] Discuss with your care team for high dose; preferred at low dose	All Intranasal influenza
Steroids - low dose, alternate day (less than 2 mg/kg/day, or less than 20 mg/day or 40 mg every other day if weight is greater than 10 kg)	All	None
Cyclophosphamide (± steroids) (within 3 months of the end of cyclophosphamide treatment)	None. Exceptions apply**	All
Tacrolimus and/or MMF/Myfortic (± steroids)	Inactive vaccines* Influenza (flu) - non-live, COVID-19 - non-live [#]	Live virus vaccines†
Rituximab ± other medications (5-6 months since last dose of rituximab)	None. Exceptions apply**	All

***Inactive vaccines:** diphtheria, acellular pertussis, tetanus, inactivated polio, haemophilus influenza type B, meningococcal, pneumococcal, Hepatitis A, Hepatitis B, human papillomavirus

†**Live virus vaccines:** MMR, varicella, intranasal influenza, some travel vaccines, COVID-19 Vaccines(Oxford Astrazeneca, Johnson and Johnson)

[#]**Non-live COVID-19 vaccines:** Pfizer-BioNTech and Moderna

****Inactive vaccines, flu, COVID-19:** suggest to avoid vaccination as effectiveness of vaccines may be attenuated while within 3-6 months of treatment with Ritux/cyclophosphamide – however, vaccination can be given in specific cases after consideration of risk vs benefit from vaccination. Discuss with your care team.

When appropriate, vaccines should ideally be given before starting these medications.

For more information:

Call the Nephrology Clinic at 416-813-7333



Vaccinations: Additional Resources

National Health Service: *Nephrotic syndrome in children - Vaccinations*

<https://www.nhs.uk/conditions/nephrotic-syndrome/>

Royal Children's Hospital Melbourne: *Vaccinations and nephrotic syndrome*

https://www.rch.org.au/uploadedFiles/Main/Content/clinical-guide/130561%20SCOTT%20Nephrotic%20Syndrome%20booklet%20A5_LR.pdf

NephCure Kidney International: *Should my child receive vaccinations?*

<https://nephcure.org/livingwithkidneydisease/raising-a-child-with-nephrotic-syndrome/>

American Society of Nephrology: *Vaccines and Disease Relapses in Children with Nephrotic Syndrome*

<https://cjasn.asnjournals.org/content/16/6/937>

Clinical Kidney Journal: *Idiopathic nephrotic syndrome relapse following COVID-19 vaccination: a series of 25 cases*

<https://academic.oup.com/ckj/article/15/8/1574/6581609>

Nature Scientific Report: *Influenza virus vaccination in pediatric nephrotic syndrome significantly reduces rate of relapse and influenza virus infection as assessed in a nationwide survey*

<https://www.nature.com/articles/s41598-021-02644-x>