# OPTIMIZING VARICELLA IMMUNIZATION IN CHILDREN AND YOUTH WITH SOLID ORGAN TRANSPLANTS TO PREVENT DISEASE AND IMPROVE LONG-TERM HEALTH

**Background** Children with a solid organ transplant are at risk of getting varicella (chickenpox) in the community. Vaccination rates in British Columbia are not high enough to prevent community outbreaks. As a result, there is a fair chance that transplanted children will eventually be exposed to varicella in the community.

Children with a transplant can have a more severe illness with varicella, in addition to the typical rash. Serious complications of varicella infection include bacterial infections of the skin lesions, lung involvement (pneumonitis), brain involvement (encephalitis) and clotting problems.

When a transplanted child who is <u>not immune</u> *is exposed to* varicella in the community, they should be treated with an intravenous antibody treatment called VZIG (varicella-zoster immune globulin) to prevent infection. If they *start to develop a varicella rash* (chicken pox), they should be hospitalized and treated with an intravenous anti-viral medication (acyclovir) to reduce the risk of serious complications, even if they have already had VZIG treatment.

Children with a transplant who <u>are immune</u> (have antibodies) to varicella don't need treatment with VZIG if they get exposed in the community. They are also unlikely to develop the chickenpox rash or need anti-viral treatment in hospital. If a rash does develop in transplanted children who have antibodies, it is usually mild with much less risk for serious complications.

## Is varicella vaccine after transplant safe?

Yes – if you/your child meets specific criteria, which your transplant team will discuss with you. The International Pediatric Transplant Association has recently recommended that varicella (chickenpox) vaccine can be safely given to most children who have had a solid organ transplant. Children who have just had treatment for rejection or are getting higher doses of anti-rejection medications should wait until the treatment is back to lower levels. Your transplant specialist will review your risk with you before you are offered the vaccine.

<u>No</u> cases of acute rejection have been reported following vaccination. The vaccine is much safer than getting the varicella (chickenpox) infection. The risk for serious complications related to the vaccine is very low, especially when compared to the risk from community varicella infection.

## Can you get chickenpox (varicella) from getting vaccinated?

Overall, 5-10% of solid organ recipients who receive the varicella vaccine are expected to have a limited chickenpox-type rash. If this happens, it is usually a much milder form of the rash than from varicella infection because the vaccine contains a weakened form of the virus. An antiviral treatment is available, although most children have recovered without treatment. This compares with around 5% of otherwise healthy children who report a rash within three weeks of vaccination. Your transplant team will tell you if you need anti-viral treatment to stop the rash from spreading to other parts of your body.

## Why was varicella vaccine after transplant not recommended before, and now it is OK?

The varicella (chickenpox) vaccine is a 'live, attenuated' vaccine – this means that it contains a weakened form of the chickenpox virus. There is a small possibility that it can cause disease in children who have a compromised immune system. As with all live vaccines, it has therefore not been given to children with a weakened immune system. This was done as a precaution because there wasn't enough information to know that it was safe. Over time, more research has been done – enough so that we now know it is safe.

Many children with transplants have now been vaccinated with the varicella vaccine. Complications from the vaccine have been rare. Unlike with other live vaccines, there is also a very effective treatment in the extremely rare case that the vaccine causes a more serious infection.

We know that there are a small number of children with a transplant who may still be at higher risk. For example, children who have just had treatment for rejection may be at a higher risk. In these cases, it is better to wait until the risk is lower before getting the varicella vaccine. Your transplant doctor will discuss with you if you should wait, or if it is safe to get the vaccine.

### How do I know if I need a vaccine?

Your transplant team will first check if you/your child already has immunity (antibodies) against the chickenpox virus. This is done with a blood test, which can be collected at the same time as your other blood tests. If you are immune, then a vaccine is not needed. If there is no immunity, then a vaccine may be needed. More information about dosing is below.

Even if you/your child has had a varicella vaccine before, the immunity may not last in children with a transplant. We will check every year to see if there are still antibodies. If not, you/your child will be offered the vaccine again.

### Is there any special testing needed to confirm the safety of receiving a varicella vaccine?

We will do some immune system tests to make sure that it is safe to give the vaccine. These are blood tests which can be collected at the same time as your regular blood tests. Your transplant doctor will review the results of those tests with you/your child before you make a decision on the varicella vaccine.

### How many doses of the vaccine do I need?

If you/your child has never received the vaccine before, you will get two doses of the vaccine. The second dose is given one to two months after the first dose.

If you/your child has had a varicella vaccine before but you no longer have antibodies, you will get one dose of vaccine first. Then we will test to see if you have antibodies. You might need a second vaccine dose if you don't have antibodies after the first dose.

### Is there any extra testing that I will need after the vaccine?

We will check if you have developed immunity after the varicella vaccine. That is done with a blood test to look for varicella antibodies. This test can be done at the same time as your regular blood tests.

If you have had the varicella vaccine before, you will get one dose and then we will check to see if you need a second one. If you have never been vaccinated before, we will give you both doses of the vaccine first and then check for antibodies one month after the second dose.

### How well does the vaccine work? And will I need another dose again in the future?

Between 60% and 100% of children who have had a solid organ transplant develop immunity after the vaccination. In comparison, 95% of children who are not immune compromised develop immunity after vaccination. We will check to see if you/your child still has immunity once a year. If you continue to have immunity (antibodies) to varicella, you don't need another vaccine. If at some point in the future you no longer have antibodies against varicella (meaning you no longer have immunity), we will offer you another vaccination to boost your immunity.

*Additional general FAQs about the varicella vaccine available here: [https://www.healthlinkbc.ca/healthlinkbc-files/chickenpox-vaccine](https://www.healthlinkbc.ca/healthlinkbc-files/chickenpox-vaccine)*